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Schema activation and working memory: the effect of different prereading activities on pre-intermediate and advanced Brazilian EFL students' reading comprehension

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Certificamos que esta é a **versão original e final** do trabalho de conclusão que foi julgado adequado para obtenção do título de mestre em inglês.

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To my family, specially to my beloved son Yuri.

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RESUMO

Este estudo teve como objetivo investigar os efeitos de duas atividades de pré-leitura, a Redefinição Contextual (RC) e uma versão modificada do Organizador Gráfico (OG), na compreensão leitora de estudantes de nível pré-intermediário e avançado de inglês como língua estrangeira e investigar se há uma correlação entre sua capacidade de memória de trabalho (MT), medida pelo *Reading Span Test* (RST) e os resultados obtidos em cada uma das condições das atividades de pré-leitura. Um grupo de trinta adolescentes e adultos de um curso particular de inglês no sul do Brasil participou deste estudo. Os instrumentos utilizados foram um teste de proficiência em leitura; três textos para o grupo pré-intermediário (PI) e três para o grupo avançado (AVA); um conjunto de dez palavras desconhecidas para cada texto, um conjunto de dez frases contendo as palavras e um conjunto de dez verbetes de dicionário relacionadas às palavras para RC; diagramas que refletem o padrão organizacional dos textos contendo suas ideias principais para a OG; orações para o RST; um livreto para os participantes fazerem o RST; uma folha para a tarefa de recordação livre por escrito; seis questões de compreensão para cada texto; quatro questionários retrospectivos a serem respondidos após a realização do RST e após cada uma das condições de atividades de pré-leitura e um questionário de perfil. A coleta de dados ocorreu em dois encontros. No primeiro encontro, os estudantes responderam ao questionário de perfil, fizeram o teste de proficiência em leitura e tiveram sua capacidade de memória de trabalho medida pelo RST. No segundo encontro, cada grupo leu três textos em três condições diferentes: tratamento com RC, tratamento com OG e controle. Foram utilizadas duas medidas de compreensão: recordação livre por escrito (RLE) e questões de compreensão (QC). A análise quantitativa dos dados revelou que o RC teve um efeito negativo na compreensão leitora dos alunos do grupo PI, medida por RLE e QC, enquanto que teve um efeito positivo na compreensão de leitura dos alunos do grupo AVA, medida pelas QC. Quando medida pela RLE, a RC teve um efeito negativo na compreensão leitora do grupo AVA. A OG teve um efeito positivo na compreensão leitora dos alunos do grupo PI, medida por RLE e QC, enquanto teve um efeito negativo na compreensão leitora dos alunos do grupo AVA, medida por RLE e nenhum efeito quando medida por QC. Para o grupo PI, houve uma correlação positiva significativa entre os escores estritos de MT e RLE/ QC quando os estudantes receberam tratamento com RC. Além disso, para o grupo PI, houve uma correlação positiva significativa entre os escores lenientes de MT e a RLE e entre os escores estritos de MT e a QC quando os estudantes receberam tratamento com OG. Para o grupo AVA, não foram encontradas correlações significativas quando ambas as atividades de pré-leitura foram usadas. A análise qualitativa dos dados deu suporte aos achados quantitativos, fornecendo evidências de que a RC foi benéfica para os estudantes AVA, enquanto a OG favoreceu os estudantes de PI.

Palavras-chave: Teoria dos Esquemas. Atividades de Pré-leitura. Capacidade de Memória de Trabalho.

ABSTRACT

This study aimed at investigating the effects of two prereading activities, namely Contextual Redefinition and a modified version of the Graphic Organizer, on the reading comprehension of pre-intermediate and advanced Brazilian English as a foreign language (EFL) students and investigating whether there was a correlation between students' working memory (WM) capacity as measured by the Reading Span Test (RST) and the results obtained in each of the prereading activities conditions. A group of thirty teenage and adult students from a private English course in the south of Brazil participated in this study. The instruments of this research were a reading proficiency test; three texts for the pre-intermediate (PI) group and three texts for the advanced (ADV) group; a set of ten unfamiliar words for each text, a set of ten sentences containing the words, and a set of ten dictionary entries related to the words for the prereading activity Contextual Redefinition (CR); diagrams that reflected the organizational pattern of the texts containing their main ideas for the prereading activity Graphic Organizer (GO); sentences for the RST; a booklet for participants to take the RST; a handout for the written free recall task; six comprehension questions for each text; four retrospective questionnaires to be answered after taking the RST and after each of the prereading activities conditions and one profile questionnaire. Data collection took place in two encounters. In the first encounter, students answered the profile questionnaire, took the reading proficiency test, and had their working memory capacity measured by the RST. In the second encounter, each group read three texts in three different conditions: treatment with CR, treatment with GO and no treatment. Two measures of comprehension were used: written free recall (WFR) and comprehension questions (CQ). Quantitative analysis of the data revealed that the CR had a negative effect on PI EFL students' reading comprehension as measured by WFR and CQ whereas it had a positive effect on ADV EFL students' reading comprehension as measured by CQ. When measured by WFR, the CR had a negative effect on ADV participants' reading comprehension. The GO had a positive effect on PI EFL students' reading comprehension as measured by WFR and CQ whereas it had a negative effect on ADV EFL students' reading comprehension as measured by WFR and no effect when it was measured by CQ. For the PI group, there was a significant positive correlation between WM strict scores (SS) and WFR/CQ when students received treatment with CR. Also, for the PI group, there was a significant positive correlation between WM lenient scores and WFR and between WM SS and CQ when students received treatment with GO. For the ADV group, no significant correlations were found when both prereading activities were used. Qualitative analysis of the data gave support to the quantitative findings providing evidence that the CR was beneficial to ADV students whereas the GO favored PI students.

Keywords: Schema Theory. Prereading Activities. Working Memory Capacity.

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LIST OF ABBREVIATIONS AND ACRONYMS

A1 Beginner

ABNT *Associação Brasileira de Normas Técnicas*

ADV Advanced

ANOVA Analysis of Variance

B1 Pre-intermediate

C1 Advanced

C2 Mastery

CEFR Common European Framework of Reference

CONEP *Comissão Nacional de Ética em Pesquisa*

CQ Comprehension Questions

CR Contextual Redefinition

d Effect Size

df Degrees of Freedom

EFL English as a Foreign Language

ENEM *Exame Nacional do Ensino Médio*

ESL English as a Second Language

F *F*-test

GO Graphic Organizer

L1 First Language

L2 Second Language

LS Lenient Scores

LTM Long Term Memory

M Mean

M Member

N Number of Participants

NEL *Núcleo de Estudos em Leitura*

p Alpha

P Participant

PI Pre-intermediate

Pl Plural

PRE Prereading

r Pearson's Correlation Coefficient

rs Spearman's Rank Order Correlation

RST Reading Span Test

RT Read-Test/Read-Test

SD Standard Deviation

Sig Significance

SND Standard Normal Distributions

SS Strict Scores

t Student's *t*-test

TCLE *Termo de Compromisso Livre e Esclarecido*

TOEFL Test of English as a Foreign Language

TOEIC Test of English for International Communication

TPWSGWTAU The place where sentences go when they are understood

VIS Visual Information Store

VOC Vocabulary

W Mauchly's W

WFR Written Free Recall

WM Working Memory

WMC Working Memory Capacity

ηp^2 Partial Eta Squared

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1 INTRODUCTION

When people start reading in their first language, they most likely have no awareness of the cognitive processes that are necessary to carry out this activity (AEBERSOLD; FIELD, 1997). The challenges faced by readers who are taking their first steps tend to be forgotten once they become more proficient in reading. Irrespective of the language, be it the reader's native language or a foreign one, in order to read a text, one needs to have knowledge of its topic, its underlying structure, its language, its cultural aspects, amongst other aspects (DAVIES, 1995; AEBERSOLD; FIELD, 1997). Because of that, Davies (1995) claims that teachers should make an attempt to understand the processes underlying reading and find ways to observe how these processes take place so that they can plan reading lessons according to their students' needs, fostering the development of their reading ability (DAVIES, 1995, p. 1).

When working with reading in the classroom, teachers should not simply tell students to read the text and be prepared to answer questions about it; instead, they should provide students with guidance, which means "providing activities before, during, and after students read a passage in order to help them understand and retain what they encounter" (MOORE; READENCE; RICKELMAN, 1999, p. 1). A good way of helping students read a text and comprehend it better is to make use of prereading activities (TOMITCH, 2009). Prereading activities help the reader get familiarized with texts through work on vocabulary present in a specific reading passage (TOMITCH, 1991), making predictions about the content of the passage (TOMITCH, 1991; HUDSON, 1998) and associations with the topic of the passage (TAGLIEBER; JOHNSON; YARBROUGH, 1988), among others. Each prereading activity may have different degrees of effectiveness depending on the linguistic proficiency of the student (CARRELL, 1998a; HUDSON, 1998). Thus, the present study is concerned with the question: how do different prereading activities influence students at different levels of language proficiency?

Prereading activities have been used as tools to aid students in constructing meaning from text, whether it is in one's native language or in a foreign language[1]. When reading in a foreign language, besides encountering unfamiliar topics, students have to deal with unfamiliar terms and styles of writing that are, as a consequence, unusual to them (MOORE; READENCE; RICKELMAN, 1999). In the field of reading research, it is well established

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[1] For the purposes of this research, the terms second and foreign language will be used interchangeably.

that prereading activities have a positive effect on reading comprehension. However, there is still little research in the area investigating the possible effects of different kinds of prereading activities on various levels of proficiency (TAGLIEBER; JOHNSON; YARBROUGH, 1988; TOMITCH, 1991; HUDSON, 1998; ROSCIOLI, 2017). Moreover, according to Roscioli (2017), because prereading activities have a facilitative effect on reading comprehension, they might also act as a tool to reduce the influence of individual differences, such as working memory capacity (WMC[2]). To my knowledge, only one study has attempted to establish a relation between WMC and the use of prereading activities (ROSCIOLI, 2017). Therefore, more research could be done in order to investigate how those factors interact in the Brazilian context, with English as a foreign language.

In addition, most of the research conducted investigating reading in general has been carried out with the participation of college and university students, whereas, in this study, the participants were selected from a private English course. For this reason, the present study aims at investigating how two different prereading activities influence English as a foreign language (EFL) students' reading comprehension, namely Contextual Redefinition and a modified version of the Graphic Organizer[3] (MOORE; READENCE; RICKELMAN, 1999). Furthermore, this study is aimed at investigating whether there is a correlation between students' WMC and the results obtained in the comprehension tests in each of the prereading activities conditions.

Henceforth, this chapter is organized into four subsections: Subsection 1 brings information concerning the context of investigation for the present study, Subsection 2 highlights the significance of the present study, Subsection 3 refers to the objectives and research questions that motivated this study and, finally, Subsection 4 presents the structure of the present thesis as a whole.

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[2] Working memory capacity refers to the amount of resources used in cognitive tasks in order to maintain and process incoming textual information during reading (Daneman & Carpenter, 1980; Just & Carpenter, 1992; Tomitch 2003). This concept will be fully explained further in the text.

[3] The prereading activity Contextual Redefinition enables readers to make connections between their prior knowledge and the text by providing context clues to support their guesses as to the meaning of unfamiliar words. As for the modified version of the prereading activity Graphic Organizer, the objective is to provide readers with a graphic representation of the text structure that allows them to make predictions for reading. The procedures for both activities will be explained in detail in the Method Section of this thesis.

1.1 CONTEXT OF INVESTIGATION

Reading comprehension is a complex process that involves the reader, the text, and the interaction between the reader and the text (RUMELHART, 1977, 1980; TOMITCH, 1991; AEBERSOLD; FIELD, 1997; among others). According to Kintsch and van Dijk (1978), "comprehension always involves knowledge use" (p. 364). Considering that every reader has different background knowledge, which comes from the various life experiences one has (AEBERSOLD; FIELD, 1997), it is widely accepted that the reader contributes with as much information to the process of reading as the text itself. The background information readers bring to a text constitutes their schemata, or the knowledge the reader has already stored in long-term memory (LTM[4]) (ANDERSON; PEARSON, 1998).

Prereading activities guide students in the previewing of a text, thus facilitating the building of the readers' schemata (MOORE; READENCE; RICKELMAN, 1999) as well as the activation of existing schemata. The memory system known to be responsible for the activation of information stored in LTM (schemata) is known as working memory (WM), which is also responsible for the processing and storage of information, according to the Processing Efficiency Hypothesis advocated by Daneman and Carpenter (1980).

The term working memory is an evolution of the so called short-term memory, which refers "to the simple temporary storage of information, in contrast to WM, which implies a combination of storage and manipulation" (BADDELEY, 2012, p. 4). Daneman and Carpenter (1980) advocated that individual differences in reading comprehension could be a reflection of differences in working memory capacity, that is, differences in the ability each reader has in storing and processing information simultaneously. In order to test this hypothesis, the researchers devised the Reading Span Test[5] (RST), an alternative measure of working memory span. Differently from the traditional measures of short-term memory, which did not correlate well with reading comprehension, the RST showed very high correlations with different measures of reading comprehension. Individuals with a high span[6]

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[4] According to Shiffrin and Atkinson (1969), long-term memory refers to "a store which is considered to be a permanent repository for information" (SHIFFRIN; ATKINSON, 1969, p. 179).

[5] In the Reading Span Test, participants have to read groups of sentences aloud and memorize the last word of each sentence. The number of sentences per group increases gradually, starting with two sentences and going up to five or six sentences, depending on the study. After participants finish reading one group of sentences, a cue card is shown to them signaling the moment in which they have to say the last words they memorized. Refer to the Method section for a detailed procedure of the RST.

[6] Reading span is related to how working memory can be measured through the use of the Reading Span Test (RST). In the study conducted by Daneman and Carpenter (1980), participants with a high span could recall four to five final words, whereas the ones with a low span could recall only two words.

in the RST, that is, the ones who could remember more final words of each sentence after reading the sentences aloud, also showed a better performance in the reading comprehension tasks, whereas individuals with a low span also performed poorly in the reading comprehension tasks.

Because of the high correlations found by Daneman and Carpenter (1980), many other researchers (TOMITCH, 2003; TORRES, 2003; FONTANINI; TOMITCH, 2009; ALPTEKIN; ERÇETIN, 2010; ROSCIOLI, 2017; among others) have attempted to demonstrate the relationship between measures of reading comprehension and WMC through the use of the Reading Span Test (RST) (DANEMAN; CARPENTER, 1980). In general, the findings in these studies corroborate the initial findings of Daneman and Carpenter (1980), indicating that readers with a high reading span are able to comprehend texts better than readers with a low reading span. Even though WMC as measured by the RST is a good predictor of reading comprehension, the limitations of this memory system as well as insufficient knowledge of the content of a text might be mitigated by the use of prereading activities (ROSCIOLI, 2017). In other words, low-span and high-span participants might perform similarly in a comprehension task with the aid of a prereading activity.

The present study is concerned with reading comprehension and schema theory and their relationship with working memory capacity in the context of English as a foreign language (EFL), more specifically, with Brazilian students who take English classes as an activity outside the regular school curriculum. Moreover, the participants of this study are students of pre-intermediate and advanced levels of English at a private language school in the south of Brazil (more information regarding the participants of this research will be given in the Method section of this thesis). They have three hours of English classes every week focused on the development of the four abilities: speaking, listening, writing and reading. This research is aimed at providing evidence for the use of specific prereading activities to help guide these students in their classroom reading activities.

1.2 SIGNIFICANCE OF THE STUDY

As previously mentioned, this study attempts to contribute with empirical evidence for the use of specific prereading activities with Brazilian EFL students from two different levels of proficiency, namely pre-intermediate and advanced. It is expected that the results of this study provide teachers some guidance as to what type of prereading activity might be more useful for students at those levels of proficiency. As Carrell (1998a) stated, "different

prereading activities may be more or less effective with different proficiency levels" (p. 246), therefore, in order to better prepare students for reading several types of text, teachers should experiment with various prereading activities (CARRELL, 1998a).

Regarding the two levels of proficiency chosen, it is possible to say that little research has been carried out on the effect of prereading activities. In the Brazilian context, for the pre-intermediate level, only one study has been found (ROSCIOLI, 2017), whereas for the advanced level, no studies have been found. In addition, no study has been found comparing the effectiveness of prereading activities for the aforementioned levels of proficiency. Hence, this researcher decided to focus on pre-intermediate and advanced participants in order to be able to compare the effects of the prereading activities on their reading comprehension.

Moreover, the present study aims at contributing to existent research in the area of reading and psycholinguistics, more specifically, to research related to Schema Theory in the Brazilian context. Researchers attempting to unveil the importance of background knowledge in reading comprehension often make a distinction between different types of schemata, for instance, formal schemata, which is related to the rhetoric structure of a text, and content schemata, which regards the content area of the topic of the text (CARRELL; EISTERHOLD, 1998). By investigating different types of prereading activities, in other words, activities that focus on building vocabulary knowledge (Contextual Redefinition) and on perceiving text organization (Graphic Organizer), this study seeks to shed light on how Schema Theory can account for the building of different types of schemata. Also, as mentioned before, most studies that relate working memory to reading comprehension attempted to predict the influence of the former on the latter. This study will attempt to investigate whether there is a correlation between students' working memory capacity and the results obtained in the comprehension tests in each of the prereading activities conditions, thus, contributing to research in psycholinguistics.

1.3 OBJECTIVES AND RESEARCH QUESTIONS

The present study has two main objectives. The first objective is to investigate the effects of two prereading activities, namely Contextual Redefinition and a modified version of the Graphic Organizer (MOORE; READANCE; RICKELMAN, 1999), on the reading comprehension of pre-intermediate and advanced Brazilian English as a foreign language (EFL) students. The second objective is to investigate whether there is a correlation between students' WMC as measured by means of the Reading Span Test (RST) (DANEMAN;

CARPENTER, 1980) and the results obtained in the comprehension tests in each of the prereading activities conditions.

In accordance with the objectives previously mentioned, this study will seek answers to the following research questions:

- Research question 1 - Does the prereading activity Contextual Redefinition influence pre-intermediate and advanced EFL students' reading comprehension as measured by written free recall and comprehension questions?
- Research question 2 - Does the modified version of the prereading activity Graphic Organizer influence pre-intermediate and advanced EFL students' reading comprehension as measured by written free recall and comprehension questions?
- Research question 3 - Is there a correlation between RST scores, comprehension questions scores and written free recall scores when the prereading activity Contextual Redefinition is used with pre-intermediate and advanced EFL students?
- Research question 4 - Is there a correlation between RST scores, comprehension questions scores and written free recall scores when the modified version of the prereading activity Graphic Organizer is used with pre-intermediate and advanced EFL students?

1.4 ORGANIZATION OF THE THESIS

This thesis is organized into five chapters. Chapter 1 presents the introduction which includes the context of investigation, the significance of the study, and its objectives and research questions. Chapter 2 contains the review of literature that is relevant for this study, mainly related to reading comprehension, schema theory and working memory. Chapter 3 presents the method to be used in the present study, which includes participants, materials, and procedures for data collection and data analysis. Chapter 4 brings the results of this study related to each of the research questions raised along with the discussion of said results. Lastly, Chapter 5 presents the final remarks which include a summary of the main findings, the limitations of this study, pedagogical implications and recommendations for future research[7].

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[7] This thesis was formatted according to the ABNT, which stands for *Associação Brasileira de Normas Técnicas* (Brazilian Association of Technical Standards).

2 REVIEW OF LITERATURE

This chapter presents the theoretical framework that informs the present research which is aimed at investigating the effects of two different schemata-induced activities, or prereading activities, namely Contextual Redefinition and a modified version of the Graphic Organizer (MOORE; READANCE; RICKELMAN, 1999) on the reading comprehension of pre-intermediate and advanced Brazilian English as a foreign language[8] (EFL) students. Moreover, this research also attempts to investigate whether there is a correlation between students' WMC as measured by means of the Reading Span Test (RST) (DANEMAN; CARPENTER, 1980) and the results obtained in the comprehension tests in each of the prereading activities conditions.

This chapter is divided into three parts. The first part of this review presents the concept of reading and its relation to first language (L1) and second language (L2), as well as the reading models and their influence on EFL classes. The second part introduces Schema Theory and its connection with prereading activities and, finally, the third part deals with the concept of working memory and presents studies relating this concept to reading comprehension and prereading activities.

2.1 READING IN L1 AND L2

Reading is a valuable skill that opens a world of possibilities for readers. It enables people to learn about various topics and distant cultures. In the era of information, reading is a skill of great importance as "it is necessary for adequate functioning" (GAGNÉ; YEKOVICH; YEKOVICH, 1993, p. 268). Furthermore, good comprehension skills are required from students all around the world, especially in the context of English as a second or foreign language, where, for most students, reading is the main motivation to learn the language (CARRELL, 1998a). For this reason, the process of reading has been studied extensively by many researchers in order to answer questions such as 'what is reading and what does it entail?'.

One of the first studies in the area of reading research was published in 1879, written by Emile Javal on the investigation of eye movements (SAMUELS; KAMIL, 1998). With a history of 140 years of research, many definitions of what reading is have been provided

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[8] For the purposes of this research, the terms second and foreign language will be used interchangeably.

according to the scientific developments of each historical context (SAMUELS; KAMIL, 1998; VAN DEN BROEK; YOUNG; LINDERHOLM, 1999). During this time, reading models[9], which are attempts to explain the reading process, have been designed, each with a different perspective as to how reading takes place (DAVIES, 1995; SAMUELS; KAMIL, 1998; VAN DEN BROEK; YOUNG; LINDERHOLM, 1999).

Definitions of the reading process, embodied in the bottom-up reading models, take into account the perceptual aspect of this activity, starting from the print on the page, that is, the text itself (RUMELHART, 1977; AEBERSOLD; FIELD, 1997; SAMUELS; KAMIL, 1998; VAN DEN BROEK; YOUNG; LINDERHOLM, 1999). From this perspective, reading is viewed as a process where input from the text "is sequentially transformed from low-level sensory information into ever higher-level encodings" (RUMELHART, 1977, p. 575). A different view of reading, represented in top-down models of reading, considers readers' expectations as the starting point for reading. In this view of reading, "the processing sequence proceeds from predictions about meaning to attention to progressively smaller units" (DAVIES, 1995, p. 58).

Interactive models[10] view reading as a complex process that involves the interaction between a reader and a text (RUMELHART, 1977; KINTSCH; VAN DIJK, 1978; DAVIES, 1995; AEBERSOLD; FIELD, 1997; ANDERSON; PEARSON, 1998; CARRELL, 1998a; ESKEY, 1998; URQUHART; WEIR, 1998; TOMITCH, 2003). According to Davies (1995), the complexity of reading lies in the fact that it is a mental or cognitive process that is unobservable in its nature[11], which might explain why researchers claim that reading is not yet completely understood (AEBERSOLD; FIELD, 1997). Notwithstanding, there is general agreement in the field that reading "involves a reader in trying to follow and respond to a message from a writer who is distant in space and time" (DAVIES, 1995, p. 1).

When presented with a text, readers bring their background knowledge in order to derive meaning from it (TOMITCH, 1991). Because every reader has different background knowledge acquired through different life experience, the reading of a text is never the same (URQUHART; WEIR, 1998). For Rumelhart (1980), the background knowledge a reader brings to a text, which he calls schemata[12], is related to all levels of representation, from

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[9] A more detailed account of the main reading models will be given in the next subsection of this chapter.
[10] Rumelhart's interactive reading model is presented in the subsequent subsection of this chapter.
[11] Reading is not observable when considering silent reading. More recently, with the advent of brain imaging resources, it is possible to observe what happens in the readers' brains while reading.
[12] The concept of schema or schemata (pl.) will be further explained in this chapter.

ideologies and cultural truths, to knowledge about sentence formation, word meanings and patterns of word formation that are accepted in a given language.

According to Gagné, Yekovich and Yekovich (1993), the representation of knowledge that is necessary for fluent reading can be divided into four subgroups of processes that occur simultaneously and that become automatized with practice: decoding, literal comprehension, inferential comprehension and comprehension monitoring. Along these lines, reading is a perceptual process, that is, it relies on the use of sensory information which triggers body reactions such as subvocalization and eye movements, and it is a cognitive process that counts on syntactic, semantic and pragmatic information that is part of the readers' previous knowledge (RUMELHART, 1977; URQUHART; WEIR, 1998).

Additionally, reading involves readers' ability to integrate their background knowledge to the information presented in the text in order to create a coherent mental representation (KINTSCH; VAN DIJK, 1978). While readers attempt to construct meaning from the text, they are constrained by a number of individual differences such as vocabulary knowledge, limited attentional resources and working memory capacity, among others (VAN DEN BROEK; YOUNG; LINDERHOLM, 1999). Buchweitz, Mason, Tomitch and Just (2009) support that idea when they state that "comprehension is a complex, higher-level cognitive process in which there are systematic individual differences in skill and performance (p. 113).

Thus far, reading has been defined in terms of the processes that occur taking into account readers' first language (L1). Considering the objectives of the present research, it is necessary to draw attention to how these processes compare to what happens when readers read a text in a second (L2) or foreign language. Research in the area has been concerned with the question of whether readers process written tasks in L2 the same way they do in L1 (CARRELL, 1991; CLAPHAM, 1996; DEVINE, 1998). Researchers seem to be divided between two lines of thought. On the one hand, some researchers believe that the processes involved in reading in L1 and L2 are the same and that good readers in L1 are also good readers in L2 (BLOCK, 1986 apud CLAPHAM, 1996; SARIG 1987 apud CLAPHAM, 1996). On the other hand, some researchers maintain that lack of adequate knowledge in the L2 can prevent readers from making use of the skills and strategies that they use in their L1 (COADY, 1979; CZIKO; 1980; CLAPHAM, 1996; CLARKE, 1998; ESKEY, 1998).

Concerning the previously mentioned matter, there is general agreement in the field that beginning language learners differ in the way they read when compared to native speakers (CLAPHAM, 1996). Clarke (1998) has proposed that in order for readers to be able

to use the skills they developed for reading in their L1 while reading in a foreign language, they need to have a certain level of language ability, or a threshold level of linguistic knowledge. In other words, a lack of linguistic ability can 'short-circuit' the reading process, resulting in the use of poor reading strategies (CLAPHAM, 1996; CLARKE, 1998). Moreover, Clarke (1998) concluded that beginner second language learners who are still developing their ability to decode graphic and lexical symbols have difficulty to use top-down processes when reading (apud CLAPHAM, 1996).

Ultimately, for the purposes of this study, and in accordance to previous research, reading is a complex interactive process between a reader and a text, in which readers have to use the sensory information presented in the text and their background knowledge to construct meaning. It is also interactive in the sense that "readers make internal use of several kinds of knowledge in simultaneously decoding and interpreting texts" (ESKEY, 1998, p. 96). Moreover, the word *interactive* "refers to the interaction between information obtained by means of bottom-up decoding and information provided by means of top-down analysis, both of which depend on certain kinds of prior knowledge and certain kinds of information-processing skills" (ESKEY, 1998, p. 96). Likewise, the reading process is constrained by individual differences such as age, vocabulary knowledge, skills and working memory capacity (JENKINS, 1979; GAGNÉ; YEKOVICH; YEKOVICH, 1993; SAMUELS; KAMIL, 1998; BUCHWEITZ *et al*., 2009).

As previously mentioned, each definition of the reading process presupposes one reading model, entailing "a set of assumptions about what happens when a reader approaches a text, that is, the ways a reader derives meaning from printed material" (DEVINE, 1998, p. 127). One can say that there are as many reading models as there are definitions for the reading process, taking into consideration that one depends on the other. The following subsection of the review of literature offers a brief explanation of the main reading models and their influence on English as a foreign language classes.

2.1.1 Reading models and their influence on EFL classes

Reading research has been concerned with building models of the reading process since 1953, when Jack Holmes published his substrata-factor theory of reading (SAMUELS; KAMIL, 1998). Since then, a myriad of reading models have been conceived; however, most of them have been restrained to readers' first language, that is, they have not taken into consideration the processes that readers undergo when reading in a second language

(AEBERSOLD; FIELD, 1997) and, as pointed out by Clarke (1998), "no theory of reading has won general acceptance" (p. 114). Nevertheless, some reading models have been more influential than others when considering their pedagogical implications to EFL classes. In this subsection, the three main models or approaches to reading will be presented; they are known as bottom-up, top-down and interactive (DAVIES, 1995; AEBERSOLD; FIELD, 1997; URQUHART; WEIR, 1998; VAN DEN BROEK; YOUNG; LINDERHOLM, 1999).

2.1.1.1 The bottom-up model

Amongst the bottom-up models or approaches, the most representative is Gough's 1972 model (SAMUELS; KAMIL, 1998). There are two reasons for the use of the term bottom-up. First, the model defines reading as construction of meaning that starts from the smallest to the largest units of text, that is, from letters to syllables, from syllables to words, from words to sentences and so on (DAVIES, 1995). Second, most of the processing components in this model operate one at a time, going from lower to higher order skills in a serial manner (URQUHART; WEIR, 1998). According to Samuels and Kamil (1998), the processing components of Gough's model include a scanner, a decoder, a librarian and a device named Merlin. In this model, reading occurs as follows: the letters on a page are recognized by a scanner, the collected information is sent to a decoder which converts the string of letters into a string of phonemes; then a librarian converts the string into a word with the help of the lexicon; the same occurs until all words in a sentence are processed; finally, they proceed to a device named Merlin which applies syntactic and semantic rules and go to the TPWSGWTAU - the place where sentences go when they are understood (RUMELHART, 1977; SAMUELS; KAMIL, 1998).

Bottom-up models have had a great impact on the teaching of reading in a second/foreign language (DAVIES, 1995; SAMUELS; KAMIL, 1998). For instance, it has originated phonics-based approaches which emphasize the sequence of processing described previously, from letters, to sounds, to words, to sentences, and so on (DAVIES, 1995). Thus, there are at least three ways in which this model influenced teachers' decisions while designing their reading programs. Firstly, bottom-up models can influence teachers' decisions when selecting texts for reading activities. Teachers who are influenced by bottom-up models tend to choose texts that do not contain unfamiliar vocabulary (DAVIES 1995; AEBERSOLD; FIELD, 1997). This is due to the order of processing imposed by the models. If all words need to be converted by the librarian component in order to understand a

sentence, then it must not contain unfamiliar words. Since it is impossible to control for unknown vocabulary in an authentic text[13], teachers who are influenced by bottom-up models of reading end up choosing fabricated texts.

Secondly, bottom-up models can influence teachers' decisions when setting course objectives. Teachers who have a bottom-up orientation tend to define course objectives such as 'provide students enough practice with suffixes' because they can help in the identification of words (DAVIES, 1995; AEBERSOLD; FIELD, 1997). Knowledge of affixes could help the mental librarian as described in Gough's bottom-up model to identify words in the lexicon. Thirdly, the bottom-up model can influence teachers' decisions when designing reading activities. Teachers who are influenced by bottom-up models of reading will probably make use of exercises to find synonyms/antonyms, dictionary study and gap completion exercises, which according to Davies (1995) can be classified as passive reading tasks.

All of the aforementioned orientations are relatively important because they can contribute to the enhancement of one's vocabulary knowledge, an essential feature for reading regardless of the model adopted. However, the suggested exercises are not enough to make readers read interactively or, in other words, make use of all the types of knowledge they have available in order to build a mental representation of the text being read. In Gough's bottom-up model, it is understood that if students do not know a word, they will not be able to understand the text and that, conversely, if students know the meanings of all the words in a text, they will be able to understand it. In other words, in Gough's model there is an overreliance on vocabulary knowledge in detriment of other types of knowledge, such as the prior knowledge readers bring to a text.

The bottom-up model of reading proposed by Gough has received criticism from researchers in the area. Samuels and Kamil (1998) state that Gough's assumption that "all letters in the visual field must be accounted for individually by the reader prior to the assignment of meaning to any string of letters" is controversial. Considering the serial processing of information proposed by the model, Davies (1995) claims that there is a great number of grapho-phonic rules that cover spelling-to-sound correspondences in English which would require extreme attention and, therefore, use most of readers' working memory capacity, not leaving enough resources for higher comprehension processes which are essential for meaning construction. The following subsection of this review of literature concerning models of the reading process presents an alternative to this perspective.

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[13] Texts that are not written for teaching purposes.

2.1.1.2 The top-down model

The second reading model to be described is Goodman's, who is the main representative of the top-down approach (URQUHART; WEIR, 1998). Goodman's model "has had the greatest impact on conceptions about reading instruction, particularly early instruction" (SAMUELS; KAMIL, 1998, p. 23). The term *top-down* refers to the expectations of the readers that play an important role in the processing of the text (DAVIES 1995; AEBERSOLD; FIELD, 1997; ESKEY, 1998; SAMUELS; KAMIL, 1998). In this model, readers confirm and/or disconfirm hypotheses formulated before reading the text using information coming from the text. In contrast with the bottom-up approaches, that claim readers have to process word by word, in Goodman's top-down approach, readers can decide not to read parts of the text that are irrelevant for their purposes. In Goodman's model, reading occurs as follows: readers scan a line of the text and fixate at a point on the line; they pick up graphic cues guided by their purposes, prior knowledge, cognitive styles and strategies they have learned; they form an image that contains what they see and what they expected to see (DAVIES, 1995; AEBERSOLD; FIELD, 1997; VAN DEN BROEK; YOUNG; LINDERHOLM, 1999).

Although it was conceived before Gough's bottom-up model, Goodman's top-down model of reading was developed as a reaction to a pedagogic tradition where bottom-up approaches were dominant in the teaching of reading in L1 (URQUHART; WEIR, 1998). Goodman's model also had an impact on the teaching of reading in a second/foreign language. There are at least three ways in which Goodman's top-down model of reading can influence teachers' decisions while designing their reading programs. First, it can influence teachers' decisions when selecting texts. Teachers who are influenced by a top-down approach could tend to select texts that students can relate to, that is, that have a familiar topic (DAVIES, 1995; AEBERSOLD; FIELD, 1997). Furthermore, texts that are accompanied by pictures, graphs and other visual elements are preferred by teachers following a top-down approach. Since students are supposed to formulate hypotheses before reading the text, an easy identification of the topic aided by visual elements will contribute to the readers' generation of guesses (DAVIES, 1995; AEBERSOLD; FIELD, 1997).

Second, teachers who have a top-down orientation will make specific decisions when setting course objectives. These teachers are more inclined to set course objectives such as "provide the learner with the opportunity to use strategies including prediction to acquire

knowledge of the visual and grapho-phonic rules of written language" (DAVIES, 1995, p. 120). This is due to the fact that, in the top-down model of reading, readers use the strategies they already possess to help generate hypotheses about the text. Therefore, the strategy of prediction is crucial for this type of reading model. Third, teachers who are guided by the top-down model of reading could tend to design specific reading activities. These teachers will probably prefer to use active reading tasks, according to Davies' (1995) taxonomy, such as diagram completion/construction and sequencing of cut-up units of text. In both activities, learners have the opportunity to use the hypotheses they generated to construct a mental model of the text without necessarily having to know the meaning of every word in the text.

Although Goodman's top-down model of reading has given a more dynamic role to the reader (URQUHART; WEIR, 1998), it does have limitations. Firstly, Eskey (1998) points out that even though Goodman makes a valid assumption in claiming that reading is mainly a cognitive process, his model tends to attach little importance to the perceptual and decoding elements of reading. Secondly, Goodman's model may account for skilled, fluent readers, whose perception and decoding abilities have become automatized (ESKEY, 1998). However, it does not present a sufficient clear scenario of what happens for the less proficient, developing reader, such as L2 readers (BENHARDT, 1991 apud DAVIES, 1995; ESKEY, 1998). Lastly, the top-down model also proposes that skilled readers use their background knowledge to make more guesses than the less skilled ones when, in fact, research has shown that it is the speed and accuracy of word recognition that distinguishes the former from the latter, in other words, skilled readers are faster and better at decoding, relying less on context clues (URQUHART; WEIR, 1998).

In summary, bottom-up models of the reading process sustain that fluent reading exclusively involves the ability to decode, in other words, the ability to match sounds to letters. Thus, in this perspective, reading is a sensory activity and meaning is found mainly in the text (RUMELHART, 1977; AEBERSOLD; FIELD, 1997; SAMUELS; KAMIL, 1998; VAN DEN BROEK; YOUNG; LINDERHOLM, 1999). On the other hand, top-down models of the reading process define reading as a 'psycholinguistic guessing game' in which readers use their background knowledge to make predictions about the text (DAVIES, 1995; ESKEY, 1998; GOODMAN, 1998). In other words, from this view, reading is considered a cognitive activity which entails text interpretation and meaning is predominantly in the reader's mind. A third perspective, which is generally accepted by researchers in the field, considers reading as an interaction between the reader and the text (RUMELHART, 1977; KINTSCH; VAN DIJK, 1978; DAVIES, 1995; AEBERSOLD; FIELD, 1997; ANDERSON; PEARSON, 1998;

CARRELL, 1998a; ESKEY, 1998; URQUHART; WEIR, 1998; TOMITCH, 2003). Additionally, in this perspective, reading is both a sensory and cognitive activity, that is, it involves both decoding skills and text interpretation skills (ESKEY, 1998). The following subsection of this review of literature presents one of the first and most prominent interactive models of reading (DAVIES, 1995; AEBERSOLD; FIELD, 1997).

2.1.1.3 The interactive model

The third reading model to be described in this subsection was first proposed by Rumelhart (1977) and it is known as the interactive model (URQUHART; WEIR, 1998). As opposed to bottom-up models, where information is processed linearly, in the interactive model information is processed simultaneously by several sources (SAMUELS; KAMIL, 1998). In this model, reading occurs as follows: the graphemic input generates visual information that is stored by the VIS (visual information store); the gathered data goes to a Feature Extraction Device and then fed into a Pattern Synthesizer; then this part of the system receives information from Syntactical, Semantic, Lexical and Orthographic Knowledge at the same time; finally, the system arrives at the most probable interpretation (RUMELHART, 1977; SAMUELS; KAMIL, 1998; URQUHART; WEIR, 1998). It is important to highlight that, in this model, higher-order stages can interfere in the processing of lower-order stages (SAMUELS; KAMIL, 1998).

The interactive model of reading encompasses features that are present in both the bottom-up and top-down models. Teachers who have an interactive orientation usually set course objectives such as "allow for bottom-up processing and attention to vocabulary" (DAVIES, 1995, p. 122). When attempting to improve bottom-up decoding skills, Carrell (1998c) points out two primary aspects of language: grammar and vocabulary. In relation to grammar, Carrell (1998c) suggests that classroom instruction focuses on the use of cohesive devices in English, so that students become aware of "how ideas in a text are unified by these cohesive elements" (p. 241). As for vocabulary deficiencies, the author claims that students need to improve their knowledge of synonyms and collocation. Another course objective a teacher influenced by an interactive approach to reading might be related to top-down processes, such as "provide opportunity for students to draw upon well-established schemata as top-down source of information for processing a wide range of texts and genres" (DAVIES, 1995, p. 121).

Furthermore, the interactive approach to reading can go from bottom-up to top-down processes depending on factors such as the readers' previous knowledge, their level of language proficiency, their level of motivation, their ability to use strategies, their beliefs as well as the type of text being read (AEBERSOLD; FIELD, 1997). Because of that, Rumelhart's interactive model of reading is "the most influential model underpinning both L1 and L2 approaches to reading" (DAVIES, 1995, p. 63). Regarding L2, in this model it is considered that "less fluent readers may put the same amount of effort both in decoding and making predictions, so as to comprehend a text" (ESKEY, 1998 apud ROSCIOLI, 2017, p. 38).

From a pedagogical perspective, teachers who are influenced by the interactive model will probably select texts, set course objectives and design reading activities that include features from both bottom-up and top-down models. First, in relation to the selection of texts, teachers under the influence of the interactive model can choose texts that present a familiar topic for the learners so that they are able to generate hypotheses from the text. At the same time, these texts do not necessarily have to be unmodified. In other words, teachers who are influenced by the interactive model will not emphasize higher order skills over lower orders skills or vice-versa because they consider both kinds of skills important for the reading process.

Second, teachers who have an interactive orientation will probably set course objectives such as "allow for bottom-up processing and attention to vocabulary" (DAVIES, 1995, p. 122) and "involve students in active analysis and evaluation of reading strategies" (DAVIES, 1995, p. 123). As one can see, the first objective relates to bottom-up processing while the second one is more connected to top-down processing. Interactive-oriented teachers are prone to include both objectives in their reading programs for they probably believe that the learners will have different needs according to the task at hand.

Finally, as regards designing reading activities, interactive-oriented teachers will probably include passive and active reading tasks in their reading programs, depending on the objective to be achieved. Examples of activities that can be used by these teachers are multiple-choice exercises, comprehension questions, vocabulary study, labeling of text and/or diagram, among others. These activities foster the development of lower and higher order skills; the use of such activities tends to be regulated by the interactive teacher considering the language knowledge, skills and strategies the learners have already acquired.

As mentioned previously, each reading model entails a certain definition of the reading process. For the purposes of this study, and in accordance with the interactive reading

model proposed by Rumelhart (1977), "fluent reading entails both skillful decoding and relating the information so obtained to the reader's prior knowledge of the subject and the world" (ESKEY, 1998, p. 98). Hence, readers' prior knowledge is one of the factors directly related to this study. Background knowledge, also known as prior or world knowledge, refers to everything a person already knows (CARRELL, 1983; LANGER, 1984; CLAPHAM, 1996; AEBERSOLD; FIELD, 1997; URQUHART; WEIR, 1998). In other words, it entails knowledge of cultural aspects, such as the procedures involved in a wedding (STEFFENSEN; JOAG-DEV; ANDERSON, 1979); knowledge of a specific subject content, such as biology, economy, law or technology (ALDERSON; URQUHART, 1998; COHEN *et al.*, 1998); as well as knowledge of formal aspects of language, such as vocabulary and text structure (HUDSON, 1998; CARRELL, 1998b).

Background knowledge is at the center of the 'schema-theoretic' account of comprehension, a development of the interactive model proposed by Rumelhart (1984 apud DAVIES, 1995). According to schema theory, visual input can only be interpreted through each individual's prior knowledge and experience, which form their framework for interpreting the world (RUMELHART, 1977; TOMITCH, 1991; DAVIES, 1995). The following subsection of this review of literature is aimed at giving a detailed explanation of schema theory and its importance to the present study.

2.2 SCHEMA THEORY

Schema theory proposed by Rumelhart (1980) is concerned with "how knowledge is represented and about how that representation facilitates the use of the knowledge in particular ways" (p. 4). A schema is a structure representation of abstract knowledge which organizes the relationships among its component parts (DAVIES, 1995; ANDERSON; PEARSON, 1998). Most researchers refer to schemata when considering world knowledge, for instance, the 'going to the supermarket schema' mentioned by Tomitch (1991), which can include getting the products, waiting in line, paying for the products, etc. Moreover, Rumelhart (1980) states that:

> Schemata are employed in the process of interpreting sensory data (both linguistic and nonlinguistic), in retrieving information from memory, in organizing actions, in determining goals and subgoals, in allocating resources and generally in guiding the flow of processing in the system. (p. 4)

In other words, in order to fully understand a text, it is necessary to have knowledge of the language in which it is written, and that is part of an individual's background knowledge (ESKEY, 1998). Eskey (1998) reinforces this idea when he claims that "language is a kind of schema too" (p. 96) that, for fluent native readers, may be activated automatically. Hence, schemata, "the building blocks of cognition" (RUMELHART, 1980, p. 4), have been categorized into content, formal and linguistic background knowledge (LEVINE; REVES, 1994; CARRELL, 1998a; CARRELL; EISTERHOLD, 1998; URQUHART; WEIR, 1998; BILOKCUOGLU, 2011): content schemata is related to world knowledge, in other words, the information readers have acquired through experience; formal schemata encompasses knowledge of formal organizational patterns of texts, that is, knowledge of text structures; and finally, linguistic schemata represents the knowledge of linguistic items of a certain language (AEBERSOLD; FIELD, 1997; CARRELL, 1998a).

As previously mentioned, each person has different background knowledge acquired through their life experience, which means each person has different schemata (RUMELHART, 1977; CARRELL, 1983; TOMITCH, 1991; ANDERSON; PEARSON, 1998). For instance, considering the 'going to the supermarket schema' (TOMITCH, 1991), in certain cultures, this schema contains a 'take your own bags' or 'get a discount using coupons" component. Because of that, when reading a text, it is important that readers activate the right kind of schema, in order to be able to accommodate the new information coming from the text into their existing knowledge (ANDERSON; PEARSON, 1998; CARRELL; EISTERHOLD, 1998).

Furthermore, schema theory presupposes that to achieve comprehension, every input coming from the text is mapped against the readers' schemata, through data-driven or conceptually driven modes of information processing (RUMELHART, 1980; CARRELL; EISTERHOLD, 1998). The two modes of information processing aforementioned are respectively related to bottom-up and top-down processes which, as in the interactive models of reading, should be occurring simultaneously for comprehension to take place (RUMELHART, 1980; CARRELL; EISTERHOLD, 1998). According to Rumelhart (1980), "conceptually-driven activation goes from whole to part, data-driven activation goes from part to whole" (p. 14), or as Carrell and Eisterhold (1998) explain, the information that is necessary to activate relevant schemata becomes available through bottom-up processing while top-down processing furthers the assimilation of the information through the anticipation/activation of schemata.

Additionally, the process of text interpretation involves activating, evaluating, refining and/or discarding schemata (RUMELHART, 1980). In other words, as readers proceed through a text, a process of hypotheses generation starts by an attempt to match the incoming information activated by means of bottom-up processing to the conceptual predictions made through top-down processing (CARRELL; EISTERHOLD, 1998). Thus, "when we encounter a mismatch between the top-down predictions and the bottom-up information, we are forced to revise the interpretation in such a way as to make the two compatible once again" (CARRELL; EISTERHOLD, 1998, p. 79).

Taking the previously mentioned matter into account, it is possible to say that difficulties in reading comprehension derive from a mismatch between the background knowledge presupposed by the text and that which the reader possesses (CARRELL; EISTERHOLD, 1998). As a consequence, readers who lack appropriate knowledge of the language of a text may overvalue top-down processing, causing schema interference (CARRELL, 1998b). On the other hand, readers who lack appropriate world knowledge, such as the 'going to the supermarket schema', may give too much importance to bottom-up processing, a phenomenon that is known as text-boundedness (CARRELL, 1998b). It is often said that skilled readers are able to shift between bottom-up and top-down processes according to their reading purposes (ROSCIOLI, 2017). Nevertheless, in order to do that, readers need to have sufficient knowledge of the language, as proposed by the short-circuit hypothesis (CLAPHAM, 1996; CARRELL; EISTERHOLD, 1998; CLARKE, 1998), as well as cultural-specific knowledge, or world knowledge.

Another source of difficulty in reading could be that the reader has encountered a mental home for the text, that is, they have reached a consistent interpretation considering their available background knowledge. However, this interpretation is not the one intended by the writer (CARRELL; EISTERHOLD, 1998). This could happen because, no matter how well-structured a text is, "no author can compensate for the individual variation among readers" (CARRELL; EISTERHOLD, 1998, p. 85). Thus, it is the role of the EFL reading teacher to provide sufficient background knowledge so that students are able to achieve a coherent mental representation when reading.

A good way for EFL teachers to facilitate the building and activation of appropriate schemata, in other words, content, linguistic or formal background knowledge, is through the use of prereading activities (AEBERSOLD; FIELD, 1997; CARRELL; EISTERHOLD, 1998; TOMITCH, 2009). Prereading activities may help learners make more meaningful predictions, be more cognitively prepared, understand unfamiliar concepts, terms, and styles

of writing, and find the necessary motivation for the reading task (LANGER, 1982; URQUHART; WEIR, 1998; MOORE; READENCE; RICKELMAN, 1999; TOMITCH, 2009). In the following subsection, studies related to pre-rereading activities will be reviewed. Because the present study is aimed at working with prereading activities that focus on vocabulary (linguistic schemata) and text organization (formal schemata), this researcher has decided to review studies that revolve around those components of knowledge concerning text comprehension.

2.2.1 The role of prereading activities in reading comprehension

According to Moore, Readance and Rickelman (1999), teachers should provide guidance for students when dealing with a reading passage. The authors mention that "guidance means providing activities before, during, and after students read a passage in order to help them understand and retain what they encounter" (p. 1). Tomitch (2009) expands on that view claiming that researchers in the area recommend that the reading classes be divided into three different moments: prereading, during reading and post-reading. In the *prereading phase*, the teacher should guide students and assist them in activating their previous knowledge related to the content of the text to be read, in order to be able to connect what they already know with information coming from the text. The *during reading phase* is when students are given a specific goal to read the text and do corresponding activities to check comprehension. Finally, in the *post-reading phase*, teachers should raise students' awareness concerning what was read so as to make a meaningful association with their lives (Tomitch, 2009).

Although it is possible to have a reading activity without following the aforementioned steps, research has shown this is an adequate structure (AEBERSOLD; FIELD; 1997; CARRELL, 1998c; CARRELL; EISTERHOLD, 1998; TOMITCH, 2009; ROSCIOLI, 2017), as prereading activities "help students to activate or acquire the knowledge necessary for text comprehension, what facilitates the reading flow and is likely to elevate their level of motivation" (ROSCIOLI, 2017, p. 50). Moreover, providing students with some type of prereading activity before they read a text has demonstrated to be an effective tool in building and activating relevant schemata and promoting students' reading comprehension (BARNETT, 1988; TOMITCH, 1991; MOORE; READENCE; RICKELMAN, 1999; ALEMI; EBADI, 2010). Some studies regarding prereading activities have been conducted with second and foreign language readers of English. The following

subsection is aimed at reviewing studies conducted with activities that focus on providing students with appropriate vocabulary items prior to reading.

2.2.1.1 Prereading activities and vocabulary

Vocabulary knowledge is part of what has been defined as linguistic schemata (BARNETT, 1988; AEBERSOLD; FIELD, 1997; CARRELL, 1998a; ALEMI; EBADI, 2010). Vocabulary development and word recognition are important decoding skills as it is crucial to be able to decipher the code of a given language in order to construct meaning from reading a text (CARRELL, 1998c; ESKEY, 1998). Carrell (1998c) explains that traditional views of vocabulary, embedded in the bottom-up reading models, render meaning to be in the word. However, from an interactive view of reading, a word does not have a fixed meaning. Instead, words have various meanings centered on a prototypical core, and these meanings are influenced by readers' background knowledge (BADDELEY, 1990). Thus, when readers know a word they necessarily map its meaning onto the concepts that are part of their experience of the world, that is, content schemata (BADDELEY, 1990; CARRELL, 1998c). The studies to be reviewed in this subsection have used at least one type of experimental procedure regarding vocabulary knowledge and prereading activities.

In an attempt to investigate the role played by schemata in second language (L2) reading by adult English as a Second Language (ESL) students, Hudson (1998) experimented with three proficiency levels: beginning, intermediate and advanced. The participants of the study were 93 ESL students enrolled in an intensive language institute in the United States. The author examined the effects of three types of treatment on participants' reading comprehension: prereading (PRE), vocabulary (VOC) and read-test/read-test (RT). For each proficiency level, three different graded reading passages were selected (nine passages total). For the PRE treatment, prereading activities were developed for each of the reading passages, which included a set of pictures about their general topic and a set of focus questions about the picture. A list of essential vocabulary items from each passage was created to be used in the VOC treatment. As for the measure of comprehension, the author used a ten-item, four-distractor multiple choice reading comprehension test for each passage.

The treatments for Hudson's study followed the subsequent procedures. In the PRE condition, participants received a set of cue pictures and were instructed to quickly look at them. Then, participants were asked the set of focus questions which accompanied the pictures. During the last two minutes of discussion, participants were asked to silently write

down predictions of what information they expected to find in the reading passage. Thus, the PRE method was designed to provide relevant content schemata before reading. In the VOC condition, participants received a list of vocabulary items which would appear in the reading passage. After participants had had some time to go through the list silently, the researcher read the list aloud item by item, accompanied by their definitions. As for the RT condition, participants received the reading passage and answered the multiple-choice item test twice. This condition was designed to build schemata through the rereading of the text.

The results of the study conducted by Hudson (1998) show that different types of intervention, one of them being a prereading activity, were effective at different levels of proficiency. For the advanced level of proficiency, the most effective treatment was the RT, while the PRE and VOC treatments showed no significant difference, that is, "[...] the advanced level readers found self-reconciliation through the text more effective than externally induced schemata" (HUDSON, 1998, p. 198). The author argues that participants from the advanced level might have applied skills that were not available to beginning and intermediate levels due to a threshold in linguistic knowledge. Furthermore, for the beginning and intermediate level participants, the PRE treatment was more effective than the VOC and the RT, which according to the author may be explained by the interference of the externally induced schemata. Hudson (1998) explains that the treatment with the prereading activity aimed at inducing schemata may have compensated for participants' lack of linguistic knowledge. The author concludes that more research is needed to establish which type of schemata is more useful for each level of proficiency.

Regarding the different treatments devised by Hudson (1998), it is important to point out that only the PRE treatment represented, in fact, the application of a prereading activity. Although the VOC treatment introduced a list of vocabulary items, participants did not have to perform any action with the words, that is, participants were not actively engaged in attempting to guess their meanings, which might have influenced the results of the research. In order to contest Hudson's findings, more recently, Mihara (2011) investigated the effects of two prereading activities, vocabulary preteaching and prequestioning on the reading comprehension of students across two levels of proficiency, pre-intermediate and upper-intermediate as defined by their results on the TOEIC[14]. Participants were 78 Japanese private university students who had EFL classes twice a week. For Mihara's study, the materials were four texts chosen based on readers' familiarity with their content so that lack of conceptual

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[14] TOEIC stands for Test of English for International Communication. It is a standardized English proficiency test.

knowledge did not interfere with the results of the activities. The measures of comprehension used were true/false items and comprehension questions.

In the study conducted by Mihara (2011), the procedures for the prereading activity with vocabulary preteaching consisted of asking participants the content of the text based on its title, providing them with a list of keywords and phrases extracted from the text and requiring participants to translate them into Japanese without checking a dictionary. Then, participants were taught the meanings of the words and phrases and they checked their previous guesses. After that, participants were instructed to read the text and answer the comprehension questions that followed. While answering the questions, participants could check the vocabulary list. As for the prereading activity that involved prequestioning, participants received a list a questions prior to reading the text and were instructed to answer the questions based on their background knowledge or to look up the answers on the internet. Participants were required to answer the questions within a five-minute limit. After that, participants had to read the text and answer the comprehension questions that followed.

As for the results, Mihara (2011) points out that the prereading activity that involved pre-questioning had a greater impact on participants' comprehension from both levels of proficiency, pre-intermediate and upper-intermediate. However, the author also reports that participants had the impression that they learned more from the prereading activity that aimed at preteaching vocabulary, especially participants from the upper-intermediate level of proficiency. Concerning the limitations of the study, Mihara (2011) reports that participants did not have enough time to see the vocabulary items chosen for the treatment in different contexts, which might have influenced the results of his study.

Regarding the teaching of EFL in the Brazilian context, two studies investigating prereading activities concerning vocabulary are more relevant to the present research. The first study, conducted by Taglieber, Johnson, and Yarbrough (1988), investigated the effects of three prereading activities, namely pictorial context, vocabulary preteaching, and prequestioning on reading comprehension. The participants in this study were 40 Brazilian sixth-semester college students selected randomly from a pool of students who had achieved an average score on an English proficiency commonly used at their university. The objective of the study was to establish whether participants' reading comprehension, who were EFL students, would be enhanced through the use of different prereading activities.

The materials for the study conducted by Taglieber, Johnson and Yarbrough (1988) consisted of four reading passages of four different genres (a fairy tale, a legend, a nonfiction article, and a fable), selected based on their length, the number of pictures that accompanied

them (at least three), the appropriateness of these pictures (they had to be unambiguous), suitable conceptual and vocabulary difficulty, and use of contemporary English. Data collection followed a Latin Square[15] design, in which participants read all four texts, each one under a different treatment condition: pictorial context, vocabulary preteaching, prequestioning, and no prereading (control condition). Two measures of reading comprehension were used: open-ended and multiple-choice tests.

During the treatment in the pictorial context condition, the experimenter motivated participants to discuss by requiring them to describe the content of the pictures showed while trying to connect the three pictures in order to make a guess about the content of the reading passage. In the vocabulary preteaching condition, participants were taught eight words previously selected from the reading passage. The experimenter would present the words on the board in meaningful, but unrelated sentences. Then, participants were required to guess the meanings of the words. Words that were not correctly guessed were appropriately defined through group discussion. Finally, in the pre-questioning condition, participants were presented with a one-sentence summary of the reading passage so that they could formulate questions they expected to be answered in the text. Participants were instructed to make a list of questions on paper, either in English or in Portuguese, to be later written on the board by the experimenter.

As Taglieber, Johnson, and Yarbrough (1988) expected, the results of their study showed that all three prereading treatments significantly affected participants' scores on multiple-choice items in relation to the control condition. However, no significant differences were found on the scores of the open-ended items. One possible explanation for this finding raised by the researchers is related to the fact that participants had to answer the open-ended items in English, which might have been difficult for them. Another explanation the authors presented is related to the type of knowledge required by the two measures of reading comprehension. They claim that the prereading activities might have been more focused on details than on central ideas, causing participants to remember the detailed information necessary to answer the multiple-choice items. Moreover, it was found that the prereading activity aimed at teaching vocabulary was significantly less effective than the other two treatments. The researchers argue that discussing words in sentences that are not related to one another or to the upcoming reading task may not have been helpful for students.

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[15] A Latin Square design is a method of organizing treatments so that they are balanced throughout the groups of participants within a square block. All the conditions, treatments and control, appear once in each row and column (GAO, 2005).

The second study conducted in the Brazilian context investigated the effect of two prereading activities, namely Possible Sentences (MOORE; ARTHUR, 1981 apud TOMITCH, 1991) and a modified version of the Request Procedure (MANZO, 1969, apud TOMITCH, 1991) on the reading comprehension of intermediate Brazilian EFL students (TOMITCH, 1991). The participants were 40 intermediate level students taking a regular English course at a private language institute. The materials were four expository reading passages of intermediate level. As for the procedures, a 4 x 4 Latin Square design was used, which means all participants read the four texts under four different conditions: (1) Possible Sentences, (2) Request Procedure, (3) Possible Sentences + Request Procedure and (4) no treatment or control condition.

According to Tomitch (1991), the prereading activity Possible Sentences was aimed at preteaching vocabulary while the Request Procedure aimed at making predictions about the content of a passage. In the treatment with the prereading activity Possible Sentences, the researcher showed participants a card containing keywords from the text and asked participants to make a guess about the content of the passage only looking at the words presented. Then, participants were instructed to choose at least two words from the list and create a sentence they thought might appear in the text they were about to read. After that, participants read the text and verified if the formulated sentences were correct. If the formulated sentences were incorrect, the researcher would aid participants to make the appropriate changes, generating new sentences. In the treatment with the prereading activity Request Procedure, participants were given a part of the text to be read and were instructed to think of questions they would like to have answered in the rest of the text. Then, whenever possible, participants answered the questions they created along with other questions raised by the researcher.

The researcher found that both prereading activities significantly improved students' reading comprehension when measured by means of open-ended comprehension questions. Thus, it was found that prereading activities help readers build/activate schemata. Considering the results of the other studies reported until now, one would expect the prereading activity Request Procedure to have had more impact on participants' reading comprehension than the prereading activity Possible Sentences. However, no significant differences were found between the two different prereading activities. This may be due to the different role assumed by the participants in the prereading activity Possible Sentences used by Tomitch (1991). In Tomitch's study, participants were actively engaged in guessing the meaning of the keywords selected by the researcher. Moreover, they had to use the words to create sentences, therefore

connecting their meanings in a semantic and topic related manner. Because of that, one could say that word meanings and background knowledge improved simultaneously as participants constructed the meanings of the words in an associated context which might have led them to activate/construct the conceptual knowledge associated with the words (CARRELL, 1998c). In the following subsection, studies investigating the effects of prereading activities aimed at working on the formal organization of texts will be reviewed.

2.2.1.2 Prereading activities and text structure

Knowledge of the formal organizational pattern of a text, or its rhetoric structure, is what constitutes the readers' formal schemata (BARNETT, 1988; CARRELL, 1998a; CARRELL; EISTERHOLD, 1998; URQUHART; WEIR, 1998; BILOKCUOGLU, 2011). Carrell (1987) explains that "formal schemata define reader expectations about how pieces of textual information will relate to each other and in what order details will appear" (apud BARNETT, 1988, p. 2). In addition, formal schemata are the knowledge readers have of text genres, such as fables, scientific texts, newspaper articles, poems, etc. (CARRELL, 1983). For instance, readers' schema for a recipe most probably contains the name of the dish to be prepared, a list of ingredients, instructions for preparation, total time of preparation and the amount of servings it provides. When reading a specific text, if students are not familiar with its rhetorical structure, teachers may help build the necessary schemata, or even assist students in gaining awareness of the text structure by activating relevant formal schemata (CARRELL, 1983; CARRELL, 1998c).

Prereading activities that focus on providing students' relevant formal schemata before reading are usually related to the use of graphic representations of the text. Moore, Readance and Rickelman (1999) state that "graphic representations of information depict relationships among concepts so that students have a map of an upcoming passage or unit lesson" (p. 50). Moreover, representing information graphically gives students a framework through which they are able to activate background knowledge and integrate what they already know with new information in long term memory (RUMELHART; ORTONY, 1977; MOORE; READENCE; RICKELMAN, 1999; MOHAMMADI; MOENIKIA; ZAHED-BABILAN, 2010). In this subsection, two studies concerning knowledge of text structure and prereading activities will be presented.

With the purpose of investigating the role of advance organizers on the reading comprehension of English as a second language students, Mohammadi, Moenikia and Zahed-

Babelan (2010) conducted a study with a total of 141 participants, categorized into two groups, experimental and control. The materials were participants' scores on the TOEFL[16] exam, including the listening, writing, structure and reading sections. The experimental group contained 65 participants who were exposed to a two-month period of practice with advance organizers, which are prereading activities that help "to organize new material by outlining, arranging and sequencing the main idea of the new material based on what the learners already know" (MOHAMMADI; MOENIKIA; ZAHED-BABILAN, 2010). This study was conducted using a quasi-experimental research method and the research design included a pretest and a posttest with a control group. The results of the tests indicated that practice with advance organizers significantly improved participants' scores in the TOEFL exam. Nonetheless, the authors do not mention how the scores of each section of the TOEFL were influenced by the treatment with advance organizers.

In a more comprehensive manner, Levine and Reves (1994) conducted a study with the objective of investigating what the researchers called the four dimensional model that includes linguistic, formal and content schemata as well as overall reading comprehension, which is the result of an interaction among the other three dimensions. The participants of this study were ninety-five university students who were attending advanced EFL courses. The materials were nine texts selected and evaluated by independent raters in order to ensure the same level of difficulty. The organizational patterns of the texts were descriptive (illustrative), analytical and argumentative. The measures of comprehension used were a total of six questions related to the different kinds of schemata, that is, two questions concerning the readers' application of decoding skills (linguistic schemata), two questions related to the readers' background knowledge (content schemata) and two other questions about readers' awareness of text organization and its effect on comprehension (formal schemata). Also, participants had to provide justifications for each of the six questions. The seventh item on the test was a writing task in which participants had to write a summary of the texts in their first language including main ideas, supporting ideas, author's intention and conclusion. The results of this item were considered as the score of overall reading comprehension.

In relation to the procedures used in the study, Levine and Reves (1994) state that they used a treatment and control group design. Their explanation of the treatments used is rather concise; however, it is possible to notice that the authors have tried to isolate each type of schemata. The authors report that, in order to activate linguistic schemata, they used pre-test

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[16] TOEFL stands for Test of English as a Foreign Language. The TOEFL is an international exam that tests one's proficiency in the English language.

questions concerning decoding, discourse, and vocabulary items in minimal context; as for content schemata, the authors used independent association questions related to the topic of the texts participants were required to read; and, to address formal schemata, they used the prereading of a text in the participants' first language with the same organizational pattern of the text to be read in English.

As for the general results of the study, the authors conclude that the three types of schemata influence readers' text comprehension both separately, as measured by comprehension questions, and cumulatively, as measured by the summary writing task. Also, they claim that content schemata and linguistic schemata seem to be decisive factors in global text comprehension. However, when reading argumentative texts, participants' comprehension showed more improvement by means of the prereading activity aimed at inducing formal schemata. The fact that this prereading activity had the least influence on readers' comprehension in general might be partly explained because it was the only treatment that effectively isolated one type of schemata. By using a text in participants' native language with the same organizational pattern, the researchers possibly avoided including vocabulary and content that could also aid participants when reading the target texts.

As previously mentioned, the studies conducted to investigate the effect of prereading activities on EFL/ESL readers' comprehension presented in this section of the review of literature concerned the building and activation of linguistic and formal schemata. Linguistic schemata entails decoding skills and knowledge of vocabulary and grammar, whereas formal schemata are related to knowledge of text structure and formal organizational patterns encompassing top-down processing (LEVINE; REVES, 1994; CARRELL, 1998a; CARRELL; EISTERHOLD, 1998; URQUHART; WEIR, 1998; BILOKCUOGLU, 2011).

As has already been mentioned, the present study is aimed at investigating the effects of two prereading activities, namely Contextual Redefinition and a modified version of the Graphic Organizer (MOORE; READENCE; RICKELMAN, 1999) on Brazilian EFL students' reading comprehension. Both activities aim at promoting the activation/building of content schemata. In addition, the Contextual Redefinition activity is intended to activate/build linguistic schemata as it works on vocabulary while the modified version of the Graphic Organizer is directed at formal schemata as it deals with text organization. Both prereading activities will be explained in detail in the Method Section of this thesis.

In relation to the two levels of proficiency chosen, little research has been carried out concerning the pre-intermediate level (MIHARA, 2011) and, to this researcher's knowledge, only one study has been conducted in the Brazilian context (ROSCIOLI, 2017). Furthermore,

as Clarke (1998) pointed out through the "short-circuit hypothesis", a certain amount of linguistic knowledge is necessary for text comprehension. It is expected that students at a pre-intermediate level of proficiency are already able to read complete texts for the purposes of this study. As for the advanced level of proficiency, the only two studies found were conducted with EFL students outside Brazil (LEVINE; REVES, 1994; HUDSON, 1998). Taking the aforementioned points into consideration, the present study focuses on pre-intermediate and advanced EFL students.

Moreover, in the present study, one of the questions to be pursued is related to whether the use of the chosen prereading activities to improve text comprehension will help readers create larger chunks of information and, therefore, reduce the demands on storage and processing functions of WMC. Following the computational theory advocated by Just and Carpenter (1992), in which the storing and processing functions of working memory are determined by the amount of activation, the present study endorses the processing efficiency hypothesis for differences in WMC as first proposed by Daneman and Carpenter (1980) and also supported by Just and Carpenter (1992). According to this explanation, individuals vary in the efficiency of their mental processes. Therefore, the mental processes of high-span individuals would not consume all the available capacity, making them able to store the intermediate products generated by the processing of information. The following section will explain the concept of working memory in detail as well as present research findings related to WMC that are relevant for the present study.

2.3 WORKING MEMORY

As advocated by Baddeley (1990), while the term memory suggests that it is a unitary system, human memory is in fact composed of many systems that have different storage duration, that is, the amount of time information is available, and different storage capacity, which is related to the amount of information that can be encoded. In turn, the term working memory is "used to describe the alliance of temporary memory systems that play a crucial role in many cognitive tasks such as reasoning, learning and understanding" (BADDELEY, 1990, p. 8). Thus, working memory (WM) refers to a memory system that is responsible for temporary storage and processing of information required for complex cognitive tasks such as reading comprehension (MASSON; MILLER, 1983; CANTOR; ENGLE, 1993; BADDELEY; HITCH, 1994; BADDELEY, 2000, 2001, 2003; TOMITCH, 2003; BUCHWEITZ, 2006; among many others).

In 1980, Daneman and Carpenter conducted a study to investigate the relationship between the processing and storage functions of WM. They hypothesized that individual differences in reading comprehension might reflect differences in WM capacity. In order to confront this hypothesis, the researchers devised the Reading Span Test (RST) as a measure of WM capacity for reading comprehension and correlated the results of this test with two specific components of reading comprehension: retrieving facts and computing pronominal references. Daneman and Carpenter (1980) found that there was a high correlation between the RST and the two measures of reading comprehension used (fact questions .72 and pronominal reference .90). Since then, the RST has been used with little modifications by various researchers, both in the first and second languages, in an attempt to find correlations with other measures of reading comprehension (TOMITCH, 1999-2000).

Among the studies related to WM, three of them are more relevant for the present study. They were all conducted in L1; the first study was conducted in English and the other two were conducted in Portuguese. The first study was chosen because it demonstrates how results in the RST can be affected by the content of the sentences it contains, which establishes a relation between WMC and content schemata. The study was conducted by Fincher-Kiefer, Post, Greene, and Voss (1988) with the aim of investigating "whether demands produced by the processing of domain-related information varied as a function of a person's domain knowledge" (p. 416). In other words, the researchers' objective was to verify whether participants' performance on the RST would be enhanced if the content of the sentences being read was familiar to them. The participants, sixteen native speakers of English, were categorized into high and low knowledge individuals based on their results on a 45-item completion test about their knowledge of baseball.

Concerning the materials for the Fincher-Kiefer *et al.*'s study, the researchers designed four versions of RST that varied according to sentence-content and sentence-relatedness, resulting in four different conditions: baseball related, baseball unrelated, neutral related, and neutral unrelated. Participants took the RST in all four conditions; their sequence was determined by a 4 x 4 Latin Square design. Results from the first experiment, in which participants did not have to recall the content of the texts, gave support to the researchers' hypothesis that "[...] processing differences may not occur when only the reading of text is required" (FINCHER-KIEFER *et al.*, 1988, p. 417). Furthermore, according to the authors, sentence-relatedness did not play a role in the results; it may be that participants' strategy was to focus only on remembering the last words of the sentences.

In relation to the second experiment, which was conducted with 16 different

participants and the same materials, there was a modification in the procedures. After recalling the last word of each set of sentences, participants were required to remember the content of the sentences read. Results showed an overall lower span compared to the first experiment. Furthermore, participants with high knowledge of baseball had a significantly higher mean span than participants with low knowledge, whereas for neutral material, the difference did not reach statistical significance. This indicates that, besides being sensitive to differences in reading comprehension, the reading span is also influenced by differences in the readers' knowledge of the sentence being read.

The second study to be reviewed in this subsection concerns the relationship of working memory capacity and knowledge of text structure, or formal schemata. In this study conducted by Tomitch (2003), twelve Brazilian undergraduate students read distorted and complete texts in terms of their organizational patterns (Problem/Solution and Prediction). Tomitch's study was entirely carried out in the participants' native language, Brazilian Portuguese. After applying two reading ability measures (free recall and answers to questions about important information in the text), participants were categorized into two groups: better readers also with a high span, and weaker readers also with a low span. Tomitch found out that better readers were better able to recall information from complete texts as well as distorted texts (except for the No Problem text). One of the possible explanations for this finding presented by Tomitch is that better readers are better able to form a hierarchical macrostructure, organizing input information into chunks. The formation of such structures would draw on resources from WM because it would require an automatization of storage and retrieval operations.

The third and final study to be presented in this section is the only one found that attempts to relate the use of prereading activities and working memory capacity. Roscioli (2017) designed an experiment with content schemata aiming at "verifying whether there is a relationship between Technical High School Brazilian Students' working memory capacity (WMC), the use of prereading activities, inference generation and reading comprehension" (p. 33). The thirty-six participants in this study had their proficiency verified through a reading comprehension test devised by the author; they were mainly from beginning and pre-intermediate levels. Then, participants were randomly assigned to two groups: the expository prereading and the narrative prereading.

In her study, Roscioli (2017) chose to work with a selection of prereading activities (MOORE; READENCE; RICKELMAN, 1999) that do not preteach vocabulary, but rather attempted to activate participants' content schemata through visual tools such as videos and

cartoons. The researcher discovered that the chosen prereading activities facilitated participants' inference generation process both quantitatively (total number of inferences) and qualitatively (quality of the inferences; following the categorization used by the author) especially when reading expository texts. Moreover, the use of the prereading activities affected participants' reading comprehension positively, even though it did not reach statistical significance.

Concerning the relationship between the use of prereading activities and WMC, the study conducted by Roscioli (2017) was the only one found that investigated the interaction of those factors. The author reported that WMC as measured by the RST correlated significantly with reading comprehension, when using a strict scoring method. Furthermore, the researcher found that the use of prereading activities might mitigate for limitations in WMC and insufficient knowledge of the type of text being read. Participants with high and low spans in the RST did not follow a pattern in the reading comprehension questions of both narrative and expository texts, which led the researcher to assume that the prereading activities might have played a role by activating participants' relevant schemata and compensating for the level of difficulty of the texts.

In this chapter, the main points regarding the relevant literature for the present study were brought forward. As previously mentioned, for the purposes of this study, reading is seen as an interaction of bottom-up and top-down processes, which occur simultaneously in proficient reading and depend on aspects such as readers' background knowledge of the language, the content and the structure of the text (RUMELHART, 1977; KINTSCH; VAN DIJK, 1978; DAVIES, 1995; AEBERSOLD; FIELD, 1997; ANDERSON; PEARSON, 1998; CARRELL, 1998a; ESKEY, 1998; URQUHART; WEIR, 1998; TOMITCH, 2003). When reading a text, readers use the background knowledge they have available, or their schemata, to create a mental representation of the text (RUMELHART, 1977; KINTSCH; VAN DIJK, 1978). Insufficient knowledge of any of the aspects mentioned, that is, the different types of schemata, may cause readers to rely more on one aspect, which could lead to text-boundedness or schema interference (CARRELL, 1998b).

In the context of reading in a foreign language, readers usually have incomplete knowledge of the various aspects aforementioned, as they are learning the language and the cultural aspects associated with it. It is the task of the teacher to provide activities that aid students in the building and activation of such knowledge. Prereading activities can be used to serve that purpose, being more or less effective depending on the linguistic level of the students (CARRELL, 1998a; HUDSON, 1998). Hudson (1998) suggested that more research

be done in order to establish what type of schemata, or background knowledge, is more useful for each level of proficiency. To this researcher's knowledge, only one study has attempted to do so (MIHARA, 2011) by investigating the effects of two prereading activities, namely vocabulary preteaching and prequestioning on the reading comprehension of EFL students from the pre-intermediate and upper-intermediate levels of proficiency.

3 METHOD

This chapter presents the method that was used to collect data for the present study. The research *Objectives* are mentioned in Subsection 3.1 followed by the *Research Questions*, which are stated in Subsection 3.2. In turn, Subsection 3.3 presents the *Hypotheses*, which were created based on the research questions as well as on the existing literature in the area. The *Research Design* is explained in Subsection 3.4, followed by the *Context of the Study*, which is detailed in Subsection 3.5. In sequence, Subsection 3.6 is concerned with information about the *Participants* of the study whereas Subsection 3.7 addresses the *Materials* that were used for data collection. The *Procedures for Data Collection* are described in Subsection 3.8 while Subsection 3.9 mentions the *Procedures for Data Analysis*. Subsection 3.10 brings information about the *Pilot Study* and, finally, Subsection 3.11 focuses on *Research Ethics* and how data collection with human beings is carried out in Brazil.

3.1 OBJECTIVES

The present study has two main objectives. The first objective is to investigate the effects of two prereading activities, namely Contextual Redefinition and a modified version of the Graphic Organizer (MOORE; READENCE; RICKELMAN, 1999), on the reading comprehension of pre-intermediate and advanced Brazilian English as a foreign language (EFL) students. The second objective is to investigate whether there is a correlation between students' WMC as measured by means of the Reading Span Test (RST) (DANEMAN; CARPENTER, 1980) and the results obtained in the comprehension tests in each of the prereading activities conditions. As previously mentioned, this researcher decided to focus on pre-intermediate and advanced participants because there is little research in the area investigating how prereading activities affect EFL students' reading comprehension that belong to those levels of proficiency.

3.2 RESEARCH QUESTIONS

In accordance with the objectives stated previously, and as mentioned in the introduction of the present thesis, this study attempts to answer the following research questions:

–Research question 1: Does the prereading activity Contextual Redefinition influence pre-intermediate and advanced EFL students' reading comprehension as measured by written free recall and comprehension questions?

–Research question 2: Does the modified version of the prereading activity Graphic Organizer influence pre-intermediate and advanced EFL students' reading comprehension as measured by written free recall and comprehension questions?

–Research question 3: Is there a correlation between RST scores, comprehension questions scores and written free recall scores when the prereading activity Contextual Redefinition is used with pre-intermediate and advanced EFL students?

–Research question 4: Is there a correlation between RST scores, comprehension questions scores and written free recall scores when the modified version of the prereading activity Graphic Organizer is used with pre-intermediate and advanced EFL students?

3.3 HYPOTHESES

Having mentioned the objectives and research questions that guide the present study and, based on the findings of previous studies and on the literature of the area, the following hypotheses were formulated:

–Hypothesis 1a: The prereading activity Contextual Redefinition is going to have a positive effect on pre-intermediate and advanced EFL students' reading comprehension as measured by written free recall and comprehension questions. This is expected because, as mentioned in the review of literature of the present thesis, prereading activities that aid in building/activating readers' vocabulary knowledge have a positive influence on their reading comprehension (TAGLIEBER; JOHNSON; YARBROUGH, 1988; TOMITCH, 1991; HUDSON, 1998; MIHARA, 2011);

–Hypothesis 1b: The prereading activity Contextual Redefinition is going to have a greater effect on pre-intermediate than on advanced EFL students' reading comprehension as measured by comprehension questions. Because the pre-intermediate students are closer to the language threshold (CLARKE, 1998), it is expected that knowledge of vocabulary may help them understand specific

information in the text, tackled by the comprehension questions. In contrast, because advanced students already have good knowledge of vocabulary, they are more likely to use other skills in order to comprehend the ideas that are represented in the comprehension questions;

–Hypothesis 2a: The prereading activity Graphic Organizer is going to have a positive effect on pre-intermediate and advanced EFL students' reading comprehension as measured by written free recall and comprehension questions. This is expected because prereading activities that assist readers in gaining awareness of text structure have had a positive effect on their reading comprehension (LEVINE; REVES, 1994; MOHAMMADI; MOENIKIA; ZAHED-BABILAN, 2010);

–Hypothesis 2b: The prereading activity Graphic Organizer is going to have a greater effect on advanced than on pre-intermediate EFL students' reading comprehension as measured by written free recall. The advanced students are more likely to use skills that are not available to the pre-intermediate level (HUDSON, 1998). It is expected that advanced students benefit more from knowledge of the organization of the text because the pre-intermediate students might still need to reconcile with the unknown vocabulary present in the text;

–Hypothesis 3: There is no correlation between RST scores, comprehension scores and written free recall scores, when the prereading activity Contextual Redefinition is used with pre-intermediate and advanced students. Measures of reading comprehension usually correlate with RST scores when there is no treatment, that is, readers with a low span are also poor readers while readers with a high span are also good readers (TOMITCH, 2003). However, Roscioli (2017) found that participants with high and low spans in the RST did not follow the aforementioned pattern in the reading comprehension questions when they were preceded by a prereading activity. It is expected that, because participants received the treatment with the prereading activity Contextual Redefinition, they are going to have a similar performance in the reading comprehension tasks, despite being high or low spans. For this reason, no significant correlation is expected;

–Hypothesis 4: There is no correlation between RST scores, comprehension scores and written free recall scores, when the prereading activity Graphic Organizer is used with pre-intermediate and advanced students. It is expected that, because

participants received the treatment with the prereading activity Graphic Organizer, they are going to have a similar performance in the reading comprehension tasks, despite having different spans as measured by the RST. For this reason, no significant correlation is expected (ROSCIOLI, 2017).

3.4 RESEARCH DESIGN

In terms of the method used, the present research can be categorized according to its nature as an applied study, with objectives that attempt to establish a causal relationship between variables, and that sought to collect data via a quasi-experimental design (GIL, 2002; MCDONOUGH; MCDONOUGH, 2006). Also, data was collected using a within-subject design so that the research could be conducted with a smaller pool of participants. Additionally, this study can be considered mainly quantitative in terms of its approach; however, qualitative data were also collected with the purpose of contributing to the analysis as a whole (CRESWELL, 2013).

As for the design of this research, data collection was divided into six parts that were carried out in two different encounters with participants. During the first encounter, in Part 1, participants were required to answer a questionnaire about their profile as English students and readers; in Part 2, they were asked to take a proficiency test involving their reading comprehension; and, in Part 3, participants did the Reading Span Test (RST) and answered a retrospective questionnaire.

Taking into consideration that the present study used a within-subject design, during the second encounter, all participants were tested in three different conditions: the Control condition, in which participants received no treatment before the tests; the Treatment 1 condition, in which participants received treatment with the prereading activity Contextual Redefinition before the tests; and the Treatment 2 condition, in which participants received treatment with a modified version of the prereading activity Graphic Organizer.

Following the previous explanation, in Part 4 of data collection (control), participants read a text which was appropriate to their proficiency level, as measured by the reading proficiency test applied in the first encounter; then, they did a written free recall task and answered six comprehension questions about the text; finally, participants answered a retrospective questionnaire. After that, in Part 5, participants received the treatment with the prereading activity Contextual Redefinition and did all the activities described in Part 4. Finally, in Part 6, participants received the treatment with the modified version of the

prereading activity Graphic Organizer and, once again, did all the activities described in Part 4. In order to facilitate comprehension, the design of the study is graphically presented in Table 1.

Table 1 – Research design

First Encounter (in group)		Second Encounter (in group)	
Part 1	Profile Questionnaire	Part 4 (Control)	Reading Text 1 Written free recall Comprehension Questions Retrospective Questionnaire
Part 2	Proficiency Test (reading comprehension)	Part 5 (Treatment 1)	Prereading activity Contextual Redefinition Reading Text 2 Written Free recall Comprehension Questions Retrospective Questionnaire
Part 3	Reading Span Test Retrospective Questionnaire	Part 6 (Treatment 2)	Prereading activity Graphic Organizer Reading Text 3 Written Free recall Comprehension Questions Retrospective Questionnaire

Source: Elaborated by the author (2019).

It is important to mention that data collection for the main study as well as for the pilot study happened after the approval of the Ethics Committee for Research with Human Beings, to be described in Subsection 3.11. The design of the present study was defined after the pilot study, to be described in Subsection 3.10. The students from the selected groups were invited to participate in the present research during the period of May 20th to May 23rd, 2019. The pilot study took place on May 22nd (first encounter) and on May 29th (second encounter) with a group of three students labeled Intermediate 3 by the language institute. The data collection phase of the main study was conducted from May 27th to June 27th with various groups that had classes with four different teachers, including this researcher. The two

encounters were scheduled within that period according to the availability of participants, teachers and researcher. Table 2 presents the dates in which the two encounters with the groups took place.

Table 2 - Dates for data collection with the groups

Teacher	Name of the group as labeled by the language institute	Day(s) of the week participants have classes	Date of the 1st Encounter	Date of the 2nd Encounter
1	Intermediate 3 (Pilot)	Mondays and Wednesdays	May 22nd, 2019	May 29th, 2019
1	Intermediate 3	Mondays and Wednesdays	May 27th, 2019	June 3rd, 2019
2	Intermediate 2	Mondays	May 27th, 2019	June 3rd, 2019
2	Intermediate 3	Tuesdays	May 28th, 2019	June 4th, 2019
2	Advanced 2	Thursdays	May 30th, 2019	June 13th, 2019
3	Basic 4	Thursdays	June 6th, 2019	June 27th, 2019
1	Basic 3	Tuesdays and Thursdays	June 11th, 2019	June 27th, 2019
4	Intermediate 1	Wednesdays	June 19th, 2019	June 26th, 2019

Source: Elaborated by the author (2019).

3.5 CONTEXT OF THE STUDY

The present study was conducted at a private English course in the south of Brazil. The course is open to the community, so anyone who is interested can enroll. The students are categorized according to their second language proficiency and age, forming groups of kids, teenagers, adults and elderly people. The sample population of this study was comprised of teenagers, who usually have classes in the afternoon, and adults, who have classes in the evening and on Saturday mornings. Occasionally, due to their school schedule, some teenage students are given permission to study in one of the adult groups in the evening or on Saturday mornings.

It is important to mention that the age factor was not controlled and it is not a variable

in the present study. Taking into consideration that this research aimed at working with two different levels of proficiency, namely pre-intermediate and advanced, this researcher decided to include both teenagers and adults in the sample so that a minimum number of participants in each group would be achieved. Thus, the present research deals with a mixed population because there was no control over the number of teenage and adult participants in each level of proficiency. More information concerning the average age and range of participants will be given in Subsection 3.6.

For the target population of this study, that is, teenagers and adults, the complete English course at the selected private school has a total of six years, going from the basic to the advanced level. Thus, there are four basic levels, four intermediate levels and four advanced levels. Besides being equivalent in terms of the duration of the course, the teenage and adult groups chosen also have the same number of hours of English classes during the week, that is, three hours per week. However, the teenage groups have two classes of one hour and a half and the adult groups have one class of three hours.

In relation to the materials, all the different groups in the language institute where data collection took place use materials developed by the publisher *Cambridge*. The teenage groups use the book *American Think* from Basic 1 to Intermediate 4, whereas the adult groups use the book *Interchange* for the same levels. As for the advanced levels, teenagers and adults use the book *Passages*. Table 3 shows the levels for the teenage and adult groups and their correspondence, as well as the books used in their classes.

Table 3 - Materials used by teenage and adult groups

English Course		
Proficiency Level (as labeled by the language institute)	**Book by Cambridge**	
	Teenagers	**Adults**
Basic 1	*"American Think Starter"*	*"Interchange Intro"*
Basic 2		
Basic 3	*"American Think 1"*	*"Interchange 1"*
Basic 4		
Intermediate 1	*"American Think 2"*	*"Interchange 2"*
Intermediate 2		
Intermediate 3	*"American Think 3"*	*"Interchange 3"*

Intermediate 4		
Advanced 1	*"Passages 1"*	
Advanced 2		
Advanced 3	*"Passages 2"*	
Advanced 4		

Source: Elaborated by the author (2019).

3.6 PARTICIPANTS

The participants of this study were Brazilian EFL teenage and adult students from a private English course offered at a language institute in the south of Brazil. The criteria for participant selection were convenience sampling, availability, and proficiency. For the purposes of this study, a total of 46 students from the groups Basic 3, Basic 4, Intermediate 1, Intermediate 2, Intermediate 3 and Advanced 2, as labeled by the language institute, were invited to take part in the main study. Out of the forty-six students who were invited, only one decided not to participate in the research. Because data was collected during participants' regular classes, the student took part in all of the proposed activities together with his classmates. However, the data generated by his participation is not part of this study. Furthermore, as it was explained to the student, he will receive feedback on his performance just like the other students.

As the present study deals with reading, participants were tested for their proficiency in order to ensure that their reading comprehension corresponded to the desired levels, that is, pre-intermediate and advanced. Taking into consideration the results of the reading proficiency test[17], a total of 16 participants belonged to the pre-intermediate group and 15 participants to the advanced group. Out of the participants who belonged to the desired levels of proficiency, in the pre-intermediate group, one student who was underage did not present the permission from her legal guardian to participate in the study, which made impossible to use the data generated by her. Thus, the total number of students who qualified for the study is 30; fifteen participants in the pre-intermediate group and fifteen in the advanced group.

The test used to certify students' proficiency was comprised of the reading section of a multiple-choice placement test concerning the material *Passages* published by *Cambridge*, which is in accordance with the course materials used by participants in their course:

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[17] More information concerning the reading proficiency test will be given in Subsection 3.7.1.

American Think, for the teenage students, and *Interchange*, for the adult students, published by the same editor. The complete placement test includes questions that test listening, reading and language use, which are related to grammar and vocabulary. For the purposes of this study, only the part related to reading was used, with a total of 20 questions. The results were interpreted taking into consideration the Common European Framework of Reference (CEFR)[18]. Hence, participants at the B1 level of proficiency were included in the pre-intermediate group, and participants at the C1 level of proficiency constituted the advanced group.

3.7 MATERIALS

This subsection of the method presents all the materials that were used during the data collection of the present research, which include: the proficiency test used to certify participants' level of English in the reading comprehension (Subsection 3.7.1), the stimuli used (Subsection 3.7.2), which are six texts, three for the pre-intermediate group and other three for the advanced group, the unfamiliar words for the prereading activity Contextual Redefinition, or Treatment 1 (Subsection 3.7.3.1.1), the sentences containing the words that provide context for that prereading activity (Subsection 3.7.3.1.2), the dictionary entries that participants used to check their guesses in the aforementioned activity (Subsection 3.7.3.1.3), the organizational pattern and main ideas of the texts that were selected for the modified version of the prereading activity Graphic Organizer, or Treatment 2 (Subsection 3.7.3.2.1) , the diagrams that reflected the organizational pattern containing those main ideas (Subsection 3.7.3.2.2), the sentences for the Reading Span Test (Subsection 3.7.4.1), the booklet for participants to write their answers of the RST (Subsection 3.7.4.2), the written free recall task (Subsection 3.7.5.1), the six comprehension questions (Subsection 3.7.5.2), the retrospective questionnaires participants were required to answer after the control condition, Treatment 1 and Treatment 2 (Subsection 3.7.6), and the profile questionnaire (Subsection 3.7.7).

3.7.1 Reading proficiency test

As previously mentioned, for the purposes of this study, in order to certify that participants were at the desired level of proficiency, which are pre-intermediate (B1) and

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[18] The CEFR is an international standard for describing language ability in a six-point scale, from A1 (beginners) to C2 (mastery).

advanced (C1), they were required to take a test that was aimed at evaluating their reading comprehension. For this, the reading section of one of the objective placement tests of the material *Passages*, published by the editor *Cambridge* was used. This placement test was chosen because it is in consonance with the materials *American Think*, used by the teenage groups, and *Interchange*, used by the adult groups in their regular English classes. The complete placement test comprises questions related to listening comprehension, reading, and language use, which entails grammar and vocabulary. In this study, only the reading section of the objective Placement Test A was used, with a total of twenty multiple-choice questions about eight different texts, which are organized in terms of level of difficulty, from the easiest to the hardest. In order to take the test, participants received a booklet with the texts and comprehension questions and a set of instructions in their native language, Brazilian Portuguese (see Appendix A). All participants had about 20 minutes to answer the questions, as suggested in the instructions provided by Cambridge for the application of the reading section of the placement test. The test was graded by this researcher using the answer key in the Cambridge material[19].

3.7.2 The stimuli

The stimuli for the present study constituted six texts (Appendix B), selected from the webpage of the British Council[20], which have their level of linguistic difficulty categorized according to the Common European Framework of Reference (CEFR). Three texts were selected for the pre-intermediate group, that is, the B1 level of proficiency: *Digital Habits Across Generations* (432 words), *The Legend of Fairies* (387 words) and *Robot Teachers* (346 words). For the advanced group, or the C1 level of proficiency, the selected texts were entitled: *Do you have the right mindset?* (462 words), *Me and My Brain* (472 words) and *The Rise of Fake News* (466 words). It is worth mentioning that the selected texts are categorized as appropriate to B1 and C1 levels of the CEFR in the website of the British Council.

The criteria for selecting the texts were the following: the texts needed to have a comparable amount of words; they needed to fit one page so that participants would not be

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[19] Information concerning the scoring of the reading proficiency test will be given in Subsection 3.9.1.
[20] The British council is an international organization of the United Kingdom for cultural relations and educational opportunities. https://www.britishcouncil.org

overwhelmed by their length; the texts had to be extracted from the same source, in this case, the British Council webpage; they needed to be previously categorized according to the CEFR; they had to be expository texts; and, finally, they needed to have a clear textual structure. In addition to meeting the aforementioned criteria, in order to make the texts as comparable as possible, pictures accompanying the texts were removed; markings such as boldface fonts were removed, as well as any other type of visual clue as to the rhetoric organization of the texts. Finally, if the text had any subtitle, they were incorporated to the body of the text. The rationale for these adaptations in the format of the texts is that any information that stands out visually might trigger readers to use a top-down approach to reading (DAVIES, 1995; AEBERSOLD; FIELD, 1997), thus promoting the creation of a mental representation of the text, which could interfere with the treatments to be administered.

3.7.3 The prereading activities

In order to reach the objectives proposed, two prereading activities were chosen to serve as the treatment conditions in the present study. The two prereading activities are Contextual Redefinition and a modified version of the Graphic Organizer (MOORE; REANDENCE; RICKELMAN, 1999). As mentioned previously, the first prereading activity is aimed at providing participants with the relevant vocabulary so as to have a better understanding of the texts, while the second prereading activity is focused on working with the rhetoric organizational patterns of the selected texts. The materials used for both prereading activities will be explained in the following subsections.

3.7.3.1 Contextual Redefinition

The prereading activity Contextual Redefinition is designed to provide students with the relevant vocabulary before reading a text through the use of context clues for the meaning of unknown words. The rationale underlying this activity is that "context enables readers to predict a word's meaning by making connections between their prior knowledge and the text" (MOORE; READENCE; RICKELMAN, 1999, p. 38). The preparation for applying the prereading activity Contextual Redefinition includes three steps: selecting unfamiliar words from the texts, writing a sentence that provides context clues to the meaning of the words selected and making a list of dictionary entries of those words.

3.7.3.1.1 Unfamiliar words

The first step in the preparation for the prereading activity Contextual Redefinition entailed the selection of unfamiliar words. In order to select the words that are relevant to the comprehension of the chosen texts, three independent raters categorized their propositions into main idea, supporting idea and detail. Then, this researcher selected the unfamiliar words from the main ideas as identified by at least two of the three raters based on her teaching experience. During the pilot study, it was verified that the selected words were factually unknown to the participants. A total of 10 words were selected from each text (see Appendix C). For instance, some of the words selected from Text 2 of the advanced level entitled *Me and My Brain* were: *prune*, *wither* and *adage*.

3.7.3.1.2 Sentences containing the words

The second step to prepare the materials for the prereading activity Contextual Redefinition involved creating one sentence that provided context clues for each unknown word. The sentences were created so that the words had the same meaning as in the text they were extracted from. Thus, the sentences (see Appendix D) provided context clues through the use of synonyms, antonyms, a description or definition, familiar expressions, and other linguistic resources, following the explanation presented by Moore, Readence and Rickelman (1999). For example, for the word *prune* excerpted from Text 2 of the advanced level, the following sentence was created: "*We have to prune our apple tree. It is getting too big*".

3.7.3.1.3 Dictionary entries

The last step in the preparation for the prereading activity Contextual Redefinition required participants to look up the meanings of the unfamiliar words in a dictionary. This researcher decided that it would be time-consuming to have participants check a dictionary. Instead, one list with the dictionary entries for the words from each text were prepared (see Appendix E). This way, participants checked their guesses with the aid of the lists[21]. For instance, for the word prune taken from Text 2 of the advanced level, the following definition was given to participants: "to cut off branches from a tree, bush, or plant, especially so that it

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[21] The definitions used in the entries were taken from the webpage dictionary.com.

will grow better in the future".

3.7.3.2 Graphic Organizer

The objective of the prereading activity Graphic Organizer is to present "a schematic diagram for major concepts and additional terms which convey information to students before they read" (MOORE; READANCE; RICKELMAN, 1999, p. 54). For the purposes of this study, a modified version of this activity was used in which the graphic organizer was made to reflect the structure of the chosen texts. The preparation for this activity included identifying the type of organizational pattern of the texts and their main ideas as well as the creation of diagram with the main ideas that reflected such structure.

3.7.3.2.1 Organizational pattern and main ideas

In order to discover the organizational pattern of the expository texts selected for this study, three independent raters categorized the texts following the typology proposed by Meyer (1975), in which the author identifies five structures for expository texts: antecedent/consequent, comparison, collection, description and response. The categories presented in Table 4 were identified by at least two of the three raters. Furthermore, as previously mentioned, the raters also identified the main ideas of the texts which, together with the type of organizational pattern, supported the creation of the diagrams to be used during the treatment with the prereading activity Graphic Organizer.

Table 4 - Type of organizational pattern of the texts

Pre-intermediate (B1)	Text 1 - Digital habits across generations	Response
	Text 2 - The legend of fairies	Description
	Text 3 - Robot teachers	Description
Advanced (C1)	Text 1 - Do you have the right mindset?	Comparison
	Text 2 - Me and my brain	Collection
	Text 3 - The rise of fake	Response

	news	

Source: Elaborated by the author (2019).

3.7.3.2.2 Diagrams

The last step in the preparation for the modified version of the prereading activity Graphic Organizer entailed the conception of diagrams that reflected the rhetoric organizational pattern of the selected texts. The diagrams (Appendix F) included the main ideas that were identified by at least two of the three independent raters and were organized according to the patterns presented in Table 4. The diagrams were shown to the participants through a PowerPoint presentation, with each main idea appearing at one time. For instance, for Text 2 of the advanced level entitled *Me and My Brain*, the diagram in Figure 1 was presented to participants.

Figure 1 - Diagram of Text 2 of the advanced level
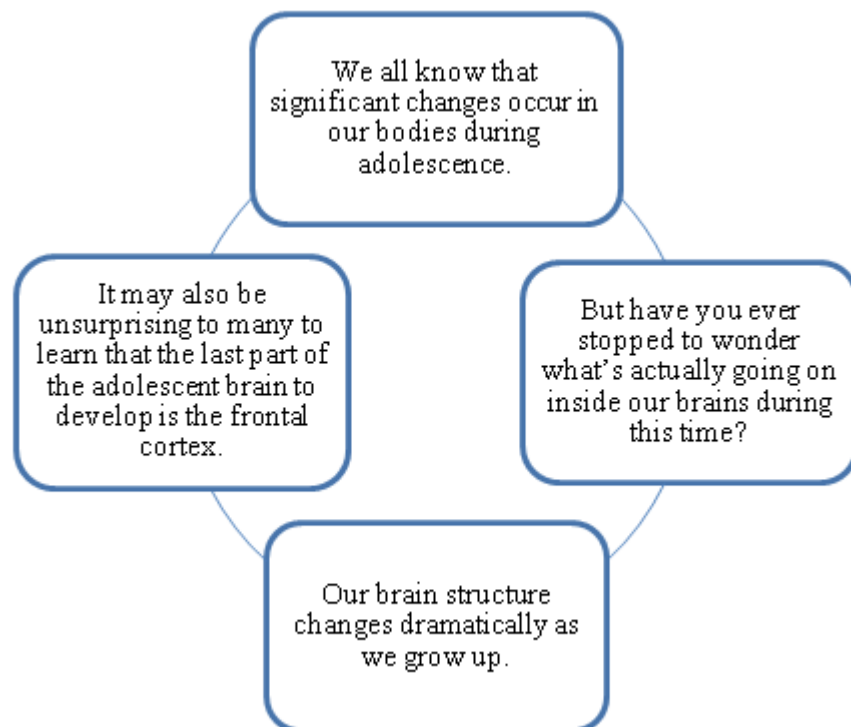
Source: Elaborated by the author (2019).

3.7.4 The Reading Span Test

In order to measure participants' working memory capacity (WMC), the Reading

Span Test (RST) was used (DANEMAN; CARPENTER, 1980). The present study was conducted using the RST in Portuguese developed by Tomitch (2003) and later on adapted by Bailer, Tomitch and D'Ely (2013), constituting three sets of two, three, four, five and six sentences each (15 sets total), as well as nine additional sentences for practice. This version of the RST was chosen because it was adapted to be used with teenagers, who are part of the target population of the present study. Moreover, as in Bailer, Tomitch and D'Ely (2013), the sentences were presented visually using a PowerPoint presentation on a computer screen. For the purposes of this study, participants took the silent reading version of the RST in a group session (TORRES, 2003). In order to ensure the processing demands of this test, participants judged the grammaticality of the sentences and wrote the last word of each sentence in the order they appeared on the screen in a response booklet, which also contained a set of written instructions, following the procedures used by Torres (2003).

For the grammaticality judgment test, half of the sentences were syntactically altered, with alterations randomly located at the beginning, middle and end of sentences. The ungrammatical changes were introduced to the version of the RST in Portuguese used by Bailer, Tomitch and D'Ely (2013), adapted from Tomitch (2003). All participants in this study took the RST in Portuguese, which is their native language, and received written and oral instructions in this language as well. The rationale for this choice was to avoid floor effects because of participants' proficiency level in English (ROSCIOLI, 2017). Moreover, participants underwent a training session prior to the beginning of the testing phase with one set of 2, 3 and 4 sentences.

3.7.4.1 The sentences

As previously mentioned, for the purposes of the present study, the 60 unrelated sentences in Portuguese for the RST varied from 13 to 17 words in length (Appendix G), for instance: "Cada volume traz textos inéditos escritos por psicólogos e psicanalistas, todos especialistas no **assunto**" (14 palavras, *Mente e Cérebro*, maio de 2010, p.8), which was the fourteenth sentence of the test. The sentences were syntactically altered at random by inverting the order of three words located at the beginning (third, fourth and fifth words), middle (eighth, ninth and tenth words) and end of sentences (the three words that anteceded the last two words). For example, the fourteenth sentence was altered to: "Cada volume inéditos textos traz escritos por psicólogos e psicanalistas, todos especialistas no **assunto**". The random alterations had the objective of avoiding that participants developed strategies as

to discover what part of the sentences were altered and ended up not reading the complete sentences, which could have let them to have more resources to store the last word of each sentence (Appendix H). Thus, out of the 60 sentences, a total of 30 sentences were syntactically altered (Appendix I). For the training session, 5 out of the 9 sentences were syntactically altered. Table 5 shows the distribution of the altered sentences (marked with an x) throughout the RST.

Table 5 - Random syntactic alterations in the sentences of the RST

Training Session	Sentence 1	Sentence 2	Sentence 3	Sentence 4	Sentence 5	Sentence 6
Set 1	X	-				
Set 2	X	-	-			
Set 3	X	X	X	-		
RST	Sentence 1	Sentence 2	Sentence 3	Sentence 4	Sentence 5	Sentence 6
Set 1	-	-				
Set 2	-	-				
Set 3	-	-				
Set 4	-	-	-			
Set 5	-	-	X			
Set 6	-	X	X			
Set 7	-	X	X	-		
Set 8	X	X	X	-		
Set 9	-	-	X	-		
Set 10	X	X	X	-	X	
Set 11	X	-	X	X	-	
Set 12	X	X	X	X	-	
Set 13	-	-	X	X	-	X
Set 14	X	X	X	-	-	X
Set 15	-	-	-	X	X	X

Source: Elaborated by the author (2019).

3.7.4.2 The booklet

Considering the research design proposed for the present study, participants were required to take the Reading Span Test in a group session, which would have made it impossible for them to read the sentences aloud. For this reason, the silent version of the RST was chosen in which, in order to ensure the processing demands of the task, half the sentences were syntactically altered (TORRES, 2003). Thus, a booklet (see Appendix J) was created for participants to judge the grammaticality of the sentences presented as well as write the last word of each sentence. This booklet contained instructions in Brazilian Portuguese in relation to the procedures for the RST. In addition, it was organized so that participants judged the grammaticality of the sentences on one page and wrote the last word of each sentence (see Appendix H) on the following page.

3.7.5 Measures of comprehension

In order to reach the objectives proposed, two measures of comprehension were used in the present study: written free recall and comprehension questions. Participants' comprehension was measured during Parts 4, 5 and 6 of data collection, as described in Table 1. The criteria for choosing written free recall as one of the measures of comprehension is that participants can write everything they remember from the text, pointing out what was most significant to them. As for the comprehension questions, they allow participants to demonstrate what they remember from specific parts of the text. For both measures, pre-intermediate and advanced participants were required to write in Portuguese in order to avoid any difficulty they might have when writing in English (TOMITCH, 1991; BAILER; TOMITCH; D'ELY, 2013; ROSCIOLI, 2017). The following subsections present more details concerning the chosen measures.

3.7.5.1 Written Free Recall

The first measure of comprehension used in the present study was written free recall. After reading the texts silently as described in Parts 4, 5 and 6 of data collection (see Table 1), which correspond to the Control Condition, Treatment 1 and Treatment 2 respectively, the texts were collected and participants were required to do a written free recall task. For that, they received a sheet of paper (Appendix K) and were instructed to write down everything

they could remember using complete sentences. Another reason for choosing this measure of comprehension is that the recalls of the high span participants might reflect the organization of the texts read, according to the results found by Tomitch (2003). Furthermore, it is also possible that, after having received Treatment 2 with the modified version of the prereading activity Graphic Organizer, the recall of the participants with a low span might also reflect the organization of the texts read, giving support to Hypotheses 4 of the present study. The procedures for the scoring of the written free recall will be explained in Subsection 3.10.3.

3.7.5.2 Comprehension Questions

The second measure of comprehension used in this study was sets of six open-ended comprehension questions related to the texts (Appendix L). For each text, a number of eleven to fifteen questions were elaborated by this researcher. After that, a group of three independent raters categorized the questions using Pearson and Johnson's (1978) taxonomy: textually explicit, which concerns information that can be found explicitly stated in the text; textually implicit, that is, the information can be found in the text, but readers need to use their background knowledge to generate inferences; and scriptally implicit, which regards information that is not in the text, in other words, it is part of readers' background knowledge. Based on the categorization of the raters, six questions were chosen, all of them related to textually explicit information. The original idea was to choose three questions categorized as textually explicit and other three questions that were considered textually implicit. However, for some texts, no questions were considered textually implicit by the raters.

Furthermore, the questions were worded so that it was not possible to answer them appropriately using only one's prior knowledge. For that, three different independent raters answered the questions without having read the texts, so that they had to rely solely on their background knowledge. The questions correctly answered by two or more raters were eliminated from the present study, following the procedure used by Tomitch (1991). In addition, the questions that were categorized as scriptally implicit by at least one of the raters and that were answered correctly by at least one other rater were also eliminated from this study. For instance, for Text 2 of the advanced level, one of the comprehension questions that was not answered correctly by the independent raters was: "De acordo com o texto, o que muda no nosso corpo durante a adolescência?".

3.7.6 Retrospective Questionnaires

As it was explained in Subsection 3.4 *Research Design*, this study encompasses some qualitative instruments in order to give support to the quantitative measures obtained. Taking that purpose into consideration, four different retrospective questionnaires (Appendix M) were designed based on the procedures followed by Roscioli (2017): the first one to be answered after the Reading Span Test (RST), in Part 1 of data collection (see Table 1); and the second, third and fourth questionnaires were conceived to be answered after Parts 4, 5 and 6 of data collection, in which participants had to read the texts in the control condition and after the two different treatments with the prereading activities. The questions in all the four questionnaires were written in participants' native language, that is, Brazilian Portuguese. Also, participants were required to answer the questionnaires in that same language. All instances of participants' statements extracted from the retrospective questionnaires presented in this thesis are English translations made by this researcher.

The retrospective questionnaire to be answered after the RST included questions related to the participants' impressions of the test, their feelings, the strategies used during the test, as well as their judgement regarding the level of difficulty of the test. The retrospective questionnaires to be answered after reading the texts comprised questions related to the texts, to the prereading activities, to the written free recall task, to the comprehension questions as well as their judgement regarding the level of difficulty of the texts.

The answers provided in the retrospective questionnaires (see Appendix M) are going to be presented in the *Discussion of the Results* in the next chapter of this thesis with the objective of providing data triangulation, by exemplifying and clarifying the data collected quantitatively and allowing for the elucidation of the results.

3.7.7 Profile Questionnaire

In order to have some general information on the participants' learning history and reading habits, a profile questionnaire was administered prior to the tests, in Part 1 of data collection (see Table 1). This profile questionnaire (Appendix N) was designed based on the questionnaire used by Woelfer (2016) and contained questions related to participants' age, how long they had been studying English, how much time they devoted to studying English outside the classroom, what type of activities related to English they do outside the classroom, as well as questions concerning how much time they spent reading texts in English and their

behavior towards vocabulary difficulties and text structure. Participants' answers were compiled and used as a means to triangulate data. It is expected that the information collected qualitatively through the profile questionnaires gives support to this researcher in interpreting the quantitative data. It is important to mention that all the questions in the profile questionnaire were written in the participants' native language. The answers provided in the profile questionnaire (see Appendix N) are going to be presented in the *Discussion of the Results* in the next chapter of this thesis.

3.8 PROCEDURES FOR DATA COLLECTION

In this subsection, the procedures for data collection will be detailed. It is important to mention that students were invited to participate in the present study one week before the beginning of data collection. Data collection was divided into six parts to be carried out in two encounters with participants during their regular English classes. In the first encounter, Parts 1, 2 and 3 of data collection took place (see Table 1). In the first part, participants answered a profile questionnaire (Appendix N) with questions about personal information, their reading behavior, and learning history. The questions were written in their native language, Brazilian Portuguese, and they were supposed to answer the questions in that language as well. This researcher read each question so that participants understood exactly what they had to answer. Participants had approximately ten minutes to answer the profile questionnaire. In the second part, participants took the proficiency test regarding their reading comprehension. This researcher distributed the booklets (Appendix A) among participants and read the instructions in Portuguese. After ensuring participants understood what they were expected to do, this researcher explained that they would have only twenty minutes to take the test. In addition, participants were informed they could not ask questions regarding the content of the texts being read or any other question that could help them understand the texts.

In the third part of data collection, which had approximately forty minutes of duration, participants took the silent reading version of the RST in Portuguese. In the first five minutes, this researcher distributed the booklets (Appendix J) to participants and read the instructions that were written on cover of the booklets, providing appropriate examples. Then, prior to the test itself, participants practiced the procedure in a training session with one set of two, three and four sentences. Using a PowerPoint presentation, each sentence (Appendix I) was displayed for twelve seconds on a computer screen. Participants read each sentence silently and put a check mark next to the number that corresponded to the sentence being shown on

the screen on their booklets if the sentence was grammatical or put a cross if the sentence was ungrammatical, for instance: "Cada volume <u>inéditos textos traz</u> escritos por psicólogos e psicanalistas, todos especialistas no **assunto**". After all the sentences in one set were displayed, question marks on the screen (???) indicated recall. Then, participants turned to the next page on their booklets and wrote the last word of each sentence in the set in the order they appeared on the screen. There was no pre-established time for participants to recall the words. This researcher would verify if all participants had finished writing the words they remembered and then proceeded to the following set. It is estimated that, on average, participants took about thirty seconds to remember and write the words. This procedure continued until participants read all sets, which took approximately twenty-five minutes. Upon completing the RST, in the last ten minutes, participants answered a retrospective questionnaire (Appendix M) with their impressions about the test. In total, the first encounter of data collection had approximately one hour and ten minutes of duration. The procedures described up to now (Parts 1, 2, and 3 of data collection) were repeated with all the seven groups that accepted to participate in this research. In total, forty students were present in the first encounter of data collection.

In the second encounter with participants, Parts 4, 5 and 6 of data collection took place (see Table 1). In the fourth part, which was the control condition, participants were required to read a text (Appendix B) that was appropriate to their proficiency level during approximately ten to twelve minutes. Participants were instructed to read the text in order to understand its main idea and remember as much information as possible. After that, the texts were collected and participants had about five minutes to do a written free recall task. They received a sheet of paper (Appendix K) and were instructed to write everything they recalled from the text, in Portuguese, using complete sentences. Then, this sheet of paper was collected and participants received a set of six comprehension questions (Appendix L) in Portuguese about the text. They had about five to seven minutes to answer the questions in that same language. After that, the questions were collected and participants received a retrospective questionnaire (Appendix M) to complete in another five minutes. In total, the control condition, or in other words, Part 4 of data collection had approximately thirty minutes of duration.

In Parts 5 and 6 of data collection, participants received the treatments with the prereading activities Contextual Redefinition and Graphic Organizer respectively. In the fifth part, for the treatment with the prereading activity Contextual Redefinition (Treatment 1), this researcher presented the unknown words (Appendix C) extracted from the text beforehand to

the participants, for instance, the word *prune*. These words were presented in isolation on a computer screen with a PowerPoint presentation and participants attempted to guess their meanings. Then, the researcher presented the words in the sentences with context clues (Appendix D) and, again, participants tried to guess the meanings of the words, this time basing their guesses on the context provided by the sentences, for example: "*We have to prune our apple tree. It is getting too big*". Finally, participants received a list with the meanings of the words in dictionary entries (Appendix E) so that they could check their guesses, such as: "to cut off branches from a tree, bush, or plant, especially so that it will grow better in the future". This procedure took about three to five minutes, depending on the groups of participants. After the treatment, participants were required to do the same tasks that were presented in Part 4.

During the sixth and last part of data collection, for the treatment with the prereading activity Graphic Organizer (Treatment 2), this researcher showed a diagram (Appendix F) using a PowerPoint presentation with a representation of the rhetoric organization of the text and its main ideas. The ideas were presented one by one while this researcher explained how the text was structured and establishing a relationship among the ideas. Again, this procedure took about three to five minutes, depending on the groups of participants. After the treatment, participants were required to do the same tasks that were presented in Part 4. In total, the second encounter with participants had approximately one hour and thirty minutes of duration. The procedures described for the second encounter of data collection (Parts 4, 5, and 6) were repeated with all the seven groups that accepted to participate in the present study. In total, forty students were present in the second encounter of data collection. It is important to highlight that, in order to avoid order effects, the texts and activities used in Parts 4, 5 and 6 in the second encounter of data collection were counterbalanced. Table 6 shows the order in which the activities were administered and the texts used with each one for the pre-intermediate and advanced groups. As it is possible to observe in Table 6, counterbalancing was done unevenly due to the number of participants in each group.

Table 6 - Counterbalancing for the second encounter of data collection

Basic 3 (pre-intermediate) - 1 group - 7 participants		
Intermediate 3 (advanced) - 1 group - 3 participants		
Advanced 2 (advanced) - 1 group - 5 participants		
Order	Text	Activity

1	Text 1	Control
2	Text 2	Treatment 1 (Contextual Redefinition)
3	Text 3	Treatment 2 (Graphic Organizer)

Intermediate 1 (pre-intermediate) - 1 group - 3 participants

Intermediate 3 (advanced) - 1 group - 4 participants

1	Text 3	Treatment 1 (Contextual Redefinition)
2	Text 1	Treatment 2 (Graphic Organizer)
3	Text 2	Control

Basic 4 (pre-intermediate) - 1 group - 5 participants

Intermediate 2 (advanced) - 1 group - 3 participants

1	Text 2	Treatment 2 (Graphic Organizer)
2	Text 3	Control
3	Text 1	Treatment 1 (Contextual Redefinition)

Source: Elaborated by the author (2019).

3.9 PROCEDURES FOR DATA ANALYSIS

The objective of this subsection is to present the criteria employed in the scoring of the tests used in this study as well as the statistical procedures applied in the data analysis. Subsection 3.9.1 presents the procedures used for the scoring of the reading proficiency test. After that, Subsection 3.9.2 describes the procedures that were used for the scoring of the Reading Span Test. In turn, Subsection 3.9.3 brings more information concerning the propositional analysis of the written free recalls, followed by the scoring of the reading comprehension questions (Subsection 3.9.4). Finally, Subsection 3.9.5 provides details in relation to the process of data screening and the statistical tests that are used in the data analysis.

3.9.1 Scoring of the reading proficiency test

The data collected through the reading proficiency test (Appendix A) was analyzed in terms of overall scores. As previously mentioned, the proficiency test used was the reading section of one of the objective placements tests of the book *Passages*, published by the editor *Cambridge*, which contained twenty questions related to eight different texts. For the scoring of the reading proficiency test, one point was given to each correct answer of the multiple-choice questions.

The results of the reading proficiency test of the students in the pre-intermediate groups, as labeled by the language school (26 students), ranged from 3 to 20 correct answers, as shown in Table 7. Taking those results into consideration, this researcher decided to use only the data collected from the pre-intermediate students who scored between 3 and 12 points. Thus, the data generated by three participants from the pre-intermediate level were not used because they scored too high in the reading proficiency test (P29, P38 and P41). Also, five students from the pre-intermediate groups participated only in the second encounter (P42, P43, P44, P45 and P46), which made impossible to determine their reading proficiency. For that reason, their data was not included in this study. At the end, the group of pre-intermediate students, or at the B1 level of proficiency according to the CEFR, comprised 16 participants. As mentioned in Subsection 3.6, which presented information about the participants of the present study, one student who was underage failed to present the permission from her legal guardian to participate in this research. Thus, the total number of participants in the pre-intermediate group, or at the B1 level of proficiency according to the CEFR, comprised fifteen participants (see Table 7).

Table 7 - Results of the reading proficiency test of the pre-intermediate groups

Participant number	Score	Group (as labeled by the language school)	Group (according to the scores)
P21	8	Basic 4	Pre-intermediate
P22	9		
P23	5		
P24	3		
P25	12		

P46	Did not take part in the 1st encounter		
P26	Did not want to participate in the study	Basic 3	Pre-intermediate
P27	8		
P28	7		
P29	16		
P30	6		
P31	4		
P32	9		
P33	10		
P34	10		
P35	5		
P42	Did not take part in the 1st encounter		
P36	8	Intermediate 1	Pre-intermediate
P37	6		
P38	14		
P39	9		
P40	8		
P41	20		
P43	Did not take part in the 1st encounter		
P44			
P45			

Source: Elaborated by the author (2019).

The results of the reading proficiency test of the students in the advanced groups, as labeled by the language school (20 students), ranged from 6 to 20 correct answers, as shown in Table 8. Having those results in mind, this researcher decided to use only the data collected from the advanced students who scored between 13 and 20 points. Hence, the data generated by four participants from the advanced groups were not used because they scored too low in

the reading proficiency test (P5, P6, P8 and P9). Moreover, one student from the advanced groups participated only in the second encounter (P20), which made impossible to determine her reading proficiency. For that reason, her data was not included in this study. At the end, the group of advanced students, or at the C1 level of proficiency according to the CEFR, comprised 15 participants.

Table 8 - Results of the reading proficiency test of the advanced groups

Participant number	Score	Group (as labeled by the language school)	Group (according to the scores)
P1	18	Intermediate 3	Advanced
P2	19		
P3	16		
P4	15	Intermediate 2	Advanced
P5	11		
P6	14		
P7	15		
P8	6		
P9	8		
P10	19	Intermediate 3	Advanced
P11	18		
P12	17		
P13	13		
P14	19		
P20	Did not take part in the 1st encounter		
P15	16	Advanced 2	Advanced
P16	19		
P17	20		
P18	16		
P19	15		

Source: Elaborated by the author (2019).

3.9.2 Scoring of the RST

In relation to the RST, following the procedure adopted by Roscioli (2017), two different scorings were used: strict and lenient. For the strict scoring, participants received full marks when they were correct in at least two out of three sets, and a half mark was given if they were correct in one out of three sets (BAILER; TOMITCH; D'ELY, 2013; ROSCIOLI, 2017). For instance, if participants wrote the last words of the sentences (Appendix H) correctly in two out of the three sets at the two-sentence level, they would be given two points. If participants wrote the last words of the sentences correctly in only one out of the three sets at the subsequent level, in this case, the three-sentence level, they would be given half a point. Thus, in the example given, participants' reading span would be 2.5.

Because the version of the RST used in this study included a grammaticality judgment test, the points were only given if the sentences had been judged correctly for both types of scoring. In other words, if participants recalled the last word of a sentence but failed to identify whether the correspondent sentence was grammatically correct or incorrect, they did not receive a point, which means the words had to be recalled in the order of presentation. The rationale for this scoring is that some participants favored writing the last words instead of analyzing the grammaticality of the sentences and vice-versa, which could lower the processing and storing demands of working memory.

For the lenient scoring, participants were given a point to each of the words they remembered correctly, regardless of the level they were in. However, as in the strict scoring, in order to be given a point, participants had to remember the word and judge the corresponding sentence appropriately in relation to its grammaticality. In both scorings, differences concerning plurals were disregarded, that is, when participants wrote "*barato*" instead of "*baratos*", for instance, it counted as a correct word. Differences concerning noun gender, for example, "*delicado*" and "*delicada*" were also not taken into consideration and counted as a correct word.

Ultimately, this version of the RST proved to be very difficult for participants. Six participants were able to remember correctly only one out of the three sets at the two-sentence level. Thus, these participants had a span of 1.5 (strict scoring). Also, two participants were not able to remember any of the three sets at the two-sentence level. For this reason, they had a span of 1.0 (strict scoring). In the pre-intermediate group, the strict scoring ranged from 1 to 3.5, whereas in the advanced group, the strict scoring ranged from 1 to 4. For the purposes of

this study, the lower and higher half of each group will be compared. In the pre-intermediate group, low span individuals scored between 1 and 2 (eight participants) whereas high span individuals scored between 2.5 and 3.5 (seven participants). In the advanced group, low span individuals scored between 1 and 2.5 (eight participants) whereas high span individuals scored between 3 and 4 (seven participants).

3.9.3 Propositional analysis

As previously mentioned, in the written free recall task (Appendix K), participants were required to write down everything they could remember from the texts using complete sentences. The written free recall was analyzed in terms of the amount of propositional units remembered by each participant (Appendix O) using a method developed by Tomitch (1990), which consists of identifying the "central proposition or propositions in each sentence and then the modifiers or attributes which modify the central proposition" (TOMITCH, 2003, p. 62).

3.9.4 Scoring of the reading comprehension questions

In the present study, right after participants did the written free recall task, they had to answer six comprehension questions related to the texts (Appendix L). In order to score the comprehension questions, this researcher created an answer key where each correct answer was subdivided into six main elements that made up a complete answer (Appendix P). For each element, participants received 0,5 point. Therefore, participants' scores for each question could range from 0 to 3 points. Moreover, because the objective of the questions was to test comprehension, grammatical mistakes were disregarded (ROSCIOLI, 2017).

3.9.5 Data screening

The normality of the data collected in this study was assessed visually through histograms (Appendix R), box plots (Appendix S) and Q-Q plots (Appendix T). Data was further verified through tests of normality, which are important in determining whether to use parametric or non-parametric tests (DANCEY; REIDY, 2011). For this, the Kolmogorov-Smirnov goodness-of-fit test (KS-test) was chosen as well as the Shapiro-Wilk test, which some researchers believe is better for small sample sizes (LARSON-HALL, 2010). Tables 9

and 10 display the results of both normality tests for all the variables in the present study regarding the pre-intermediate and advanced groups, respectively.

Table 9 - Tests of normality for the pre-intermediate group

Variables	Shapiro-Wilk			Kolmogorov-Smirnov		
	Statistic	df	Sig.	Statistic	df	Sig.
Age	.834	15	.010	.220	15	.049
Proficiency	.974	15	.915	.177	15	.200*
WM Strict	.938	15	.354	.185	15	.178
WM Lenient	.935	15	.324	.182	15	.197
WFR Control	.927	15	.244	.189	15	.153
WFR CR	.965	15	.784	.120	15	.200*
WFR GO	.924	15	.225	.126	15	.200*
CQ Control	.938	15	.355	.187	15	.166
CQ CR	.973	15	.898	.136	15	.200*
CQ GO	.849	15	.017	.258	15	.008

*. This is a lower bound of the true significance.

Lilliefors significance correction.

WM - Working memory WFR - Written free recall CR - Contextual Redefinition

GO - Graphic Organizer CQ - Comprehension questions

Source: Elaborated by the author (2019).

As it was possible to verify through visual inspection and through the results of the tests of normality, for the pre-intermediate group, only two variables are not normally distributed: age and comprehension questions for the treatment with the prereading activity Graphic Organizer (CQ GO). Pre-intermediate participants' age is positively skewed, whereas CQ GO has a bimodal distribution. Moreover, analysis of box plots (Appendix S) revealed one outlier for the working memory lenient scores variable.

Table 10 - Tests of normality for the advanced group

	Shapiro-Wilk	Kolmogorov-Smirnov

Variables	Statistic	df	Sig.	Statistic	df	Sig.
Age	.873	15	.038	.212	15	.069
Proficiency	.950	15	.524	.158	15	.200*
WM Strict	.893	15	.076	.175	15	.200*
WM Lenient	.834	15	.010	.220	15	.049
WFR Control	.937	15	.345	.166	15	.200*
WFR CR	.942	15	.409	.106	15	.200*
WFR GO	.984	15	.991	.098	15	.200*
CQ Control	.895	15	.081	.178	15	.200*
CQ CR	.950	15	.522	.156	15	.200*
CQ GO	.949	15	.505	.183	15	.191

*. This is a lower bound of the true significance.

Lilliefors significance correction.

WM - Working memory WFR - Written free recall CR - Contextual Redefinition

GO - Graphic Organizer CQ - Comprehension questions

Source: Elaborated by the author (2019).

For the advanced group, visual inspection and normality tests indicate that only the variable working memory lenient scores (WM LS) is not normally distributed; it is positively skewed. Furthermore, analysis of box plots (Appendix S) revealed two outliers for the free recall control condition variable and one outlier for the comprehension questions control condition variable. Because of the small number of participants, the outliers were not excluded from the analysis.

In spite of the aforementioned situation, small violations of assumptions are tolerated when performing parametric tests such as ANOVAs (DANCEY; REIDY, 2011). Having said that, the quantitative analysis of the present study includes descriptive statistics, as well as inferential statistics using a 2 x 3 Mixed ANOVA for the analysis of the effect of the treatment with the selected prereading activities and independent measures t-tests to compare participants' age and proficiency. Furthermore, Pearson's Coefficient and Spearman's Rank Order tests are used to reveal possible correlations between the different variables.

3.10 THE PILOT STUDY

Conducting a pilot serves as a revision of the materials and methods to be used in a study. A pilot study usually consists of a smaller version of the main study, that is, it contains all the steps involved in the main study but with a limited number of participants (MACKEY; GASS, 2005). Before the pilot itself, in the pre-piloting phase, researchers are able to test their instruments individually (BAILER; TOMITCH; D'ELY, 2011). This allows for the refinement of the instruments before the pilot itself. For this reason, the materials used in this study were pre-piloted informally with colleagues from NEL (*Núcleo de Estudos em Leitura*), which is a research center linked to the Department of Foreign Language and Literature of the Federal University of Santa Catarina.

The members from NEL who participated in the pre-piloting phase are three Masters students and three Doctoral students, all enrolled in the *Programa de Pós-graduação em Inglês: Estudos Linguísticos e Literários*. The pre-piloting phase was organized in a way so that the members of NEL were simultaneously raters and participants. For that, the six members were assigned to two different groups in which they had to do four tasks:

1. analyze the rhetoric organizational pattern of three texts according to the typology proposed by Meyer (1975);

2. determine whether the propositions from the same texts were main ideas, supporting ideas or details;

3. categorize the questions elaborated by this researcher about the same texts in textually explicit, textually implicit and scriptally implicit (PEARSON; JOHNSON, 1978);

4. answer the questions elaborated by this researcher related to three different texts.

In order to facilitate comprehension, Table 11 shows how the tasks were distributed among the NEL members.

Table 11 - Task distribution among NEL members

TEXTS	NEL Members					
	M1	M2	M3	M4	M5	M6
T1 Pre-intermediate	1/2/3	4	1/2/3	4	1/2/3	4
T2 Pre-intermediate	4	1/2/3	4	1/2/3	4	1/2/3
T3 Pre-intermediate	1/2/3	4	1/2/3	4	1/2/3	4

T1 Advanced	4	1/2/3	4	1/2/3	4	1/2/3
T2 Advanced	1/2/3	4	1/2/3	4	1/2/3	4
T3 Advanced	4	1/2/3	4	1/2/3	4	1/2/3

Source: Elaborated by the author (2019).

After having received permission of the Ethics Committee for Research with Human Beings at the Federal University of Santa Catarina and the authorization of the manager of the private language school chosen for data collection, three participants were invited to be part of the pilot study itself. These participants had been studying English for seven semesters and were in the Intermediate 3 group, as labeled by the language institute. The pilot study was essential to determine how much time would be spent in each of the parts of the study (see Table 1). Most importantly, during the pilot study, it was verified that those participants had a scoring equivalent to an advanced level in the reading comprehension as measured by the reading proficiency test, even though they were in an intermediate group. For this reason, this researcher decided to invite as many groups as possible to participate in the research and their proficiency level was determined only after the reading proficiency tests were scored. The scoring of the tests had to be done before the second encounter with the groups so that the researcher could use the appropriate materials for the treatment with the prereading activities.

3.11 RESEARCH ETHICS

This study was conducted in consonance with the principles that guide ethics in research, following the regulation established by the *Comissão Nacional de Ética em Pesquisa* (CONEP) (National Research Ethics Committee), which regards research involving human beings, in order to guarantee participants' well-being, safety, and health, in accordance with the guidelines proposed in Resolutions 466/12[22] and 510/16[23]. Having that purpose in mind, this research was submitted to the approval of the *Comitê de Ética em Pesquisa com Seres Humanos da Universidade de Santa Catarina* (Ethics Committee for Research with Human Beings at *Universidade Federal de Santa Catarina*) before the beginning of data collection. As recommended by the *Conselho Nacional de Saúde* (National Board of Health), the submission was done through the online platform *Plataforma Brasil[24]*.

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[22] Available at *http://cep.ufsc.br/files/2010/06/Reso466.pdf*
[23] Available at http://conselho.saude.gov.br/resolucoes/2016/Reso510.pdf
[24] Available at *http://aplicacao.saude.gov.br/plataformabrasil/login.jsf*

Having been approved by the Ethics Committee, registered under the approval number 3.326.440, forty-nine[25] students from the private language school[26] chosen were officially invited to participate through the *Termo de Comprometimento Livre e Esclarecido* (TCLE) (see Appendix Q). This document is a consent form containing essential information about the present research, such as its objectives, the activities participants were required to do, information concerning confidentiality, in conjunction with the risks and benefits of the study, so that students would be aware of what it takes to participate and make a decision as to whether or not take part in the study. The TCLE also served the purpose of emphasizing that the students' participation was not compulsory and that they could drop out of the study at any time, without any sanction from neither the teacher nor the language school. Also, as it was explained in Subsection 3.6, which presented information about the participants of this study, because data collection took place during the students' regular classes, it was proposed that those who did not accept to participate in the study would be involved in the activities as part of their class, but their data would not be included in the study. As previously mentioned, only one student from the Basic 3 group, as labeled by the school, decided not to participate in the study.

Because the participants of this research were teenage and adult students, three different consent forms were conceived[27]: the first was aimed at the underage students, the second form required their legal guardians' authorization, and the third form was directed at the adult students. The students who participated in this research study English as an extracurricular activity in a language school located in the south of Brazil. In sum, this study was conducted with the permission of the Ethics Committee for Research with Human Beings at the Federal University of Santa Catarina, with the authorization of the language school chosen for data collection, as well as with the consent of the students. The following chapter brings the results and discussion concerning the data collected.

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[25] This is the number of students who were invited to participate in the pilot study as well as in the main study.

[26] At the request of the private language school, its name will not be mentioned throughout this thesis.

[27] The underage students signed a form named "*termo de assentimento*", whereas their parents and the adult students signed a form entitled "*termo de consentimento*".

4 RESULTS AND DISCUSSION

The present study was carried out with the aim of investigating the effects of two prereading activities, namely Contextual Redefinition and a modified version of the Graphic Organizer (MOORE; READANCE; RICKELMAN, 1999), on the reading comprehension of pre-intermediate and advanced Brazilian English as foreign language (EFL) students and at investigating whether there is a correlation between students' WMC as measured by means of the Reading Span Test (RST) (DANEMAN; CARPENTER, 1980) and the results obtained in the comprehension tests in each of the prereading activities conditions. This chapter introduces the findings of the study, including the results of the descriptive and statistical tests, along with the qualitative data analysis. The research findings are accompanied by a discussion which attempts to address the research questions and hypotheses proposed and reach the aforementioned objectives.

This chapter is divided into six subsections, following the sequence in which the tests were applied and data was collected as established in the research design shown in the Method section of this thesis. The information gathered through the profile questionnaire is presented in Subsection 4.1 along with some insights regarding participants' learning history and reading habits. Subsection 4.2 focuses on the results and discussion concerning the reading proficiency test. In turn, the results of the Reading Span Test are mentioned in Subsection 4.3, together with a discussion of the data. Subsection 4.4 regards the results of the reading comprehension measures and discussion. The statistical correlations and corresponding considerations are presented in Subsection 4.5. Finally, the research questions are revisited in Subsection 4.6 where, based on the results and discussion presented throughout this chapter, the hypotheses are confirmed, partially confirmed or refuted.

4.1 PROFILE QUESTIONNAIRE

Information concerning participants' age was collected through the profile questionnaire[28] (Appendix N). As previously mentioned, the age factor was not controlled in this study. However, as it is an important confounding variable, it is part of the present analysis. The age range of the whole group was between 12 and 66 years old (N = 30, M = 32.33, SD = 19.43). In the pre-intermediate group, participants ranged from 12 to 66 years old

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[28] As mentioned in the Method section of the present thesis, participants were required to answer the profile questionnaire in their first language, that is, Brazilian Portuguese.

(N = 15, M = 29.12, SD = 19.17), whereas in the advanced group, the age range was from 12 to 64 years old (N = 15, M = 35.53, SD = 19.81). Although both groups are not normally distributed according to their age[29], their standard normal distributions (SND) show they are reasonably comparable (see Figure 2).

Figure 2 - Standard normal distributions for participants' age
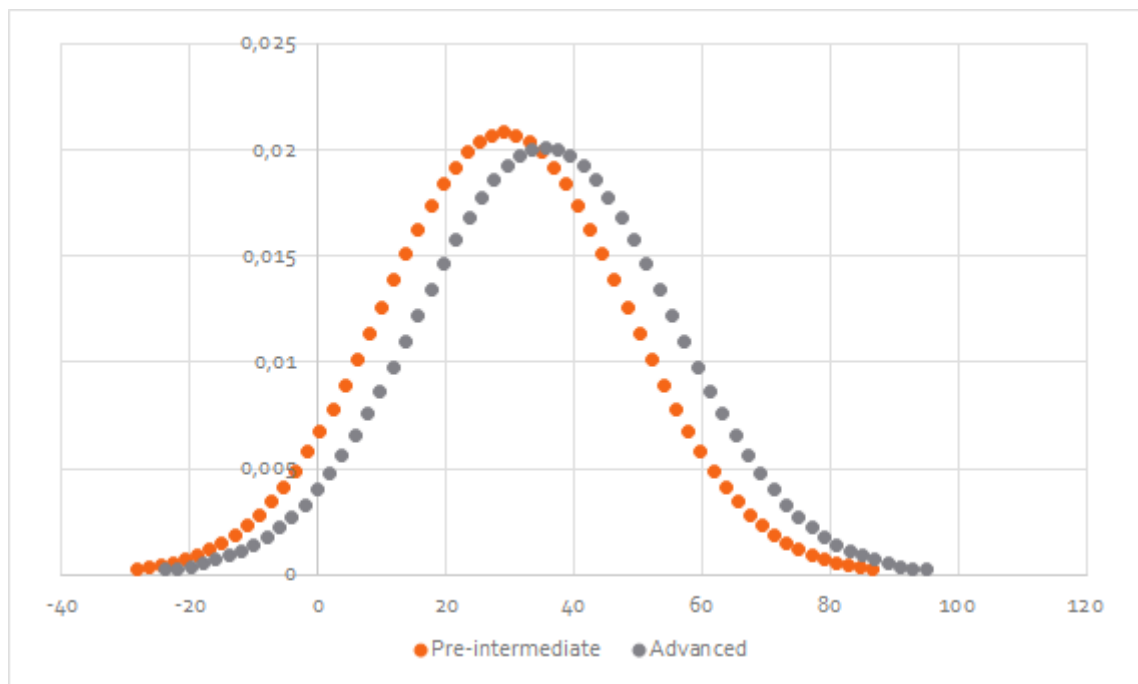
Source: Elaborated by the author (2019).

Furthermore, the mean difference between the groups was 6.40, which is a small effect size ($d = 0.16$); the 95% confidence interval for the estimated mean difference is between 8.19 and 20.99. An independent measures t-test confirmed that the pre-intermediate and advanced groups are similar in terms of age (t (28) = 0.90; p = .38).

Another factor that was not controlled in this study was the number of male and female participants in each group. In the pre-intermediate group there were 8 female (53,3%) and 7 male (46,7%) participants, whereas in the advanced group there were 9 female (60%) and 6 male (40%) participants. Regarding the amount of time participants had been studying English, the pre-intermediate group reported they had been studying English in a private course between 3 to 7 semesters, with an average of approximately 4 semesters, whereas the advanced group reported they had been studying between 5 to 16 semesters, with an average

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[29] For more information concerning normality tests, refer to Subsection 3.9.5 in the Method section of the present thesis.

of roughly 9.5 semesters. As for how much time participants devoted to studying English outside the classroom, on a Likert scale from 1 to 4, the pre-intermediate group had an average of 1.86 and the advanced group had an average of 1.93, which is very similar.

Participants were also questioned whether they were exposed to English outside the classroom in activities that they do not consider studying per se. In the pre-intermediate group two participants claimed they were not exposed to English outside the classroom environment, whereas only one participant had the same claim in the advanced group. Amongst the other participants, in the pre-intermediate group, 5 participants reported being exposed to English for less than 1 hour every day, 4 participants claimed to be exposed between 1 and 2 hours, and other 4 participants mentioned they were exposed to English outside the classroom for more than 2 hours. In the advanced group, 4 participants claimed they had less than 1 hour a day of exposure to English, 5 participants said they were exposed between 1 and 2 hours daily, and other 5 participants estimated they were exposed for more than 2 hours every day. Thus, it is possible to say that the advanced group reported to be slightly more exposed to English in their daily routine than the pre-intermediate group.

As to the type of exposure participants had outside the classroom (see Figure 3), they were required to check the activities they did in their daily routine that involved English: movies, TV series, music, games, internet, TV, radio and others, in case they did any other activity that was not specified. In the pre-intermediate group, most participants reported listening to music (12) in English, followed by watching TV series (9) and movies (9). In turn, in the advanced group, the same number of participants reported watching movies, listening to music and using the internet in English (13), followed by watching TV series (10) and playing games (5). Based on these findings, it is possible to say that the participants in the advanced group are more exposed to English outside the classroom.

In relation to their reading habits, participants were questioned whether they read texts in English besides the ones required for their course. In the pre-intermediate group, only 9 out of 15 (60%) claimed they read other materials in English, whereas in the advanced group, 12 out of 15 students (80%) reported reading in English outside the classroom. Thus, participants in the advanced group reported reading more in English than the ones in the pre-intermediate group. As to the amount of time dedicated to reading, in the pre-intermediate group, eight participants claimed to read for less than one hour in English every day and only one said they read between one or two hours every day. In the advanced group, eleven participants claimed to read for less than one hour every day and one participant reported reading between one to two hours every day. No participants in both groups said they read in English for more than 2

hours every day.

Figure 3 - Types of exposure to English outside the classroom
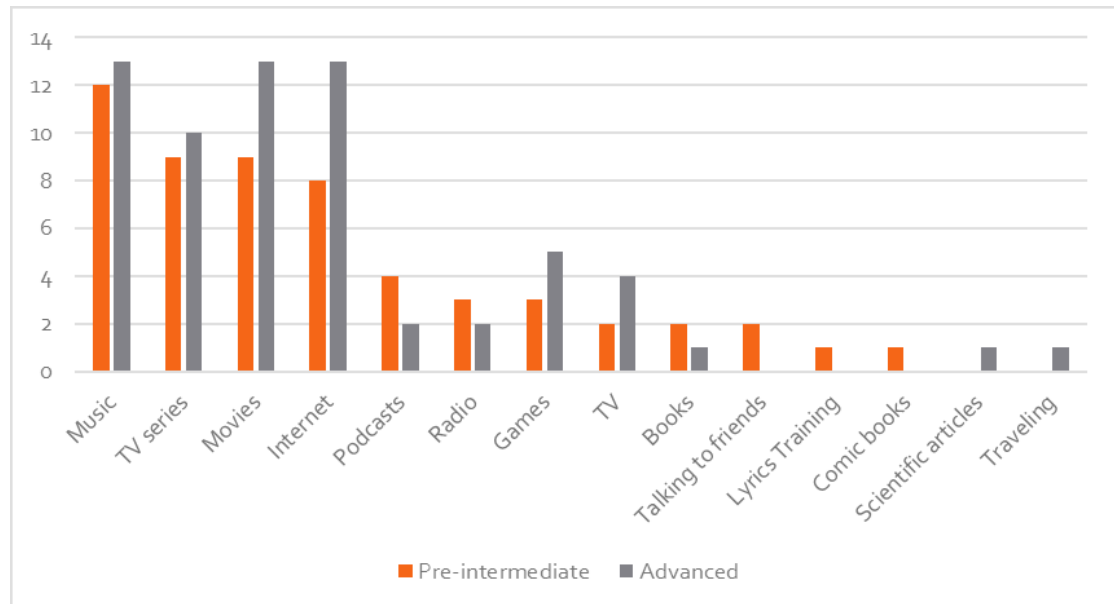
Source: Elaborated by the author (2019).

Participants were also asked to rank from 1 (never) to 4 (always) on a Likert scale whether they perform the following actions when reading in English: (a) I usually stop reading when I encounter unknown words, (b) When I encounter an unknown word, I look up its meaning in a dictionary, (c) I try to understand the meaning of unknown words using the context provided by the text, and (d) I try to identify the way a text is organized to understand it better. Figure 4 shows a summary of participants' answers. As regards the first point mentioned, participants in the pre-intermediate group claimed they have a higher tendency to stop their reading of a text upon encountering an unknown word. With respect to the second point, participants in the advanced group reported they look up the meaning of unknown words in a dictionary when they find one more frequently than the pre-intermediate group, which could be explained by the amount of unknown words they encounter. In other words, participants in the advanced level probably find less unknown words when reading than the pre-intermediate ones, making the task of looking up meanings in a dictionary easier. On the other hand, because pre-intermediate participants have a limited vocabulary, it would be time-consuming to perform such task every time they found an unknown word.

Figure 4 - Participants' reading habits
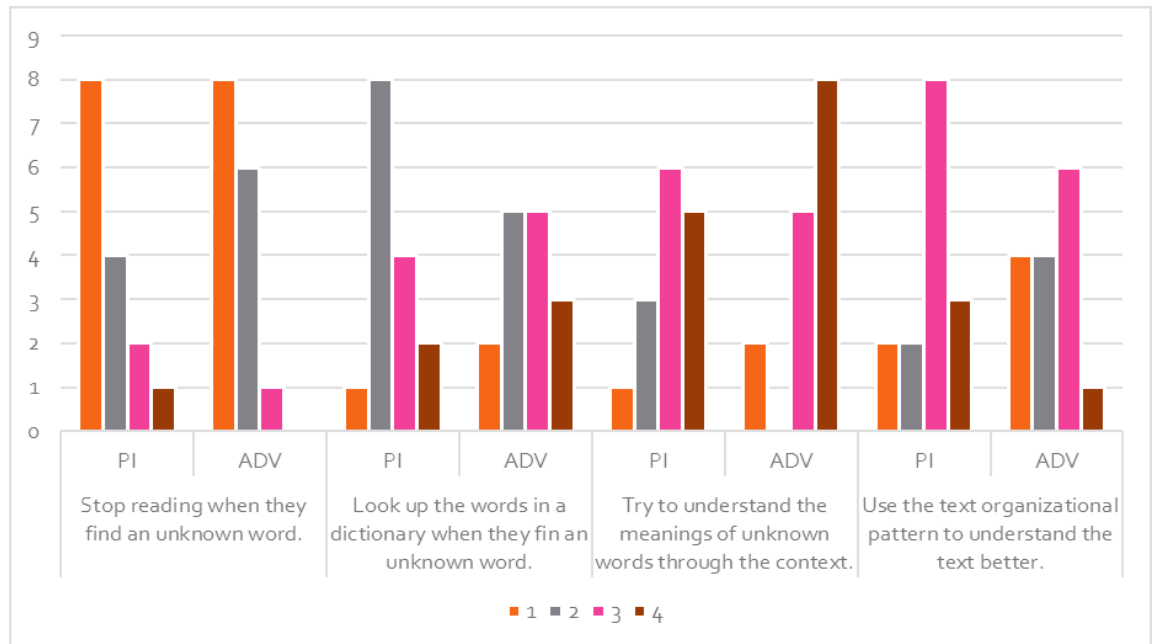
Concerning the third point previously mentioned, participants in the advanced group also reported trying to understand unknown words through the context of the text more frequently than participants in the pre-intermediate group. Although it may seem to be in a contradiction with the previous point, it makes sense if one takes into consideration that, when advanced students find an unknown word, they can probably arrive at a good idea of the meaning of that word because most of the other words are known to them. Pre-intermediate participants, on the other hand, encounter many unknown words when they read, making them concerned with understanding the meaning of the passage, and not necessarily with the meaning of individual words.

Another interesting finding is related to the fourth point regarding participants' reading habits. The pre-intermediate group reported trying to identify how a text is organized to understand it better more frequently than the advanced group, which could be explained if one considers that advanced students have better decoding skills than pre-intermediate ones and, for this reason, they rely less on top-down strategies to understand the message of the text. In summary, considering the results obtained through the profile questionnaire, it was possible to verify that participants in the pre-intermediate and advanced groups are comparable in terms of age, even though this factor was not controlled in the present study. Also, participants in the advanced group had been studying English longer than the ones in the pre-intermediate group and they are more exposed to English outside the classroom.

Regarding participants' reading habits, the advanced participants also reported to read more frequently outside the classroom than the ones in the pre-intermediate group. The results related to the profile questionnaire will be retaken further in the chapter in order to elucidate some of the quantitative findings. The following subsection brings the results concerning the reading proficiency test used in the present study.

4.2 READING PROFICIENCY TEST

The participants of the present study took a proficiency test (Appendix A) to verify that they belonged to the pre-intermediate and advanced levels regarding their reading comprehension. The reading proficiency test was comprised of twenty multiple-choice items. The results from participants' tests are shown in Table 12. Participants who were considered part of the pre-intermediate (B1) group ranged from 3 to 12 points (N = 15, M = 7.53, SD = 2.41), whereas participants who were considered part of the advanced (C1) group ranged from 13 to 20 points (N = 15, M = 16.66, SD = 2.09). It is possible to observe in Table 12 that P24, in the pre-intermediate group, had the lowest score (3), while P17, in the advanced group, had the highest score (20).

Table 12 - Participants' scores in the reading proficiency test

Pre-intermediate Group		Advanced Group	
Participant Number	Number of Correct Answers	Participant Number	Number of Correct Answers
24	3	13	13
31	4	6	14
23	5	4	15
30	6	7	15
37	6	19	15
28	7	3	16
21	8	15	16
27	8	18	16
36	8	12	17
40	8	1	18
22	9	11	18
32	9	2	19

33	10	10	19
34	10	16	19
25	12	17	20

Source: Elaborated by the author (2019).

As previously mentioned, for the purposes of this study, it is essential that the two groups be different in terms of their proficiency, which can be seen through the box plots (Appendix R). Moreover, the mean difference between the groups was 9.13, which represents a large effect size (d = 10.75); the 95% confidence interval for the estimated mean difference is between 7.45 and 10.83. An independent measures t-test confirmed that the pre-intermediate and advanced groups are different in terms of proficiency (t (28) = 11.07; p < .001), also illustrated by their standard normal distributions (SND) in Figure 5.

Figure 5 - Standard normal distributions for participants' proficiency
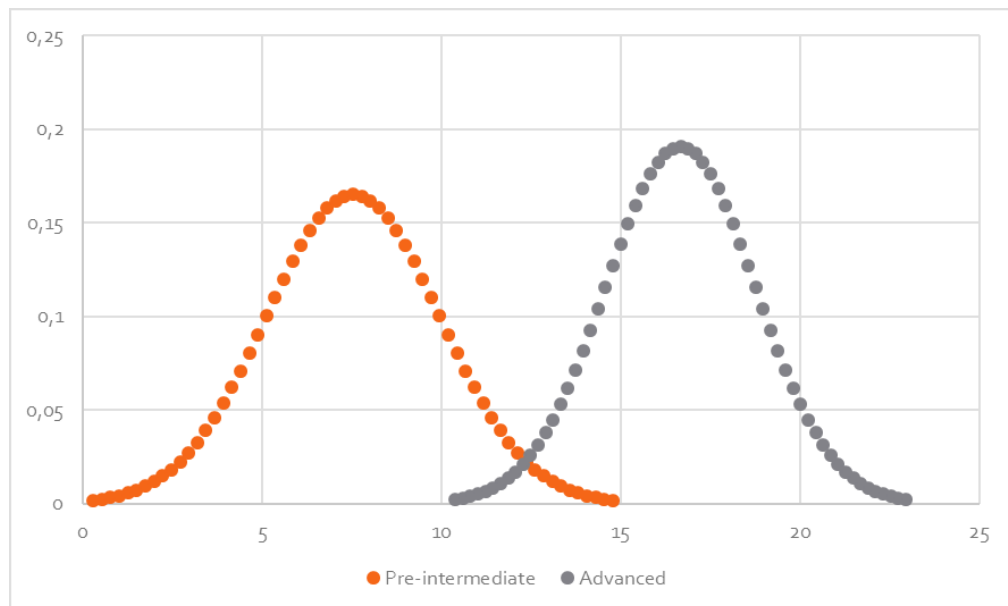
Source: Elaborated by the author (2019).

One important observation concerning the reading proficiency test is related to the scores. As explained in the method section of this thesis, the proficiency test used in the present study consists of the reading section for the placement test of the *Passages* material, published by *Cambridge*. The objective part of that test is comprised of 70 questions regarding listening, reading and language use, that is, grammar and vocabulary. In their test, students would be considered pre-intermediate (B1) if they scored between 24 and 49 points in the test, which corresponds to 34.28% to 52.14% of the test. In the pre-intermediate group,

the scores for the reading section alone ranged from 15% to 60% of the test. Although the pre-intermediate group had a wider range of scores, the average score (37,65%) is inside the range of the complete test. One implication of this finding is that perhaps some participants in this group do not have sufficient knowledge of English and, as a consequence, they would not benefit from the prereading Contextual Redefinition as much as the rest of the group. Following the same line of thought, these participants would benefit more from the prereading activity Graphic Organizer because it allows for them to use a more top-down approach to the text and help them compensate for their lack of L2 knowledge.

In order to be considered advanced (C1) when taking the complete *Cambridge* placement test, students would have to score between 62 to 70 points, that is, between 88.57% to 100% of the test. In the present study, participants' scores ranged from 65% to 100% of the reading section, again a much broader range. The average score for the advanced group was 83,3%, a little below the range of the whole test. This finding might influence the results of the treatment with the prereading activities in the sense that the participants who scored lower in the reading proficiency test might benefit more from the prereading activity Contextual Redefinition.

4.3 THE READING SPAN TEST

As previously mentioned, in the present study, the Reading Span Test (RST) was scored both strictly and leniently (Appendices G through J). Table 13 presents the scores of the RST using both methods for participants in the pre-intermediate and advanced groups.

Table 13 - Participants' raw scores on the RST

Pre-intermediate Group			Advanced Group		
Participant	RST - SS	RST - LS	Participant	RST - SS	RST - LS
21	2,5	27	1	4	41
22	2,5	33	2	4	37
23	1	30	3	1,5	17
24	2,5	28	4	3	30
25	3,5	41	6	2	16
27	1,5	16	7	3,5	40

28	3	26	10	2,5	32
30	1	24	11	2	27
31	1,5	23	12	1,5	25
32	2	21	13	1,5	13
33	3	27	15	1,5	20
34	1,5	28	16	1	13
36	1,5	23	17	4	45
37	2,5	25	18	3	35
40	2	22	19	3,5	34
Mean:	2,1	26,26		2,56	28,33
Minimum:	1	16		1	13
Maximum:	3,5	41		4	45

RST - Reading Span Test SS - Strict scores LS - Lenient scores

Source: Elaborated by the author (2019).

Following the strict scoring method, participants in the pre-intermediate group ranged from 1 to 3,5. Eight participants scored between 1 and 2 and were considered low span readers. The other seven participants in this group scored between 2.5 and 3.5 and they were categorized as high span. In turn, in the advanced group, eight participants who scored between 1 and 2.5 were considered low span readers, whereas the other seven participants, who scored between 3 and 4, were categorized as high spans.

In relation to the lenient scoring method, in the pre-intermediate group, eight participants who recalled between 16 and 26 words were categorized as low span, whereas the other seven participants, who recalled between 27 and 41 words, were considered high span readers. In the advanced group, eight participants remembered between 13 and 30 words and they were considered low span readers. The other seven participants recalled between 32 and 45 words and they were categorized as high spans.

4.3.1 Retrospective Questionnaire

As indicated by the strict scores, this version of the RST proved to be very difficult for

both the pre-intermediate and advanced groups. Participants' answers in the retrospective questionnaire (Appendix M) give support to these results. The first question asked participants what they thought about the test and how they felt during its application. Fourteen participants evaluated the test using positive adjectives: great (3), good (3), fun (2), easy (1), useful (1), fruitful (1), cool (1), clever (1) and valid (1). On the other hand, nine participants evaluated the test using negative adjectives: difficult (5), horrible (1), tiresome (1), stressful (1) and distressing (1). Other twelve participants described the test using neutral adjectives: interesting (10), lengthy (1) and intense (1). For example, P1 answered[30]: "*I thought it was nice, I thought it was a nice experience*". In relation to how they felt during the test, only four participants used positive adjectives: fine (1), happy (1), challenged (1) and calm (1). The vast majority, that is, twenty-seven participants, used negative adjectives to describe how they felt during the test: bad (4), nervous (4), frustrated (4), confused (3), lost (2), tense (2), forgetful (1), useless (1), stressed (1), stupid (1), anxious (1), pressured (1), incompetent (1) and anguished (1). For instance, P6 answered: "*I felt bad because I could not remember any word*". On the whole, most participants reported that the RST caused some sort of apprehension on them, which could have influenced the results of the test (ROSCIOLI, 2017). According to Ntim (2016), test anxiety may consume part of the resources available for cognitive tasks, especially when task demands are high. Ilkowska and Engle (2010) state that working memory capacity can be affected by the ability to control information that is in the focus of attention, signaling a possible connection with self-regulatory behaviors. Therefore, the fact that participants were anxious could have affected their results in the RST, causing them to perform below their capacity as supported by Roscioli "[...] participants' WM span might not be accurate because their WM span was not working with its full capacity due to test anxiety" (2017, p. 130).

The second question in the retrospective questionnaire of the RST asked whether participants were able to notice the grammatical changes made in the sentences; whether they had any difficulties in identifying the changes; whether they used any strategies to perform this task; and if so, what strategies they used. In the pre-intermediate group, two participants reported that they stopped reading the sentences when they noticed the grammatical alteration. Two other participants claimed that it was easier to identify the alterations in the beginning of the test, with sets of 2 and 3 sentences, than in the end of the test, with sets of 5 and 6 sentences. Other two participants mentioned they favored the memorization of the last words

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[30] All instances of participants' comments were translated to English by this researcher.

of each sentence and forgot to judge the grammaticality of the sentences. Finally, one participant reported focusing on the coherence of the sentences. In the advanced group, three participants claimed they stopped reading when they noticed the grammatical change in the sentences. Two participants mentioned that the grammatical changes were very evident. One participant reported attempting to remember what he had learned about grammar. Another participant claimed he read the sentences twice. One participant said he gave preference to the memorization of the last word of each sentence and forgot to judge the grammaticality of the sentences. Another participant said he attempted speed reading and, finally, one other participant mentioned he focused on the coherence of the sentences.

Participants' answers for the second question indicate that, even though the amount of time for reading each sentence was limited (each sentence was displayed on the screen for twelve seconds), as advised by Friedman and Miyake (2004), participants relied on the use of idiosyncratic strategies. The authors compared the difference between experimenter- and participant-administered reading span tests and discovered that, in the participant-administered test, the extra time given to participants to implement strategies reduced the correlations with reading comprehension and verbal SAT scores. In the study conducted by Roscioli (2017), the researcher used an experimenter-administered RST, that is, it did not allow participants extra time to make use of strategies. In spite of that, the participants in Roscioli's study reported using strategies in order to cope with the demands of the task.

In the studies carried out by Friedman and Miyake (2004) and Roscioli (2017), the processing component of working memory was assessed by having participants read the sentences aloud, in individual sessions. In the present study, data was collected in group sessions, so participants were required to read the sentences silently. In order to ensure they were processing the sentences, the grammaticality judgment component was added. It was anticipated that participants would stop reading the sentence as soon as they found a mistake, as reported by five participants (TORRES, 2003). Hence, the sentences were randomly altered in the beginning, middle, and end positions. Moreover, it was also anticipated that some participants would favor the memorization of the last words and ignore the grammaticality of the sentences. For this reason, both the strict and lenient scores for the RST used in this study take into consideration whether participants judged the grammaticality of the sentences correctly, which means the order of the words also had to be considered. In other words, in both scores, participants were only given a point if the last word they recalled was in a sentence that they had analyzed correctly.

In addition, the grammaticality judgment component might have influenced the results

of the test by causing participants to be more anxious in relation to their knowledge of grammar. Although this researcher explained that the modifications in the sentences would be very noticeable and their identification would not require any expertise in the language, some participants were concerned with finding details or changes in punctuation, as evidenced in the comments of participants who said they attempted to remember everything they had learned about grammar and who focused on the coherence of the sentences.

The third question in the retrospective questionnaire asked participants what they did to memorize the last word of each sentence; whether they used any strategy; and if so, which ones. Friedman and Miyake (2004) proposed a classification of strategies used by the participants in their study to remember the last words of the sentences. According to the authors, these strategies can be: phonological, related to the use of the phonological loop; semantic, involving the meaning of the to-be-remembered words; and visual, as they involved some sort of mental imagery. Following this classification, in the pre-intermediate group, seven participants claimed they used a semantic strategy as in "*I created a story with the words*", "*I created a relation among the words*" and "*I created a new sentence with the last words*"; five participants stated they used a phonological strategy as in "*I repeated the words mentally*" and "*I repeated the words to a rhythm in my head*"; and other five participants said they used a visual strategy as in "*I tried to make a mental picture with the words*", "*I tried to remember only the first letter of the words*" and "*I looked at the last word of the sentence first*". In the advanced group, six participants mentioned they used a phonological strategy as in "*I repeated the words mentally*"; five participants said they used a semantic strategy as in "*I create a relation among the words*", "*I created a story with the words*", "*I created a new sentence with the last words*" and "*I tried to remember the topic of the sentences*"; and two participants claimed they used a visual strategy as in "*I tried to make a mental picture with the words*".

Again, as illustrated by the answers provided for the third question, controlling the presentation rate of the sentences does not ensure participants do not apply any strategy (FRIEDMAN; MIYAKE, 2004). Rather, it seems that strategies are part of the process of devoting attentional resources to task demands (ROSCIOLI, 2017; MCNAMARA; SCOTT, 2001). Furthermore, McNamara and Scott (2001) claim that measures of working memory capacity usually correlate well with reading comprehension measures because better readers are also more strategic. They state that "[...] strategic readers may also be more likely to use strategies when performing WM tasks" (MCNAMARA; SCOTT, 2001, p. 11).

The fourth question in the retrospective questionnaire asked participants to rate the

level of difficulty of the RST using a Likert scale, from 1 (very easy) to 4 (very difficult). Most participants, eight in the pre-intermediate (PI) group and nine in the advanced (ADV) group, thought the test was very difficult, followed six participants in the PI group and five in the ADV group who thought the test was difficult, and two other participants who said the test was easy, one in each group. No participants claimed the test was very easy. Thus, participants' perception of difficulty was similar across the PI and ADV groups.

The fifth and final question of the retrospective questionnaire asked participants whether they had any other difficulty while taking the test. Few participants answered this question. The ones who did claimed that they had difficulty due to time pressure (4) and due to lack of attention (4); they also said that test was too long or contained too many sentences (2) and one participant reported that he could not understand some of the words, even though the RST was conducted in participants' native language. As mentioned previously, it is possible that some participants did not perform at their maximum capacity because of test anxiety, which might have been influenced by the time constraints of the task. Another related issue was some participants' difficulty to devote their full attention to the test, as it was performed in a group session in a classroom where external noise is usually present. This factor could also have influenced the results of the test.

One last remark concerning the data collected through the questionnaire is related to the version of the RST employed in the present study. Although Juffs and Harrington (2011) claim that using different variations of this test should be seen with apprehension, it does not seem appropriate to use the same test with different populations. Roscioli (2017) states that "[...] although it seems plausible to claim that too many versions of a test might be problematic, using the same test with different populations seems even more problematic" (p. 133). In the present study, the Reading Span Test adopted was devised by Tomitch (2003), based on Daneman and Carpenter's (1980) test in English. Tomitch's test was later on adapted to be used with teenagers by Bailer, Tomitch and D'Ely (2013) and it was subsequently used by Roscioli (2017), who worked with a similar population. In spite of that, Roscioli (2017) reported that, when participants were reading the sentences aloud, it was clear that some of them still had difficulties to understand the vocabulary items present in the sentences. In the present study, data collection took place in groups which only allowed for a silent version of the RST to be used. For this reason, it was not possible to see whether participants slowed down their reading pace as cited by Roscioli (2017). However, in the retrospective questionnaires, only one of the teenage participants claimed to have difficulties in understanding some of the words. The following subsection presents the results of the reading

comprehension measures used in the present study.

4.4 READING COMPREHENSION RESULTS

As explained in the method section of this thesis, after reading the texts in the three conditions, that is, the control condition, the treatment with the prereading activity Contextual Redefinition (CR), and the treatment with the prereading activity Graphic Organizer (GO), participants were required to do a written free recall task and answer comprehension questions about the texts. The results of both comprehension measures will be subsequently presented.

4.4.1 Written free recall

The results of the written free recall task (Appendix K), in which participants had to use complete sentences to write what they remembered from the text, are presented in Table 14.

Table 14 - Participants' raw scores in the written free recall task

Pre-intermediate				Advanced			
	Control	**CR**	**GO**		**Control**	**CR**	**GO**
P21	19	7	8	P1	28	28	33
P22	33	13	27	P2	20	23	13
P23	19	0	27	P3	28	16	25
P24	14	14	20	P4	26	22	15
P25	28	21	20	P6	24	21	28
P27	4	10	6	P7	26	17	18
P28	11	13	9	P10	41	35	15
P30	4	2	6	P11	30	21	13
P31	6	5	12	P12	25	27	22
P32	11	5	9	P13	33	26	21
P33	8	14	12	P15	12	26	25

P34	8	12	16	P16	16	17	19
P36	11	18	13	P17	22	22	21
P37	18	24	15	P18	23	18	19
P40	24	21	19	P19	0	25	8
Mean	14,53	11,93	14,6		23,6	22,93	19,66
Minimum	4	0	6		0	16	8
Maximum	33	24	27		41	35	33

P - participant CR - Contextual Redefinition GO - Graphic Organizer

Source: Elaborated by the author (2019).

It is possible to observe that, for the pre-intermediate group, the highest mean score was for the condition in which participants received treatment with the prereading activity GO (M = 14.6), followed by the control condition (M = 14.53) and the treatment condition with the prereading activity CR (M = 11.93). As for the advanced group, the highest mean score was for the control condition (M = 23.6), followed by the treatment with the prereading activity CR (M = 22.93), and the treatment condition with the prereading activity GO (M = 19.66).

One of the objectives of this study is to investigate the effect of the chosen prereading activities on participants' comprehension. By comparing the raw scores of the written free recall task, it is possible to say that the treatment with the prereading activity Graphic Organizer had a slight positive effect on pre-intermediate participants' comprehension, whereas the treatment with the prereading activity Contextual Redefinition had a negative impact on their comprehension. As for the advanced group, none of the two treatments affected comprehension positively. The treatment with the prereading activity Contextual Redefinition yielded an average score slightly below the control condition, whereas the treatment with the prereading activity Graphic Organizer seems to have had a negative impact on participants' comprehension.

It was hypothesized[31] that both prereading activities would affect pre-intermediate and advanced participants' comprehension positively. Based on the raw scores of the written free recall task, it is possible to state that the prereading activity Contextual Redefinition had a negative impact on the pre-intermediate participants' comprehension. One possible

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[31] Check hypotheses 1a and 2a in the method section of the present thesis.

explanation for this result is related to the threshold hypothesis (CLARKE, 1998). As previously mentioned, for this task, participants had to write everything they remembered from the text using complete sentences. In other words, participants would have to be able to understand the idea units in the text to form a coherent text base. For the advanced and fluent reader, this occurs automatically through effortless bottom-up processing. On the other hand, participants at the pre-intermediate level of proficiency still lack the linguistic knowledge that is necessary to engage in automatic bottom-up processing, which can cause them to naturally employ top-down strategies when reading a text in a second language. This could explain why their means for the control condition and for the treatment with the prereading activity Graphic Organizer were similar, since the objective of this activity is to provide participants with a macrostructure of the text. As for the prereading activity Contextual Redefinition, it might have caused participants to avoid using top-down strategies by making them focus on the vocabulary items that were presented in the treatment. Hence, this might have overloaded their cognitive resources and led them to have difficulties in constructing a coherent mental representation of the texts.

It was also expected that the treatment with the prereading activity Graphic Organizer would have a greater impact on advanced participants' comprehension as measured by written free recall[32]. Taking into consideration the raw scores of the written free recall task, it is possible to state that this prereading activity had a negative impact on their comprehension. One possible explanation for this result is related to the nature of the propositional analysis and the effect of the prereading activity Graphic Organizer. Considering that the advanced participants have sufficient linguistic knowledge to be able to engage in automatic bottom-up processing, they are better able to understand the microstructure of the texts and construct a coherent mental representation. Given that the prereading activity Graphic Organizer is meant to provide a macrostructure of the text, it is possible it caused advanced participants to go from understanding both the micro and macrostructure of the text to building a situation model. In other words, with the aid of this prereading activity, it is possible that participants were able to integrate the information they extracted from the text with their previous knowledge. Contradictorily, for the written free recall task, in which participants had to write down everything they remembered from the text, participants may have actually forgotten part of the textual content while thinking about how they would write down this information, which could have been avoided if they had done the free recall orally.

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[32] Check hypothesis 2b in the method section of the present thesis.

4.4.2 Comprehension questions

After doing the written free recall task, participants had to answer six comprehension questions related to the texts for each condition: Control, Contextual Redefinition and Graphic Organizer. Table 15 shows the raw scores of participants in both the pre-intermediate and advanced groups.

Table 15 - Participants' raw scores in the comprehension questions

	Pre-intermediate				Advanced		
	Control	**CR**	**GO**		**Control**	**CR**	**GO**
P21	6,5	4,5	2	P1	9	8,5	5,5
P22	9,5	7	7	P2	4	6,5	5
P23	0	0	2,5	P3	1,5	4	2
P24	1	4	3	P4	3	5	7
P25	7	5	6	P6	3	6,5	8
P27	2,5	2,5	1,5	P7	4	2	5,5
P28	3,5	2,5	6	P10	9	7	6,5
P30	2	1	3	P11	4,5	4	2
P31	3	1,5	5	P12	3,5	3,5	1
P32	4,5	0,5	2,5	P13	3	3,5	1
P33	3	2,5	7	P15	3	4	4
P34	5	2	3	P16	2	8	5
P36	0,5	4	2	P17	6	7	5,5
P37	3	3	6,5	P18	5	5	3
P40	2,5	5	7	P19	0,5	4,5	0
Mean	3,56	3	4,26		4,06	5,26	4,06
Minimum	0	0	1,5		0,5	2	0
Maximum	9,5	7	7		9	8,5	8

P - participant CR - Contextual Redefinition GO - Graphic Organizer

Source: Elaborated by the author (2019).

It is possible to observe that, for the pre-intermediate group, the highest mean score was for the condition in which they received treatment with the prereading activity GO (M = 4.26), followed by the control condition (M = 3.56) and the treatment condition with the prereading activity CR (M = 3). As for the advanced group, the highest mean score was for the treatment condition with the prereading activity CR (M = 5.26), followed by the treatment condition GO and the control condition with the same mean score (M = 4.06).

One of the questions to be pursued in the present study is related to whether the use of the chosen prereading activities would affect participants' comprehension. By comparing the raw scores of the comprehension questions, it is possible to say that the treatment with the prereading activity Graphic Organizer positively influenced pre-intermediate participants' comprehension, whereas the treatment with the prereading activity Contextual Redefinition positively influenced advanced participants' comprehension.

In contrast, it is possible to say that the treatment with the prereading activity Contextual Redefinition did not facilitate pre-intermediate students' comprehension. In fact, participants performed somewhat better in the control condition in comparison to the treatment with the prereading activity CR condition. As for the advanced group, the prereading activity Graphic Organizer did not influence participants' comprehension. Although these findings were not expected, they can be explained by an interplay of factors. Text difficulty might have played a role because counterbalancing was done unevenly, due to the number of participants in each group[33]. As mentioned in the Method section of this thesis, the number of participants in each group was different. This happened because data was collected during participants' regular English classes at the private school chosen for this study, following the natural configuration of participants' groups. Another factor that might have influenced the results is participants' previous knowledge of the content of the text. Even though the comprehension questions were pretested, it is possible that participants' previous knowledge of the content of the texts helped them provide appropriate answers for the questions. Finally, it could also be that, although the words chosen to be part of the prereading

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[33] For the counterbalancing, refer to Subsection 3.8 Procedures for Data Collection in the Method of this thesis.

activity Contextual Redefinition followed some specific criteria[34], they did not facilitate pre-intermediate participants' reading comprehension. In other words, the aforementioned prereading activity did not allow pre-intermediate participants to process the meanings of the words in depth.

4.4.3 Retrospective questionnaire

Upon completion of the comprehension tests, that is, the written free recall task and the comprehension questions, participants were required to answer a retrospective questionnaire after each condition, that is, the control condition, treatment with the prereading activity Contextual Redefinition and treatment with the prereading activity Graphic Organizer (Appendix M). The first question asked what participants thought about the text read and how they had felt during reading. In relation to the first text of the pre-intermediate group entitled "*Digital Habits Across Generations*", some participants reported that it was a relatively complex text, which demanded more time in order to be correctly understood as illustrated by the comments: "*I thought this text was a little harder than the others, which made me feel confused*" (P22) and "*A longer text, I needed more time*" (P36). As for the second text entitled "*The Legend of Fairies*", most comments concerned participants' difficulties to understand some vocabulary items. For instance, P24 reported that "*The theme was interesting, but the vocabulary was difficult for my level of English*" and P36 said that "*It was interesting, but I didn't understand some terms and I don't like mythology*".

For the third text of the pre-intermediate level, entitled "*Robot Teachers*", only the participants who had read it in the control condition reported having difficulties to understand the text, mainly due to lack of vocabulary knowledge as exemplified by the comments "*I thought the text was a little hard, again there were words I didn't know*" (P22) and "*I could only understand that it talked about the profession of the teacher and being replaced by a robot. I get anxious because I don't understand*" (P24). In general, participants' comments for the first question of the retrospective questionnaire lead us to conclude that, although vocabulary knowledge did not positively affect the two measures of comprehension used, it is the main factor that concerned pre-intermediate participants when reading the texts.

As regards the advanced group, for the first text entitled "*Do you have the right*

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[34] Independent raters categorized the texts into main idea, supporting idea and detail and then, the unfamiliar words were selected from the main ideas as identified by at least two of the three raters. For more details, refer to Subsection 3.7.3.1.1 in the Method of the present thesis.

mindset?", participants who received treatment with the prereading activity Contextual Redefinition reported the text was easy to understand after they had the opportunity to check the meaning of unknown words: "*The text was very easy to be read, especially after having seen the meaning of some words before reading*" (P7). On the other hand, participants who received treatment with the prereading activity Graphic Organizer claimed the text was difficult to understand: "*It was more difficult than the previous one. I was a little anxious to understand the text*". In turn, participants in the control condition reported having to rely more on context clues to cope with the vocabulary present in the text, as illustrated by the comments: "*During reading ok, I could understand through the context*" (P15) and "*The text was very dense. I felt challenged*" (P16).

It can be said that the second text of the advanced group entitled "*Me and My Brain*" was relatively easier than the others. Participants in the control condition made reasonably positive comments about it: "*It was the easiest text. I read it calmly. I knew I could read and understand everything in due time*" (P11) and "*A little less difficult than the previous one*" (P13), while the participants in the treatment condition with the prereading activity Contextual Redefinition presented the most positive comments: "*I liked the text. I thought it was clear and easy to understand*" (P18) and "*I thought it was a very good text. I felt fine*" (P1). On the other hand, participants who received treatment with the prereading activity Graphic Organizer claimed that the text was "*Complicated due to the words we don't usually use*" (P7) and "*Difficult. Tired*" (P4).

As for the third text of the advanced group, whose title was "The Rise of Fake News", one participant who read it in the control condition said "*I thought it was interesting. I felt a little confused because I didn't know the meaning of some words*" (P6) and another one said "*Relatively easy. Initially, I had difficulty to understand many things, but after some time, some things became clearer*" (P4). In turn, in the Contextual Redefinition condition, one of the participants reported "*I thought it was interesting, new words. I felt good for understanding everything, there were only a few words I didn't know*" (P12) and in the Graphic Organizer condition, one of the participants said "*I thought it was difficult because I didn't know the meaning of some words. I felt tense*". Taken together, advanced participants' answers for the first question of the retrospective questionnaire demonstrate that vocabulary knowledge positively affects their perception of understanding the texts.

It is interesting to notice that, for both the pre-intermediate and advanced groups, what made participants believe the texts being read were difficult was the amount of unknown words found. For the pre-intermediate group, the prereading activity Contextual Redefinition,

had a positive effect on participants' perceptions of text difficulty, but it had a negative impact on comprehension as measured by comprehension questions and written free recall. On the other hand, for the advanced group, the same prereading activity had a positive impact on participants' perceptions of text difficulty and on their comprehension as measured by comprehension questions. Considering the results of the written free recall, this prereading activity had a slight negative impact on comprehension.

The second question in the retrospective questionnaire asked participants whether they believed the treatment with the prereading activity prior to reading the texts had had any impact on their comprehension. The pre-intermediate group reported that they believed the prereading activity Graphic Organizer had had a positive effect on their comprehension. Out of the 15 participants, 13 answered that they thought the activity had helped them understand the text. Some participants commented that the activity had helped them understand the context of the text, such as: "*Yes. It helped me understand the context*" (P21) and "*Yes. It was enlightening and presented a summary of the text*" (P24). It is interesting to notice that participants' perceptions corroborate their results in the comprehension questions. As for the prereading activity Contextual Redefinition, there was a balance between participants' opinions. Out of the 15 participants, 8 answered that they believed the activity had had no impact on their comprehension, for instance: "*No. I had already forgotten the words*" (P24), while 6 of them claimed it had positively affected their comprehension, for example: "*Yes, because some words were unknown and they were important to understand the text*" (P37). One participant did not answer that question. Once again, although the prereading activity Contextual Redefinition affected pre-intermediate participants' comprehension negatively, both in terms of comprehension questions and written free recall measures, participants perception was affected positively.

The advanced group expressed they believed the prereading activity Contextual Redefinition had had a positive impact on their comprehension. All the 15 participants answered yes to the question and made comments such as "*Yes, if we had not done the activity before reading the text, it would have become harder to understand due to the lack of vocabulary*" (P7) and "*Yes, because the words we learned help in the comprehension of the sentences inside the text*" (P2). In the same way as the pre-intermediate group, advanced participants' perception of their performance supports the results of the comprehension questions measure. Regarding the prereading activity Graphic Organizer, out of the 15 participants, eleven participants in the advanced group thought it had had a positive effect on their comprehension, making the following remarks: "*Yes, I understood the text better*" (P6)

and "*In a way the activity makes us understand what the text is about and gives us some parts of the text to remember*" (P3). It can be argued that the majority of participants' perceptions do not reflect the results obtained through the comprehension questions and written free recall task. The results of the two measures of comprehension chosen seem to be more attuned with the comments made by the four participants who believed the prereading activity Graphic Organizer did not have an impact on their comprehension; they said: "*I'm not sure. The search of connections among loose sentences made me a little confused*" (P10) and "*No. Reading the text I could understand the same way*" (P19).

The third question of the retrospective questionnaire asked participants how they had felt during the written free recall task, whether they had had any difficulty and if so, which one. As mentioned in the Method section of the present thesis, participants were instructed to write down everything they could remember from the texts, in Portuguese, using complete sentences. In the pre-intermediate group, most participants reported some feeling of anxiety, claiming they had felt insecure and bad for not being able to recall the whole text: "*I felt bad for not being able to remember everything*" (P31). Most of them said they remembered only parts of the text, especially when they received the treatment with the prereading activity Contextual Redefinition: "*I could write only about the first part of the text, the rest I could not understand, I felt frustrated*" (P22). As previously mentioned, the similar scores of the pre-intermediate group in the written free recall task for the control condition (M = 14.53) and the treatment with the prereading activity Graphic Organizer (M = 14.6) could be explained if one takes into consideration that they naturally employ top-down strategies to understand texts and cope with their lack of linguistic knowledge, or knowledge of vocabulary and grammar. Following the same rationale, it could be said that pre-intermediate participants' scores in the written free recall task preceded by the treatment with the prereading activity Contextual Redefinition were lower than the other two conditions (M = 11.93) because it required participants to attend to specific vocabulary items, shifting their natural top-down processing to a more bottom-up approach, as exemplified by the comments "*I wish I could have organized myself to write the main idea of each paragraph*" (P36) and "*I felt that I could remember the parts that had more impact on me better than the others*" (P40).

In the advanced group, most participants claimed they had felt calm during the task: "*I felt fine too, because I saw that I was able to understand a long text in English and I was able to retell it*" (P12) and, as opposed to the pre-intermediate group, most participants said they were better able to understand the texts as a whole and did not remember as much information related to the details: "*I was comfortable to write, because I could report, without all the*

details, the story being told in the text" (P11). Once more, as previously mentioned, advanced participants similar scores for the control condition (M = 23.6) and the treatment with the prereading activity Contextual Redefinition condition (M = 22.93) in the written free recall task could be explained if one takes into consideration that they naturally resort to bottom-up processing and that the number of unknown words in the texts was small and did not interfere with the construction of a coherent mental representation of the text. Moreover, advanced participants' lower scores for the treatment with the prereading activity Graphic Organizer (M = 19.66) could be interpreted as a result of having created a situation model, that is, having assimilated the information presented in the text with their prior knowledge, represented by some of the idea units in their written free recall as instantiated by the comments "*I felt fine, because I could see progress in my learning and I could understand what the text said*" (P12) and "*I used the sentences to remember the paragraphs and I wrote what I remembered, it was easy*" (P2).

The fourth question in the retrospective questionnaire inquired participants in relation to how they had felt when they answered the comprehension questions, whether they had had any difficulty and if so, which one. The majority of participants in the pre-intermediate groups answered that they felt insecure and frustrated because they could not remember specific parts of the texts in order to be able to answer the questions: "*Yes. But I didn't remember or I didn't have time to pay attention to, to experience or to decipher the text in all its details*" (P25) and "*I had more difficulties to answer. I didn't understand a lot about the paragraphs and details, only the main idea*" (P37). Most participants blamed their lack of vocabulary knowledge for not being able to answer the comprehension questions: "*Yes, I had difficulties. I didn't understand the text because of lack of vocabulary*" (P24).

For the advanced group, most participants reported feeling calm during the activity because they could understand the texts: "*I didn't have difficulties in the questions. I thought they were very nice*" (P1) and "*I believe I understood the essence of the text and I didn't have many difficulties*" (P10). However, they also claimed that they struggled to remember the details in order to answer the questions as expressed by the following comments: "*Yes. I couldn't remember the details about the studies conducted by the psychologist*" (P16) and "*I only struggled to remember some more specific fact*" (P17). Some participants blamed their memory for not remembering the specific information in the text as exemplified by the comments: "*It was easy to answer what I had understood, but once again my memory failed me in one of the questions*" (P12) and "*My difficulties are always related to memorizing*" (P19).

The fifth questions in the retrospective questionnaire required participants to rate the texts read in terms of level of difficulty using a Likert scale, going from 1 (very easy) to 4 (very difficult). Table 16 shows participants' ratings of text difficulty for the pre-intermediate and advanced groups organized by text.

Table 16 - Participants' ratings of text difficulty by text

	Pre-intermediate				Advanced		
	Text 1	Text 2	Text 3		Text 1	Text 2	Text 3
P21	3	4	2	P1	2	1	1
P22	3	3	3	P2	1	2	2
P23	-[35]	3	4	P3	3	2	3
P24	4	4	4	P4	3	3	2
P25	4	4	3	P6	2	2	3
P27	4	3	2	P7	2	3	3
P28	2	3	2	P10	2	2	2
P30	3	4	3	P11	3	2	2
P31	2	2	2	P12	1	1	2
P32	2	3	2	P13	4	4	3
P33	2	3	2	P15	3	2	2
P34	2	3	2	P16	4	3	2
P36	4	4	2	P17	3	3	2
P37	2	3	3	P18	3	2	3
P40	3	3	1	P19	4	3	3
Mean	2,85	3,26	2,46		2,66	2,33	2,33

P – participant

Source: Elaborated by the author (2019).

It is possible to observe that, for the pre-intermediate group, the easiest text was Text

[35] This participant forgot to rate the difficulty of Text 1.

3, entitled "Robot Teachers", followed by Text 1, named "Digital Habits Across Generations". The most difficult text for this group was Text 2, called "The Legend of Fairies". Participants' ratings are in accordance with their answers for the first question of the questionnaire. As previously mentioned, participants' comments for that question illustrate that, for Text 3, most participants who thought it was difficult read it in the control condition. For the advanced group, the texts were rated almost at the same level of difficulty, with Text 1 entitled "Do you have the right mindset?" slightly more difficult than the other ones, "Me and my brain" (Text 2) and "The rise of fake news" (Text 3). This could be another indication that, although participants at the advanced level of proficiency can recognize unknown words in a text, the amount of unknown words found is not sufficient to harm their comprehension of the text as a whole because they are able to use other sources of knowledge to arrive at a coherent mental representation of the text as illustrated by the comment: "*Some words that I didn't know, but in this text they did not influence a lot*" (P2). Table 17 shows participants' ratings of text difficulty organized by condition.

Table 17 - Participants' ratings of text difficulty by condition

	Pre-intermediate				Advanced		
	Control	**C.R.**	**G.O.**		**Control**	**C.R.**	**G.O.**
P21	2	3	4	P1	2	1	1
P22	3	3	3	P2	1	2	2
P23	4	-[36]	3	P3	3	2	3
P24	4	4	4	P4	2	3	3
P25	3	4	4	P6	3	2	2
P27	4	3	2	P7	3	2	3
P28	2	3	2	P10	2	2	2
P30	3	4	3	P11	2	2	3
P31	2	2	2	P12	1	2	1
P32	2	3	2	P13	4	3	4
P33	2	3	2	P15	3	2	2

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[36] This participant forgot to rate the difficulty of Text 1.

P34	2	3	2	P16	4	3	2
P36	4	2	4	P17	3	3	2
P37	3	3	2	P18	3	2	3
P40	3	1	3	P19	4	3	3
Mean	2.86	2.92	2.8		2.66	2.26	2.4

P - participant

Source: Elaborated by the author (2019).

It is possible to notice that, when organized by conditions, the ratings of text difficulty become more homogeneous for the pre-intermediate group, which indicates that those participants' perception of difficulty was more influenced by the texts themselves rather than by the condition under which the texts were read. As for the advanced group, it could be said that the ratings organized by condition are almost as homogeneous as when they are organized by text.

The sixth question of the retrospective questionnaire asked participants whether they had had any other difficulties during this part of data collection. Out of those who answered this question, in the pre-intermediate group, participants reported struggling with time constraints (6), vocabulary knowledge (4), comprehension (4), lack of memory (3), the topic of the text (1) and knowledge of grammar (1). In turn, participants in the advanced group claimed they had difficulties with vocabulary knowledge (12), lack of memory (5), time constraints (3), comprehension (2), lack of attention (2), general knowledge (1), formulating the answers (1) and learning (1).

The seventh and last question of the retrospective questionnaire inquired participants as to any other comment or suggestion they might have had. Few participants answered this question and they mostly repeated the ideas presented in other answers, especially in relation to time constraints, lack of vocabulary knowledge, and difficulties regarding memorization. Also, a couple of participants made evaluative comments concerning the research itself.

4.4.4 Inferential statistical tests

This subsection puts forward the results of the inferential statistical tests comparing participants' performance on the two reading comprehension measures used in the present study, that is, written free recall and comprehension questions, in the control condition,

treatment with the prereading activity Contextual Redefinition condition, which will be called Treatment 1, and treatment with the prereading activity Graphic Organizer condition, which will be called Treatment 2, for the pre-intermediate and advanced groups.

4.4.4.1 Written free recall

A two-way 2 (Group: pre-intermediate or advanced) x 3 (Condition: Treatment 1, Treatment 2 or Control) mixed ANOVA with repeated measures was conducted on written free recall scores. The sphericity assumption was not violated, $W = .986$, $X^2 = 0.40$, $p > .05$. Therefore, the F-value for the main effect of condition (and its interaction with the between-group variable group) does not need to be corrected for violations of sphericity. Likewise, the assumption of homogeneity of variance was not violated as shown by the results of Levene's test. As mentioned in the previous chapter, minor violations of the assumption of normality were made.

The results of the Two-Way Mixed ANOVA revealed a significant main effect of Group at the 5% level (F (1,28) = 17.33, $p < .001$) on written free recall scores. The Global Effect size using Partial Eta Squared was 0.382, which is a large effect. The observed power was .980, which is strong. There was no significant main effect of condition (F (2,56) = 8.63, $p > .05$, $\eta p^2 = .030$) as well as no significant interaction between Group and Condition (F (2,56) = 1.825, $p > .05$, $\eta p^2 = .061$), which indicates that this measure of comprehension was not very appropriate to investigate the effects of the prereading activities. One possible reason for this is that participants deviated their attention from what they had actually comprehended to the writing task at hand, which involved more than just having understood the ideas in the text. Figure 6 shows the estimated marginal means for the three conditions.

4.4.4.2 Comprehension questions

A two-way 2 (Group: pre-intermediate or advanced) x 3 (Condition: Treatment 1, Treatment 2 or Control) mixed ANOVA with repeated measures was conducted on comprehension questions scores. The sphericity assumption was not violated, $W = .926$, $X^2 = 2.061$, $p > .05$. Therefore, the F-value for the main effect of condition (and its interaction with the between-group variable group) does not need to be corrected for violations of sphericity. Likewise, the assumption of homogeneity of variance was not violated as shown by the

results of Levene's test. As mentioned in the previous chapter, this researcher has opted to assume the population is normal.

Figure 6 - Estimated marginal means for written free recall
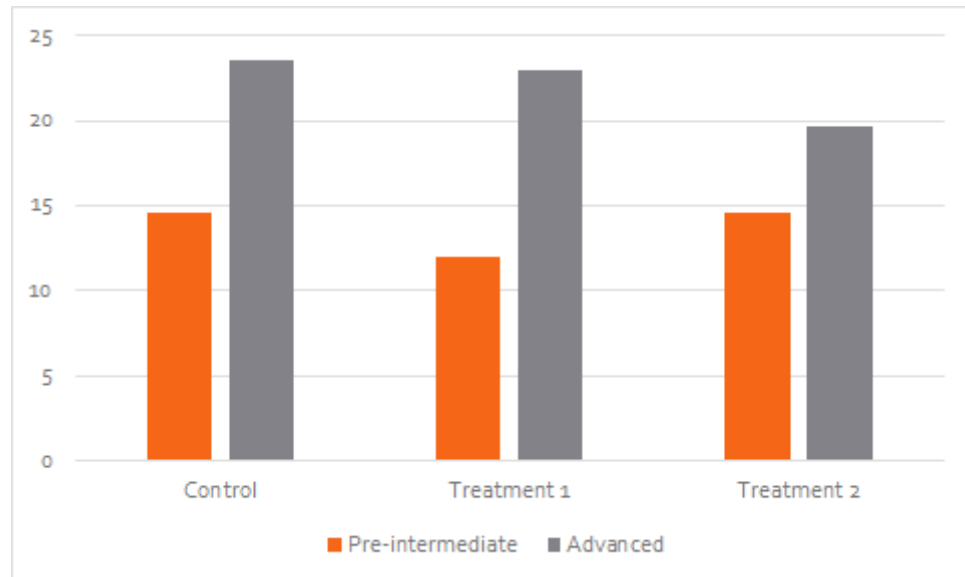
Source: Elaborated by the author (2019).

The results of the Two-Way Mixed ANOVA revealed a significant interaction between Group and Condition at the 5% level (F (2,56) = 4.411, $p < .05$) on comprehension questions scores. The Global Effect size using Partial Eta Squared was 0.136, which is a medium effect. The observed power was .738, which is strong. There was no significant main effect of group (F (1,28) = 1.722, $p > .05$, $\eta p^2 = .058$) as well as no significant main effect of Condition (F (2,56) = 0.407, $p > .05$, $\eta p^2 = .014$). In order to investigate the significant interaction, simple effect tests were conducted using a Bonferroni correction. The effect of group at each condition presented only one pairwise effect for the Treatment 1 condition (p = .003), which indicates that the prereading activity Contextual Redefinition had a significant effect on advanced participants' reading comprehension as measured by comprehension questions, when compared to the pre-intermediate group. Also, the effect of condition at each group presented one pairwise effect approaching significance: Treatment 1 in relation to Treatment 2 for the Pre-intermediate group (p = .092). Figure 7 shows the estimated marginal means for the three conditions.

The following subsection presents the results and corresponding discussion regarding the statistical correlations in relation to the variables age, reading proficiency, working memory and reading comprehension.

Figure 7 - Estimated marginal means for comprehension questions
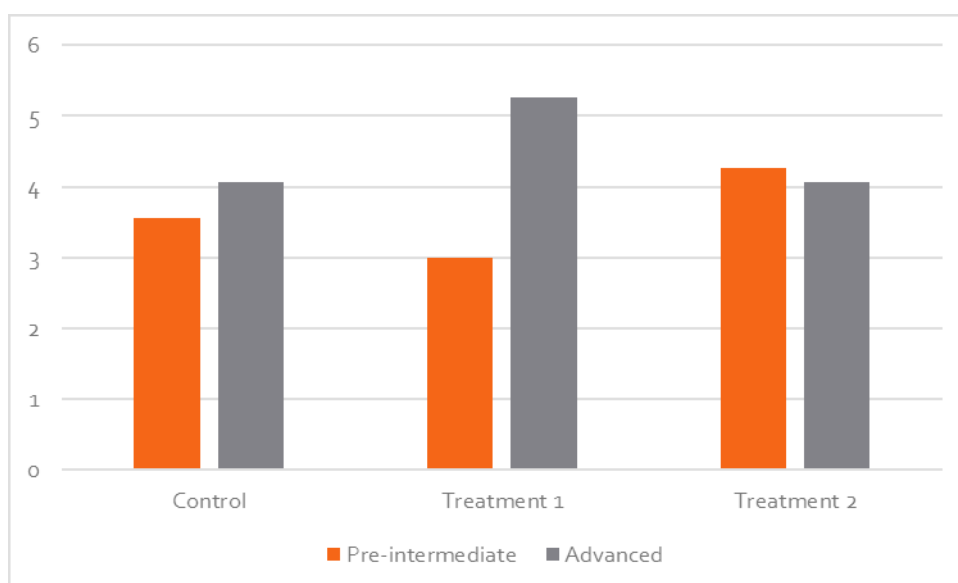
Source: Elaborated by the author (2019).

4.5 STATISTICAL CORRELATIONS

The objective of this subsection is to present and discuss the results of the statistical correlations employed in this study, which include correlations between participants' age and working memory (4.5.1), reading proficiency and working memory (4.5.2), the two measures of reading comprehension used, that is, written free recall and comprehension questions (4.5.3), reading proficiency and reading comprehension (4.5.4) and, finally, correlations between working memory and reading comprehension (4.5.5)[37]. As mentioned in the previous chapter, three variables were considered not normally distributed: pre-intermediate participants' age, pre-intermediate participants' comprehension questions scores for the Treatment 2 condition and advanced participants' working memory lenient scores. For this reason, both parametric and non-parametric tests were run in order to do the correlational analysis; they are Pearson's r and Spearman's rho respectively.

It has already been stated that the version of the RST used in the present study proved to be very hard for participants in both groups, especially using the strict scoring method. Roscioli (2017) mentions that "the choice of using a strict scoring is justified by the assumption that limitations of WMC can also arise from differences in the ability to control

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[37] Scatterplots for all the correlations described in this subsection can be found in Appendix U.

attention" (p. 90). In the case of this study, the limitations are reflected in the low scores of the strict method, which were even below 2, the standard starting point for this test[38]. For this reason, a lenient scoring method was also employed following the rationale explained by Friedman and Miyake (2004): "because this score included words recalled from a set even if the other words in that set were not recalled, it picked up differences between individuals who could recall some words from each set and individuals who forgot most of the words in the set" (p. 582). Thus, before proceeding to the correlations among the different variables, it is necessary to determine the correlations between the two measures of working memory used in this study. Table 18 exhibits the correlations between the strict and lenient scores for the pre-intermediate and advanced groups.

Table 18 - Correlations between the two measures of working memory (strict x lenient scores)

Correlation Test	PI WM SS x LS (N=15)	ADV WM SS x LS (N=15)
Pearson's Coefficient r	.532*	.926**
Sig.	.041	.000
Spearman's Rank Order	.384	.927**
Sig.	.158	.000

*. Correlation is significant at the 0.05 level (2-tailed).

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

PI - Pre-intermediate ADV - Advanced WM - Working memory

SS - Strict scores LS - Lenient scores

Source: Elaborated by the author (2019).

With the results obtained with Pearson's Coefficient test, it is possible to observe that, for the pre-intermediate group, there was a significant positive relationship between working memory strict and lenient scores, r (13) = .54, p < .05. The correlation was even higher for the advanced group, r (13) = .93, p < .001. In turn, Spearman's Rank Order test shows a weak positive correlation between working memory strict and lenient scores for the pre-intermediate group, rs (13) = .39, p > .05, whereas for the advanced group, it was statistically significant rs (13) = .93, p < .001.

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[38] Check the method section of this thesis for a detailed explanation of how the strict scoring of the RST was carried out.

4.5.1 Correlations between participants' age and working memory capacity

Although participants' age was not controlled in the present study, it is an important factor considering cognitive aspects such as working memory capacity. Radvansky and Dijkistra (2007) mention that some studies show a negative correlation between participants' age and measures of working memory, that is, as participants become older, their working memory capacity decreases. For this reason, this researcher has decided to compare the two variables to investigate whether this pattern appears. Table 19 presents the correlations between age and working memory, using both strict and lenient scores.

Table 19 - Correlations between age and working memory (strict x lenient scores)

Correlation Test	PI Age		ADV Age	
	x WM SS (N=15)	x WM LS (N=15)	x WM SS (N=15)	x WM LS (N=15)
Pearson's Coefficient r	.195	.351	-.259	-.168
Sig. (two-tailed)	.486	.200	.352	.550
Spearman's Rank Order	.149	.311	-.420	-.295
Sig. (two-tailed)	.597	.260	.119	.286

PI - Pre-intermediate ADV - Advanced WM - Working memory

SS - Strict scores LS - Lenient scores

Source: Elaborated by the author (2019).

As shown in Table 19, for the pre-intermediate group, there is a weak positive correlation between participants' age and strict working memory scores, both taking into consideration the results of the Pearson's Coefficient test, r (13) = .20, p > .05, and the results of the Spearman's Rank Order test, rs (13) = .15, p > .05. For the lenient working memory scores, this correlation is a little higher, but still considered weak, as expressed by the results of both tests, r (13) = .36, p > .05 and rs (13) = .32, p > .05. On the other hand, for the advanced group, there is a weak negative correlation, between participants' age and strict working memory scores as revealed by both tests, r (13) = -.26, p > .05 and rs (13) = -.42, p > .05. The correlations between advanced participants' age and lenient working memory scores are a little weaker: r (13) = -.17, p > .05 and rs (13) = -.30, p > .05.

Although the correlations between participants' age and working memory measures

did not reach significance, it is interesting to notice the directions of the relationships. In the case of the present study, for the pre-intermediate group, as participants get older, their working memory capacity increases, which goes against the general findings in the literature. It could be that the participants in the pre-intermediate group are more strategic, in order to compensate for some possible memory loss. On the other hand, for the advanced group, results reveal a negative relationship, which is in accordance with the literature. It is worth mentioning that one should be careful when interpreting these findings due to the small number of participants in this research.

4.5.2 Correlations between participants' reading proficiency and working memory capacity

The objective of this subsection is to expose and examine the results of the statistical correlations in relation to reading proficiency and working memory capacity. Table 20 presents the correlations between reading proficiency and strict and lenient working memory scores for both the pre-intermediate and advanced groups.

Table 20 - Correlations between reading proficiency and working memory (strict x lenient scores)

	PI Proficiency		ADV Proficiency	
Correlation Test	**x WM SS (N=15)**	**x WM LS (N=15)**	**x WM SS (N=15)**	**x WM LS (N=15)**
Pearson's Coefficient r	.416	.339	.251	.414
Sig. (two-tailed)	.123	.217	.368	.125
Spearman's Rank Order	.382	.187	.212	.374
Sig. (two-tailed)	.160	.505	.448	.169

PI - Pre-intermediate ADV - Advanced WM - Working memory

SS - Strict scores LS - Lenient scores

Source: Elaborated by the author (2019).

As it can be observed in Table 20, for the pre-intermediate group, there is a moderate positive correlation between participants' reading proficiency and strict working memory scores, both taking into consideration the results of the Pearson's Coefficient test, r (13) = .42,

p > .05, and the results of the Spearman's Rank Order test, *rs* (13) = .39, p > .05. For the lenient working memory scores, this correlation is a little lower, as expressed by the results of both tests, *r* (13) = .34, p > .05 and *rs* (13) = .19, p > .05. In turn, for the advanced group, there is a weak positive correlation, between participants' reading proficiency and strict working memory scores as revealed by the results of both tests, *r* (13) = .26, p > .05 and *rs* (13) = .22, p > .05. For the lenient scores, the relationships are a little stronger as shown by the results of both tests, *r* (13) = .42, p > .05 and *rs* (13) = .38, p > .05.

Although none of the correlations reported in this subsection reached significance, they indicate a trend and some speculations can be made. As one can see, the correlations between the reading proficiency of the pre-intermediate group and the working memory strict scores are a little higher when compared to the lenient scores. This could be due to the complexity that the reading proficiency test represented to the pre-intermediate participants, in that it required them to compensate for their lack of linguistic knowledge in order to answer the questions. The opposite pattern can be seen in the correlations between the reading proficiency of the advanced group and working memory strict and lenient scores. Thus, it is possible to claim that the reading proficiency test employed in the present study was more cognitively demanding to pre-intermediate participants than to advanced participants. It is possible that, because advanced participants have sufficient linguistic knowledge in order to understand the micropropositions of a text, their working memory was not taxed by the reading proficiency test.

4.5.3 Correlations between the two measures of reading comprehension: written free recall and comprehension questions

Before moving on to the correlations between reading proficiency and reading comprehension, it is essential to determine the correlations between the two measures of comprehension used in the present study, that is written free recall and comprehension questions. Table 21 shows the results of the Pearson's Coefficient test and the Spearman's Rank Order test for the correlations between written free recall and comprehension question scores of the pre-intermediate and advanced groups.

Table 21 - Correlations between written free recall and comprehension questions scores

	Pre-intermediate	Advanced

	WFR Control x CQ Control (N=15)	WFR CR x CQ CR (N=15)	WFR GO x CQ GO (N=15)	WFR Control x CQ Control (N=15)	WFR CR x CQ CR (N=15)	WFR GO x CQ GO (N=15)
Pearson's Coefficient r Sig.	.558* .031	.643** .010	.345 .208	.606* .017	.233 .402	.267 .336
Spearman's Rank Order Sig.	.324 .239	.725** .002	.418 .121	.392 .149	.144 .608	.160 .570

*. Correlation is significant at the 0.05 level (2-tailed).

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

WFR - Written free recall CQ - Comprehension questions CR - Contextual Redefinition

GO - Graphic Organizer

Source: Elaborated by the author (2019).

As expressed in Table 21, for the pre-intermediate group, there is a significant moderate positive correlation between participants' written free recall and comprehension questions scores for the control condition, taking into consideration the results of the Pearson's Coefficient test, r (13) = .56, p < .05. With the results of the Spearman's Rank Order test, rs (13) = .33, p > .05, this correlation is considered weak. For the treatment with the prereading activity Contextual Redefinition condition, there is a significant moderate positive correlation considering the results of the Pearson's test, r (13) = .65, p = .01, and a strong positive correlation taking into account the results of the Spearman's test, rs (13) = .73, p < .01, between participants' written free recall and comprehension questions. Finally, for the treatment with the prereading activity Graphic Organizer condition, there is a weak positive correlation between the scores of participants' written free recall and comprehension questions when measured with the Pearson's test, r (13) = .35, p > .05, and a moderate positive correlation when measured with the Spearman's test, rs (13) = .42, p > .05.

For the advanced group, there is a significant moderate positive correlation between participants' written free recall and comprehension questions scores for the control condition, as expressed the by the results of the Pearson's Coefficient test r (13) = .61, p < .05. However, this correlation is considered weak taking into consideration the results of the Spearman's test, rs (13) = .40, p > .05. For the treatment with the prereading activity Contextual

Redefinition condition, there is a weak positive correlation between participants' written free recall and comprehension questions scores for both tests, r (13) = .24, p > .05 and rs (13) = .15, p > .05. Finally, considering the variables written free recall and comprehension questions scores for the treatment with the prereading activity Graphic Organizer condition, there is also a weak positive correlation between two of them as expressed by the results of the tests, r (13) = .27, p > .05 and rs (13) = .16, p > .05.

It is interesting to notice that, for the pre-intermediate group, the highest correlations between the two measures of comprehension used, that is, written free recall and comprehension questions, are for the condition in which participants received treatment with the prereading activity Contextual Redefinition, which could be explained if one speculates that this treatment caused pre-intermediate participants to read texts in a more bottom-up manner, as it has been previously argued. If that holds true, then, there will be a stronger correlation between both comprehension measures and the two working memory measures, that is, the strict and lenient scores, for the treatment with the prereading activity Contextual Redefinition when compared to the other treatment condition and the control condition[39].

In turn, for the advanced group, the highest correlations between written free recall and comprehension questions scores are for the control condition, which could mean that, for this group, the two measures of comprehension taxed cognitive processes in a similar way. Also, there is a decrease in the correlations between the comprehension measures for the treatments with both prereading activities, which could be explained if one considers that the written free recall activity taxed working memory more than the comprehension questions. If that holds true, there will be a higher correlation between the measures comprehension and working memory measures for the control condition than for the treatment conditions[40].

4.5.4 Correlations between participants' reading proficiency and reading comprehension

This subsection is aimed at presenting the correlations between the results of the reading proficiency test and the two measures of comprehension used in the present study. Table 22 presents the correlations between reading proficiency and written free recall.

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[39] These correlations will be presented in Subsection 4.5.5.
[40] These correlations will be presented in Subsection 4.5.5.

Table 22 - Correlations between reading proficiency and written free recall

	PI Proficiency x			ADV Proficiency x		
	WFR Control (N=15)	WFR CR (N=15)	WFR GO (N=15)	WFR Control (N=15)	WFR CR (N=15)	WFR GO (N=15)
Pearson's Coefficient r	.282	.340	-.025	.090	.165	-.093
Sig. (two-tailed)	.309	.216	.929	.748	.556	.741
Spearman's Rank Order Sig. (two-tailed)	.175	.272	.043	-.091	.133	-.128
	.532	.327	.880	.746	.636	.650

PI - Pre-intermediate ADV - Advanced WFR - Written free recall

CR - Contextual Redefinition GO - Graphic Organizer

Source: Elaborated by the author (2019).

As it can be observed in Table 22, for the pre-intermediate group, there is a weak positive correlation between the results of the reading proficiency test and the written free recall measure for the control condition, r (13) = .29, p > .05 and rs (13) =.18, p > .05. This correlation is a little higher, but still weak, for the treatment with the prereading activity Contextual Redefinition condition, as expressed by the results of the Pearson's Coefficient test, r (13) = .34, p > .05, and by the results of the Spearman's Rank order test, rs (13) = .18, p > .05. For the treatment with the prereading activity Graphic Organizer, the correlation is lower considering the results of both tests. Pearson's test revealed a weak negative correlation, r (13) = -.03, p > .05, whereas Spearman's test revealed a weak positive correlation rs (13) = .05, p > .05.

In turn, for the advanced group, there is a weak positive correlation between the results of the reading proficiency test and the written free recall measure for the control condition, as expressed by the results of the Pearson's test, r (13) = .09, p > .05. However, the results of the Spearman's test indicate a weak negative correlation between those variables, rs (13) = -.10, p > .05. For the treatment with the prereading activity Contextual Redefinition condition, both tests show a weak positive correlation, r (13) = .17, p > .05 and rs (13) = .14, p > .05. Lastly, for the treatment with the prereading activity Graphic Organizer condition, both tests indicate

a weak negative correlation between the variables, r (13) = -.10, p > .05 and rs (13) = -13, p > .05.

It is arguable that, for the pre-intermediate group, reading proficiency and the written free recall measures showed a higher correlation for the Contextual Redefinition and control condition than the Graphic Organizer condition, when compared to the advanced group because the former group is more constrained by linguistic knowledge. It is also interesting to notice that, for the treatment with the prereading activity Graphic Organizer condition, the correlations are similar for both the pre-intermediate and advanced group, which could mean that the treatment in question caused both groups to behave similarly. Table 23 presents the correlations between reading proficiency and the scores of the comprehension questions.

Table 23 - Correlations between reading proficiency and comprehension questions

	PI Proficiency x			ADV Proficiency x		
	CQ Control (N=15)	CQ CR (N=15)	CQ GO (N=15)	CQ Control (N=15)	CQ CR (N=15)	CQ GO (N=15)
Pearson's Coefficient r	.602*	.324	.221	.513	.605*	.215
Sig.	.018	.239	.428	.051	.017	.442
Spearman's Rank Order	.639*	.302	.185	.521*	.582	.143
Sig.	.010	.275	.509	.046	.023	.612

*. Correlation is significant at the 0.05 level (2-tailed).

PI - Pre-intermediate ADV - Advanced CQ - Comprehension questions

CR - Contextual Redefinition GO - Graphic Organizer

Source: Elaborated by the author (2019).

As expressed in Table 23, the correlations between reading proficiency and the scores of the comprehension questions are considerably higher than the correlations between reading proficiency and the scores of the written free recall. For the pre-intermediate group, there is a significant moderate positive correlation between reading proficiency and comprehension questions scores for the control condition, r (13) = .61, p < .05 and rs (13) = .64, p < .05. As regards the treatment with the prereading activity Contextual Redefinition, there is a weak

positive correlation between reading proficiency and comprehension questions scores, r (13) = .33, p > .05 and rs (13) = .31, p > .05. In relation to the treatment with the prereading activity Graphic Organizer condition, this correlation is even weaker, r (13) = .23, p > .05 and rs (13) = .19, p > .05. It is interesting to notice that there is a considerable decrease in the correlations when comparing the control condition with the two treatment conditions for the pre-intermediate group. It could be said that the treatment with the prereading activities improved pre-intermediate participants' comprehension of the more detailed information in the texts necessary to answer the comprehension questions in a way that their scores were less related to their reading proficiency.

For the advanced group, there is a significant moderate correlation between reading proficiency and comprehension questions scores for the control condition when measured by the Spearman's Rank Order test, rs (13) = .53, p < .05. The same correlation approaches significance when measured by the Pearson's Coefficient test, r (13) = .52, p = .05. Differently than the pre-intermediate group, for the treatment with the prereading activity Contextual Redefinition condition, there was an increase in the correlation between advanced participants' reading proficiency and their scores on the comprehension questions, which was a significant moderate positive correlation as expressed by the results of Pearson's test, r (13) = .61, p < .05, and a moderate positive correlation as shown by Spearman's test, and rs (13) = .59, p >.05. As for the treatment with the prereading activity Graphic Organizer condition, there is a weak positive correlation between reading proficiency and comprehension questions scores, r (13) = .22, p > .05 and rs (13) = .15, p > .05. It is interesting to notice that, for this group, that is, the advanced group of participants, the correlations for the control condition and for the treatment with the prereading activity Contextual Redefinition are fairly significant and, for the treatment with the prereading activity Graphic Organizer, they are considerably lower. One could claim that the treatment with the prereading activity Graphic Organizer aided advanced participants' in understanding the more detailed information present in the texts in order to answer the comprehension questions in a way that their scores were less related to their reading proficiency.

4.5.5 Correlations between participants' working memory and reading comprehension

This subsection is aimed at presenting the correlations between the strict and lenient working memory scores and the two measures of comprehension used in the present study, that is, written free recall and comprehension questions. Table 24 presents the correlations

between working memory strict scores and written free recall.

Table 24 - Correlations between working memory strict scores and written free recall

	PI WM SS x			ADV WM SS x		
	WFR Control (N=15)	WFR CR (N=15)	WFR GO (N=15)	WFR Control (N=15)	WFR CR (N=15)	WFR GO (N=15)
Pearson's Coefficient r Sig.	.467 .079	.589* .021	.104 .712	-.121 .667	.093 .742	-.188 .502
Spearman's Rank Order Sig.	.457 .087	.618* .014	.157 .577	-.101 .721	.158 .573	-.282 .308

*. Correlation is significant at the 0.05 level (2-tailed).

PI - Pre-intermediate ADV - Advanced WM - Working Memory SS - Strict Scores

WFR - Written free recall CR - Contextual Redefinition GO - Graphic Organizer

Source: Elaborated by the author (2019).

As it can be observed in Table 24, considering the pre-intermediate group, there is a moderate positive correlation between working memory strict scores and written free recall scores for the control condition, r (13) = .47, p > .05 and rs (13) = .46, p > .05. For the treatment with the prereading activity Contextual Redefinition condition, there is a significant moderate positive correlation between the aforementioned variables, r (13) = .59, p <.05 and rs (13) = .62, p <. 05. As for the treatment with the prereading activity Graphic Organizer condition, there is a weak positive correlation between working memory strict scores and written free recall scores, r (13) = .11, p > .05 and rs (13) = .16, p > .05. It could be said that, for the pre-intermediate group, the treatment with the prereading activity Contextual Redefinition caused the written free recall task to be more cognitively demanding than the control condition by taxing working memory. Conversely, for the same group, the treatment with the prereading activity Graphic Organizer mitigated cognitive demands when compared to the control condition.

Regarding the advanced group, there is a weak negative correlation between working memory strict scores and written free recall scores for the control condition, r (13) = -.13, p > .05 and rs (13) = -.11, p > .05. In relation to the treatment with the prereading activity

Contextual Redefinition condition, there is a weak positive correlation between the forenamed variables, *r* (13) = .10, p > .05 and *rs* (13) = .16, p > .05. With respect to the treatment with the prereading activity Graphic Organizer, there is a weak negative correlation between working memory strict scores and written free recall scores for the advanced group, *r* (13) = -.19, p > .05 and *rs* (13) = -.29, p > .05. It is interesting to notice that, for this group, working memory strict scores do not predict performance in the written free recall task. Moreover, there is a change in the direction of the relationship between the variables in the control condition and in the treatment with the prereading activity Graphic Organizer. It could be that, when advanced participants receive treatment with the prereading activity Contextual Redefinition, their working memory is taxed due to the change in the processing nature, that is, from a more top-down to a more bottom-up approach to reading, since this prereading activity made participants focus on specific vocabulary items. Table 25 shows the correlations between working memory lenient scores and written free recall for the pre-intermediate and advanced groups.

Table 25 - Correlations between working memory lenient scores and written free recall

	PI WM LS x			ADV WM LS x		
	WFR Control (N=15)	WFR CR (N=15)	WFR GO (N=15)	WFR Control (N=15)	WFR CR (N=15)	WFR GO (N=15)
Pearson's Coefficient r	.667**	.217	.630*	-.031	.147	-.207
	.007	.438	.012	.914	.601	.460
Spearman's Rank Order	.545*	.112	.665**	-.086	.156	-.241
	.036	.690	.007	.761	.579	.388

*. Correlation is significant at the 0.05 level (2-tailed).

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

PI - Pre-intermediate ADV - Advanced WM - Working memory LS - Lenient scores

WFR - Written free recall CR - Contextual Redefinition GO - Graphic Organizer

Source: Elaborated by the author (2019).

As expressed in Table 25, regarding the pre-intermediate group, there is a significant moderate positive correlation between working memory lenient scores and written free recall scores for the control condition, *r* (13) = .67, p < .01 and *rs* (13) = .55, p < .05. For the treatment with the prereading activity Contextual Redefinition condition, there is a weak

positive correlation between the aforementioned variables, r (13) = .22, p > .05 and rs (13) = .12, p > .05. As for the treatment with the prereading activity Graphic Organizer condition, there is a significant moderate positive correlation between working memory lenient scores and written free recall scores, r (13) = .64, p < .05 and rs (13) = .67, p < .01. Interestingly, for the pre-intermediate group, the pattern of the correlations between working memory lenient scores and written free recall scores for the treatment conditions is reversed when compared to the correlations between working memory strict scores and written free recall scores. Given the nature of the working memory scores, that is, strict and lenient, this finding could imply that the prereading activity Contextual Redefinition caused an overload in the pre-intermediate participants' working memory.

In relation to the advanced group, there is a weak negative correlation between working memory lenient scores and written free recall scores in the control condition, r (13) = -.04, p > .05 and rs (13) = -.09, p > .05. As regards the treatment with the prereading activity Contextual Redefinition condition, there is a weak positive correlation between the aforesaid variables, r (13) = .15, p > .05 and rs (13) =.16, p > .05. Considering the treatment with the prereading activity Graphic Organizer condition, there is a weak negative correlation between the aforementioned variables, r (13) = -.21, p > .05 and rs (13) = -.25. Interestingly, for the advanced group, there is a similar pattern for the correlations between both strict and lenient working memory scores and written free recall. Thus, it is possible to conclude that the written free recall task did not tax advanced participants' working memory. Table 26 presents the correlations between working memory strict scores and the scores of comprehension questions for the pre-intermediate and advanced groups.

Table 26 - Correlations between working memory strict scores and comprehension questions

	PI WM SS x			ADV WM SS x		
	CQ Control (N=15)	CQ CR (N=15)	CQ GO (N=15)	CQ Control (N=15)	CQ CR (N=15)	CQ GO (N=15)
Pearson's Coefficient r Sig.	.516* .049	.551* .033	.602* .017	.420 .119	.249 .371	.273 .324
Spearman's Rank Order	.577* .024	.591* .020	.533* .041	.531* .042	.339 .217	.336 .221

Sig.						

*. Correlation is significant at the 0.05 level (2-tailed).

PI - Pre-intermediate ADV - Advanced WM - Working memory SS - Strict scores

CQ - Comprehension questions CR - Contextual Redefinition GO - Graphic Organizer

Source: Elaborated by the author (2019).

In Table 26, it is possible to observe that, for the pre-intermediate group, there is a significant moderate positive correlation between working memory strict scores and the comprehension questions scores in all the conditions: in the control condition, r (13) = .52, p < .05 and rs (13) = .58, p < .05; in the treatment with the prereading activity Contextual Redefinition condition, r (13) = .56, p < .05 and rs (13) = .60, p < .05; and in the treatment with the prereading activity Graphic Organizer condition, r (13) = .61, p < .05 and rs (13) = .54, p < .05. This finding could mean that, regardless of the condition, answering the comprehension questions caused a high demand on pre-intermediate participants' working memory capacity.

As regards the advanced group, there is a moderate positive correlation between working memory strict scores and the comprehension questions scores in the control condition as measured by the Spearman's Rank Order test, rs (13) = .54, p < .05. However, this correlation does not reach significance when measured by the Pearson's Coefficient test, r (13) = .42, p < .05. In relation to the treatment conditions, there is a weak positive correlation between the aforementioned variables, both in the prereading activity Contextual Redefinition condition, r (13) = .25, p > .05 and rs (13) = .34, p > .05, and in the prereading activity Graphic Organizer condition, r (13) = .28, p > .05 and rs (13) = .34, p > .05. Interestingly, for the advanced group, the correlations between working memory strict scores and comprehension questions scores are lower in the treatment conditions when compared to the control condition, which could mean that prereading activities aided participants with lower working memory capacity to achieve a similar performance as the ones with higher working memory capacity, as measured by the Reading Span Test. Finally, Table 27 shows the results of the correlations between working memory lenient scores and the scores of the comprehension questions for the pre-intermediate and advanced groups.

As it can be observed in Table 27, for the pre-intermediate group, there is a moderate positive correlation between working memory lenient scores and comprehension questions scores in the control condition when measured by the Pearson's test, r (13) = .50, p > .05. This correlation is considered weak when measured by the Spearman's test, rs (13) = .34, p >

.05. Considering the treatment with the prereading activity Contextual Redefinition, the same pattern appears between the aforementioned variables: a moderate positive correlation with the first test, *r* (13) = .41, p > .05, and a weak positive correlation using the second test, *rs* (13) = .29, p > .05. As for the treatment with the prereading activity Graphic Organizer, there is a weak positive correlation between the forenamed variables as expressed by the results of both tests, r (13) = .38, p > .05 and rs (13) = .31, p > .05. It is interesting to notice that the same pattern of variation in the correlations across the different conditions emerged when comparing these results to the correlations between comprehension questions and working memory strict scores.

Table 27 - Correlations between working memory lenient scores and comprehension questions

	PI WM LS x			ADV WM LS x		
	CQ Control (N=15)	CQ CR (N=15)	CQ GO (N=15)	CQ Control (N=15)	CQ CR (N=15)	CQ GO (N=15)
Pearson's Coefficient r	.500 .058	.402 .138	.375 .169	.546* .035	.160 .569	.198 .479
Spearman's Rank Order Sig.	.338 .218	.281 .311	.302 .274	.657* .008	.258 .353	.252 .365

*. Correlation is significant at the 0.05 level (2-tailed).

PI - Pre-intermediate ADV - Advanced WM - Working memory LS - Lenient scores

CQ - Comprehension questions CR - Contextual Redefinition GO - Graphic Organizer

Source: Elaborated by the author (2019).

Regarding the advanced group, there is a significant moderate positive correlation between working memory lenient scores and comprehension questions scores in the control condition, *r* (13) = .55, p < .05 and *rs* (13) = .66, p <. 05. In relation to the treatment conditions, there is a weak positive correlation between the aforementioned variables, both in the prereading activity Contextual Redefinition condition, *r* (13) = .16, p > .05 and *rs* (13) = .26, p > .05, and in the prereading activity Graphic Organizer condition, *r* (13) = .20, p > .05 and *rs* (13) = .26, p > .05. As it is possible to see that, similarly to the correlations between working memory strict scores and comprehension questions scores, the correlations are lower

in the treatment conditions when compared to the control condition, which could mean that, at least for the advanced group, prereading activities aided participants with lower working memory capacity to achieve a similar performance as the ones with higher working memory capacity, as measured by the Reading Span Test.

4.6 RESEARCH QUESTIONS AND HYPOTHESES REVISITED

This subsection is aimed at revisiting the research questions proposed in the Method chapter of the present thesis by providing a summary of the main findings related to each of them. Moreover, the hypothesis raised will be confirmed, partially confirmed or refuted according to the results and data analysis presented until now.

Research Question 1: Does the prereading activity Contextual Redefinition (CR) influence pre-intermediate and advanced EFL students' reading comprehension as measured by written free recall and comprehension questions? In the present study, the prereading activity CR influenced pre-intermediate participants' reading comprehension negatively both by means of written free recall and comprehension questions. The aforementioned prereading activity also had a negative impact on advanced participants' reading comprehension when measured by written free recall. However, the prereading activity CR had a positive impact on advanced participants' reading comprehension when measured by comprehension questions.

Hypothesis 1a: The prereading activity Contextual Redefinition (CR) is going to have a positive effect on pre-intermediate and advanced EFL students' reading comprehension as measured by written free recall and comprehension questions. This is expected because, as mentioned in the review of literature of the present thesis, prereading activities that aid in building/activating readers' vocabulary knowledge have a positive influence on their reading comprehension (TAGLIEBER; JOHNSON; YARBROUGH, 1988; TOMITCH, 1991; HUDSON, 1998; MIHARA, 2011). This hypothesis was partially confirmed. As it has already been said, the prereading activity CR only had a positive impact on advanced participants' reading comprehension when measured by comprehension questions. Contrastingly, in the study conducted by Hudson (1998), the VOC treatment[41] did not show a significant difference for the advanced participants. As previously mentioned, it can be argued

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[41] The VOC treatment in Hudson's study (1998) consisted of providing participants with a list of vocabulary items which would appear in the reading passage. Then, participants would go over the list silently for some time. In the final step, the researcher would read the list aloud item by item, accompanied by their definitions. For more details regarding this study, refer to Subsection 2.2.1.1 Prereading activities and vocabulary in the Review of Literature of this thesis.

that Hudson's treatment was not in fact a prereading activity, as participants did not actively engage in working out the meanings of the words. In Mihara's (2011) attempt to contest Hudson's findings, the author experimented with pre-intermediate and upper-intermediate participants. In his study, the prereading activity that worked with pre-questioning had a greater impact on participants' reading comprehension from both levels of proficiency when compared to vocabulary preteaching. Thus, to this researcher's knowledge, the present study is the first to find that prereading activities directed at vocabulary building might be beneficial to advanced students. However, the results should be interpreted carefully due to the small number of participants and a number of other factors, such as the measure of comprehension used and how the words for the prereading activity Contextual Redefinition were selected.

Hypothesis 1b: The prereading activity Contextual Redefinition is going to have a greater effect on pre-intermediate than on advanced EFL students' reading comprehension as measured by comprehension questions. Because the pre-intermediate students are closer to the language threshold (CLARKE, 1998), it is expected that knowledge of vocabulary may help them understand specific information in the text, tackled by the comprehension questions. In contrast, because advanced students already have good knowledge of vocabulary, they are more likely to use other skills in order to comprehend the ideas that are represented in the comprehension questions. This hypothesis was refuted. In fact, as previously mentioned, the opposite result was found. In the present study, the prereading activity CR had a detrimental effect on pre-intermediate participants' reading comprehension while it had a positive effect on advanced participants when measured by comprehension questions. Furthermore, the difference between the effect of the prereading activity CR on the two proficiency groups reached statistical significance when measured by comprehension questions. Other studies have shown that prereading activities involving vocabulary affect participants' reading comprehension positively, even though their effect is less pronounced when compared to other types of prereading activities. For instance, in the study conducted by Taglieber, Johnson and Yarbrough (1988), the prereading activity that had the least beneficial effect on participants' reading comprehension was the one aimed at teaching vocabulary. In turn, in Hudson's study (1998), the VOC treatment was the least beneficial for all the groups, that is, beginning, intermediate and advanced participants. One difference between the aforementioned studies is that the design of the former included a control condition, whereas the latter did not.

In the study conducted by Tomitch (1991), the researcher used two prereading activities, one of them related to vocabulary preteaching (Possible Sentences) and the other

was aimed at making predictions about the text (Request Procedure). She found that both prereading activities had a significant positive effect on intermediate participants' reading comprehension. Also, there were no significant differences between the two prereading activities. It is important to mention that the prereading activity Possible Sentences had an element of guessing the content of the passage to be read similar to the prereading activity Request Procedure, which could explain why both of them had comparable effects. In the case of the present study, during the treatment with the prereading activity Contextual Redefinition, participants had to guess the meaning of the words in two moments: first, in isolation, and then using the context provided by sentences shown on a computer screen. This prereading activity did not include any step in which participants had to guess the content of the text to be read by connecting the words presented as in Tomitch's study (2003), which could have yielded different results.

Moreover, for the present study, another possible explanation for the detrimental effect of the prereading activity Contextual Redefinition on pre-intermediate participants' reading comprehension is related to the reading proficiency test, which was based on a *Cambridge* placement test. As previously mentioned[42], in the placement test, in order to be considered pre-intermediate, students had to score between 34.28% and 52.14% of the test. In this study, participants scored between 15% and 60%. Therefore, some of the participants might have been below the threshold level of linguistic knowledge necessary to take advantage of the treatment.

Research Question 2: Does the modified version of the prereading activity Graphic Organizer influence pre-intermediate and advanced EFL students' reading comprehension as measured by written free recall and comprehension questions? In this study, the prereading activity Graphic Organizer influenced pre-intermediate EFL students' reading comprehension positively, both by means of written free recall and comprehension questions. However, this effect did not reach significance. For the advanced group of EFL students, the prereading activity Graphic Organizer affected reading comprehension negatively when measured by means of written free recall and it had no effect when their reading comprehension was measured by comprehension questions.

Hypothesis 2a: The prereading activity Graphic Organizer is going to have a positive effect on pre-intermediate and advanced EFL students' reading comprehension as measured by written free recall and comprehension questions. This is expected because prereading

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[42] For more information regarding the reading proficiency test, refer to Subsection 4.2 of the Method chapter of this thesis.

activities that assist readers in gaining awareness of text structure have had a positive effect on their reading comprehension (LEVINE; REVES, 1994; MOHAMMADI; MOENIKIA; ZAHED-BABILAN, 2010). This hypothesis was partially confirmed. As previously mentioned, the prereading activity Graphic Organizer had a positive effect on pre-intermediate participants' comprehension when measured by written free recall and comprehension questions. It is possible that this prereading activity allowed pre-intermediate participants to have a glimpse of the text to be read through the extracts showing the main ideas. Moreover, participants had to guess how they main ideas were connected in the remainder of the text. It could be said that the nature of this prereading activity is similar to the ones employed by Tomitch (1991) in the sense that participants were also given the opportunity to read parts of the text beforehand.

For the advanced group of participants, the prereading activity Graphic Organizer had a detrimental effect on their reading comprehension when it was measured by written free recall and no effect when it was measured by comprehension questions. These results could be related to the findings of the Levine and Reves' study (1994), in which the authors found that content schemata and linguistic schemata are more effective in aiding advanced EFL students' reading comprehension.

Hypothesis 2b: The prereading activity Graphic Organizer is going to have a greater effect on advanced than on pre-intermediate EFL students' reading comprehension as measured by written free recall. The advanced students are more likely to use skills that are not available to the pre-intermediate level (HUDSON, 1998). It is expected that advanced students benefit more from knowledge of the organization of the text because the pre-intermediate students might still need to reconcile with the unknown vocabulary present in the text. This hypothesis was refuted. As previously mentioned, the prereading activity Graphic Organizer did not affect advanced participants' reading comprehension positively. One possible explanation for this finding could be related to the type of organizational patterns of the texts chosen, which did not represent a challenge for the participants of this research. In the study conducted by Levine and Reves (1994), the authors claim that the treatment with formal schemata yielded better results than content and linguistic schemata when participants read an argumentative text. Thus, it is possible that if advanced participants had encountered text types they were not accustomed to read, they could have benefited from the prereading activity Graphic Organizer.

Research Question 3: Is there a correlation between RST scores, comprehension scores and written free recall scores, when the prereading activity Contextual Redefinition is used

with pre-intermediate and advanced EFL students? For the pre-intermediate group, there is a significant positive correlation between working memory strict scores and written free recall and there is a significant positive correlation between working memory strict scores and comprehension questions when participants received treatment with the prereading activity Contextual Redefinition. For the advanced group, no significant correlations were found when the prereading activity Contextual Redefinition was used.

Hypothesis 3: There isn't a correlation between RST scores, comprehension scores and written free recall scores, when the prereading activity Contextual Redefinition is used with pre-intermediate and advanced students. Measures of reading comprehension usually correlate with RST scores when there is no treatment, that is, readers with a low span are also poor readers while readers with a high span are also good readers (TOMITCH, 2003). However, Roscioli (2017) found that participants with high and low spans in the RST did not follow the aforementioned pattern in the reading comprehension questions when they were preceded by a prereading activity. It is expected that, because participants received the treatment with the prereading activity Contextual Redefinition, they are going to have a similar performance in the reading comprehension tasks, despite being high or low spans. For this reason, no significant correlation is expected. This hypothesis was partially confirmed. For the pre-intermediate group, there was a significant positive correlation between working memory strict scores and written free recall when the prereading activity Contextual Redefinition was used as treatment, which were higher than the correlations found for the control condition. However, no correlation was found between working memory lenient scores and written free recall when the same prereading activity was used, whereas significant positive correlations were found for the control condition. These findings might be related to the fact that this prereading activity was detrimental to participants' reading comprehension. As previously mentioned, it is possible that the prereading activity Contextual Redefinition taxed pre-intermediate participants' working memory by making them focus on bottom-up processing.

For the advanced group, no significant correlations were found between working memory scores and the measures of comprehension used in the present study. In addition, for the advanced group, it is worth mentioning that there is a decrease in the correlations between working memory strict and lenient scores and comprehension questions when compared to the control condition. Only one other study investigated the relation between the effect of prereading activities and working memory capacity. Roscioli (2017) found that her low and high span participants did not follow a pattern regarding their reading comprehension, with

high span participants showing a better performance than low span participants. Nonetheless, the author did not have a control group to compare if there was any change in the pattern of correlations.

Research Question 4: Is there a correlation between RST scores, comprehension scores and written free recall scores, when the modified version of the prereading activity Graphic Organizer is used with pre-intermediate and advanced EFL students?

For the pre-intermediate group, there is a significant positive correlation between working memory lenient scores and written free recall and there is a significant positive correlation between working memory strict scores and comprehension questions when participants received treatment with the prereading activity Graphic Organizer. For the advanced group, no significant correlations were found when the prereading activity Graphic Organizer was used.

Hypothesis 4: There isn't a correlation between RST scores, comprehension scores and written free recall scores, when the prereading activity Graphic Organizer is used with pre-intermediate and advanced students. It is expected that, because participants received the treatment with the prereading activity Graphic Organizer, they are going to have a similar performance in the reading comprehension tasks, despite having different spans as measured by the RST. For this reason, no significant correlation is expected (ROSCIOLI, 2017). This hypothesis was partially confirmed. For the pre-intermediate group, there is no significant correlation between working memory strict scores and written free recall as well as there is no significant correlation between working memory lenient scores and comprehension questions when participants receive treatment with the prereading activity Graphic Organizer. As previously mentioned, for the advanced group, no significant correlations were found. However, it is important to comment that there is a decrease in the correlations between working memory strict and lenient scores and comprehension questions when the treatment with prereading activity Graphic Organizer is compared to the control condition.

Having revisited all the research questions and hypothesis proposed, some final thoughts regarding the results of the present study still need to be put forward. They will be presented in the following chapter, which will also include a list of the limitations of this study along with suggestions for further research and some pedagogical implications related to the findings reported in this chapter.

5 CONCLUSION

This chapter runs through the most important findings and implications regarding the effect of different prereading activities on pre-intermediate and advanced EFL students' reading comprehension. Subsection 5.1 presents concluding thoughts related to this study, including its main findings. After that, in Subsection 5.2, the limitations of the study are brought forward along with suggestions for further research. Finally, in Subsection 5.3, some pedagogical implications of the study as regards the use of prereading activities are listed.

5.1 FINAL REMARKS

The main objectives of this research were to investigate the effects of the prereading activities Contextual Redefinition and Graphic Organizer on the reading comprehension of pre-intermediate and advanced Brazilian EFL students and to investigate whether there is a correlation between these students' WMC as measured by means of the RST and the results obtained in the comprehension tests in each of the prereading activities conditions. More specifically, this research sought to explore whether the prereading activity Contextual Redefinition influenced pre-intermediate and advanced EFL students' reading comprehension as measured by written free recall and comprehension questions; whether the prereading activity Graphic Organizer influenced pre-intermediate and advanced EFL students' reading comprehension as measured by written free recall and comprehension questions; whether there was a correlation between RST scores, comprehension scores and written free recall scores when the prereading activity Contextual Redefinition is used with pre-intermediate and advanced EFL students; and whether there was a correlation between RST scores, comprehension questions scores and written free recall scores when the modified version of the prereading activity Graphic Organizer is used with pre-intermediate and advanced EFL students.

In order to reach the proposed objectives and answer the related research questions, this research employed several tools for data collection. First, a reading proficiency test was used to measure participants' reading proficiency in English. A total of six texts served as the stimuli; three texts for the pre-intermediate group and three texts for the advanced group. After choosing the texts, unfamiliar words were selected from the main ideas of the texts. Then, sentences containing those words were elaborated and as well as their corresponding dictionary entries for the prereading activity Contextual Redefinition, which intended to

provide participants with relevant linguistic schemata in order to better understand the texts. Also, diagrams with the organizational pattern and main ideas of the texts were prepared for the prereading activity Graphic Organizer, which focused on formal schemata. Moreover, a PowerPoint presentation with sentences for the RST and a booklet for participants to write their answers were designed, which were intended to measure participants' working memory capacity. A handout for the written free recall task was made, in which participants had to write everything they could remember from the texts, in Portuguese, using complete sentences. Also, six comprehension questions for each text were elaborated, with the objective of testing participants' comprehension of specific information in the text. In addition, four retrospective questionnaires were created, one to be answered after participants took the RST and the other three to be answered after each prereading activity condition. Finally, a profile questionnaire was designed to provide relevant information concerning participants' reading habits.

It was expected that both prereading activities would have a positive effect on participants' reading comprehension as measured by written free recall and comprehension questions. More specifically, it was expected that the prereading activity Contextual Redefinition would be more beneficial to pre-intermediate participants than to advanced participants when their reading comprehension was measured by comprehension questions. Also, it was expected that the prereading activity Graphic Organizer would have a more positive impact on advanced participants' reading comprehension when compared to pre-intermediate participants' reading comprehension as measured by written free recall. Finally, no significant correlations between RST scores, comprehension questions scores and written free recall scores were expected to be found when both prereading activities were used, based on the findings of Roscioli (2017).

In order to reach the objectives presented and test the hypotheses that were raised, the data collected in this study was analyzed both quantitatively and qualitatively. A summary of the most important findings will be subsequently listed. First, contrary to expectations, the prereading activity Contextual Redefinition had a negative impact on pre-intermediate participants' reading comprehension as measured by both written free recall and comprehension questions. Also, the same prereading activity had a negative impact on advanced participants' reading comprehension as measured by written free recall. However, when reading comprehension was measured by comprehension questions, the prereading activity Contextual Redefinition had a positive impact on the advanced group. These findings contradict existing literature in the area which has found that prereading activities in general

have a positive impact on reading comprehension (TAGLIEBER; JOHNSON; YARBROUGH, 1988; TOMITCH, 1991; LEVINE; REVES, 1994; HUDSON, 1998; MOHAMMADI; MOENIKIA; ZAHED-BABILAN, 2010; MIHARA, 2011).

Second, even though the prereading activity Contextual Redefinition only had a positive effect on advanced participants' reading comprehension as measured by comprehension questions, both pre-intermediate and advanced participants' perception was positively affected by said prereading activity as revealed by the analysis of participants' comments in the retrospective questionnaires. This finding corroborates the results of Mihara's study (2011), in which participants had the impression they had learned more from the prereading activity that aimed at pre-teaching vocabulary.

Third, the prereading activity Graphic Organizer had a negative effect on advanced participants' reading comprehension as measured by written free recall and no effect when their reading comprehension was measured by comprehension questions, which was contrary to expectations. On the other hand, the same prereading activity had a positive effect on pre-intermediate participants' reading comprehension as measured by both written free recall and comprehension questions. As previously mentioned, it is possible that this prereading activity had an effect of foreseeing the content of the texts to be read which was beneficial to pre-intermediate students similarly to the prereading activities employed by Tomitch (1991).

Fourth, the results obtained through the prereading activity Graphic Organizer are coherent with participants' answers in the profile questionnaire. Regarding their reading habits, pre-intermediate participants reported trying to identify how a text is organized to understand it better more frequently than the advanced group. As previously mentioned, this could be explained if one considers that advanced students have better decoding skills than pre-intermediate ones and, consequently, they rely less on top-down strategies to understand the message of the text.

Fifth, the use of prereading activities had different effects on the correlations between working memory scores and written free recall scores for the two groups investigated in this study. For instance, the prereading activity Contextual Redefinition had a detrimental effect on pre-intermediate participants' reading comprehension as measured by written free recall. At the same time, pre-intermediate participants' scores in the written free recall had a significant positive correlation with working memory strict scores. Moreover, these correlations were slightly higher than the control condition. However, when participants received treatment with the prereading activity Graphic Organizer, which had a positive effect on pre-intermediate participants reading comprehension, the correlations between written free

recall scores and working memory strict scores are very low. The opposite pattern was found regarding the correlations between written free recall scores and working memory lenient scores. In turn, for the advanced group, the correlations between written free recall scores and working memory strict and lenient scores were low regardless of the prereading activity condition.

Sixth, the use of prereading activities had similar effects on the correlations between working memory scores and comprehension questions scores for the two groups investigated in the present study. For example, the correlations between comprehension questions scores and working memory lenient scores for both the pre-intermediate and advanced groups were higher for the control condition and lower for the two prereading activities conditions. The same pattern was observed for the correlations between comprehension questions scores and working memory strict scores for the advanced group. However, for the pre-intermediate group, there was a significant positive correlation between comprehension questions scores and working memory strict scores in all the prereading activities conditions.

Overall, the findings of the present study suggest that prereading activities have different effects on different levels of proficiency, which depend on other factors such as the measure of comprehension being used. Moreover, prereading activities could have an effect of reducing the influence of individual differences, like working memory capacity. It is important to point out that the aforementioned results should be considered as suggestive rather than conclusive because of the nature of the present study. A series of factors could be improved and adapted to other contexts to investigate the matters described in this thesis. The following subsection presents a list of the limitations of this study along with some suggestions for future research.

5.2 LIMITATIONS OF THE STUDY AND SUGGESTIONS FOR FURTHER RESEARCH

As previously mentioned, in the field of reading research, it is well established that prereading activities have a positive effect on reading comprehension. In the case of the present study, results show that prereading activities can have different effects on reading comprehension depending on the students' level of proficiency and the measure of comprehension used. Therefore, more research is necessary to investigate how these factors interact. In addition, few studies have been carried out in order to explore the relationship between the use of prereading activities and EFL students' working memory capacity. The

present study, which also attempted to investigate the aforementioned matters, has some limitations will be enumerated along suggestions for further research.

There are at least three limitations regarding the participants of the present study. First, this research had a small number of participants, which was a total of thirty, equally distributed between the pre-intermediate and advanced groups. It is possible that, with a higher number of participants, the difference between the treatments employed in this study could have reached statistical significance. For future studies, it is recommended that a larger number of participants be recruited in order to increase validity. Second, the reading proficiency test used to evaluate participants' reading comprehension ability might not have been appropriate to categorize them into the proficiency levels researched in the present study. As previously mentioned, participants in the present study did not strictly correspond to the percentage of scoring for the pre-intermediate and advanced groups as determined by the Cambridge placement test, which was the basis for the reading proficiency test used. Thus, it is recommended that, for future research, other measures of evaluating participants' proficiency be used, such as TOEFL scores or participants' scores on the English test of ENEM[43]. Third, in the present study, participants' age had a very broad range, going from early teenagers to elderly people. The treatments with the prereading activities used in this study could have yielded different results if participants belonged to only one age group. Therefore, it is recommended that future studies attempt to focus on one age group as much as possible.

Eight limitations have been identified regarding the design of the present study. First, counterbalancing for the treatment conditions was done unevenly because of the number of participants in each group. As previously mentioned, this happened because data was collected during participants' regular English classes, following the natural configuration of their groups. For this reason, some groups were larger than others. For future research, it is recommended that the number of participants in each condition be equally counterbalanced. Second, no counterbalancing for the order in which participants answered the comprehension tests was done due to the nature of the measures of comprehension used. In all the treatment conditions, participants did the written free recall first and then answered the comprehension questions. Future studies should incorporate other measures of reading comprehension that can be appropriately counterbalanced without compromising their results. Third, because data collection took place in a group session, free recall had to be done in a written format, which

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[43] ENEM stands for *Exame Nacional do Ensino Médio*, which is a standardized test used to admit students into Brazilian universities.

is different from recalling information orally. As previously mentioned, some forgetting might have occurred while participants were thinking about how to put their ideas into paper.

Fourth, although precaution was taken in relation to the piloting of the comprehension questions and participants' background knowledge, it is still possible that participants had knowledge of the topics of the texts. Future studies could attempt to control for participants' prior knowledge of the topic of the texts to be used as stimuli. Finally, collecting data in groups may have affected participants' attention. While this method of data collection increases ecological validity, it is possible that some participants were not performing at their full capacity. Thus, future studies should attempt to minimize the effects of external influences so as to allow for participants to concentrate on the task they have to perform. Sixth, in the present study, a silent version of the RST was used in order to make it possible to collect data in a group session. Had an oral version been used, other results might have been achieved. Seventh, the strict scoring for the RST employed in the present study was not actually strict, as it allowed participants to write the last word of each sentence with alterations of noun gender and number. For future studies, it is recommended that future studies carefully take into consideration how alterations in the format of the RST can affect the measures of working memory capacity. Eighth, in relation to the texts that were used as stimuli, they were not controlled for complexity, which could have influenced the results. It might be that some texts were easier than others, even though participants did not perform at ceiling. It is recommended that future research attempts to control for text complexity so that it does not interfere with the effect of the prereading activities used.

In relation to how data was analyzed, at least two limitations have been found for the present study. First, the propositional analysis and scoring of the comprehension questions was carried out by this researcher alone. It is possible that the treatments employed in this study would have generated different results if there were other raters to aid in the aforementioned tasks. It is recommended that future research incorporates other raters to analyze the results of the comprehension measures used. Finally, as it has already been mentioned, some minor violations of the normality assumption of the ANOVA were made. Future studies should attempt to follow the assumptions of parametric tests as much as possible.

Finally, other suggestions for further research can be made related to issues that were not part of the scope of the present study. As it has been mentioned, different prereading activities can be investigated and how they affect EFL students' at other levels of proficiency. Moreover, other types of working memory tests can be used, such as the Operation-Word

Span Test, originally developed by Turner and Engle (1989). Also, other types of study could be carried out such as a longitudinal research that aims at developing students' reading comprehension through prereading activities, similar to the one conducted by Mohammadi, Moenikia and Zahed-Babilan (2010).

Despite of the limitations previously identified, it is believed that this study helped shed light into how prereading activities can affect EFL students' reading comprehension and how factors such as the type of prereading activity, measures of reading comprehension and measures of working memory capacity are intertwined. Furthermore, the findings of the present research have some pedagogical implications, which will be detailed in the following subsection.

5.3 PEDAGOGICAL IMPLICATIONS

As previously pointed out, research in the area of reading has so far indicated that prereading activities in general have a positive effect on second language students' reading comprehension. However, results of the present study have shown that this effect is very much dependent on students' level of proficiency, the type of comprehension measure being used to assess their reading comprehension, and the type of text being read. In the case of the prereading activity Contextual Redefinition, which is focused on vocabulary pre-teaching, it seems to have a negative effect on pre-intermediate EFL students' reading comprehension when it is measured by comprehension questions and written free recall. The preparation for the aforementioned prereading activity included selecting words from the main ideas of the texts based on unfamiliarity; creating sentences that provided contextual clues; and making a list of their respective dictionary entries. From the results of the present study, it is clear that these steps are not enough to provide pre-intermediate students with a deep processing of the words, so that they could incorporate them in their reading vocabulary. Also, it is possible that the aforementioned prereading activity posited an extra load on pre-intermediate students' working memory.

Other prereading activities that focus on vocabulary pre-teaching have proved to be beneficial to intermediate students, such as the prereading activity used by Taglieber, Johnson and Yarbrough (1988) and the prereading activity Possible Sentences, used by Tomitch (1991). In the case of the first study, the prereading activity focused on vocabulary pre-teaching had the least beneficial effect when compared to the others. The authors argue that discussing the words in sentences that are not related to one another or to the upcoming

reading task may not have been helpful for students. On the other hand, in the case of the second study, the procedure used in the prereading activity Possible Sentences involved showing students a card containing keywords from the texts and asking them to make a guess about the content of the text only by looking at the words presented. Then, students were instructed to choose at least two words from the list and create a sentence they thought might appear in the text they were about to read. After that, students read the text and verified if the formulated sentences were correct. Tomitch (1991) reports that the prereading activity Possible Sentences was as beneficial as the prereading activity Request Procedure, which involved making predictions about the content of a passage. For this reason, when EFL teachers choose prereading activities focused on vocabulary pre-teaching for pre-intermediate and intermediate levels, they should give preference to activities that work with vocabulary in an integrated way, that is, activities that relate the words presented with the text to be read. Moreover, teachers should choose prereading activities that are not teacher-centered, that is, activities that allow for pre-intermediate and intermediate students to create their own sentences with the words presented.

In the present study, while the prereading activity Contextual Redefinition did not have a positive effect on pre-intermediate EFL students' reading comprehension, it affected advanced EFL students' reading comprehension positively when it was measured by comprehension questions. It seems that for advanced students, the treatment with the aforementioned prereading activity is enough for them to integrate the words presented with their reading vocabulary. As previously mentioned, in the study conducted by Hudson (1998), it is not possible to know whether advanced students' benefitted from the treatment with vocabulary because the author did not use a control group. He does mention that advanced students benefitted more from the read/reread condition than the vocabulary condition. On the other hand, in the study conducted by Levine and Reves (1994), the authors point out that in the treatment they used to build vocabulary, they tried to isolate linguistic schemata from other types of schemata. They claim that this treatment had a positive effect on advanced EFL students' reading comprehension. Considering what has been discussed, when choosing prereading activities that focus on vocabulary for advanced EFL students, teachers may use activities that do not necessarily relate the words to the texts to be read. However, it is probably better to choose one that does.

In relation to the prereading activity Graphic Organizer, which focuses on text organizational patterns, it seems to have a positive impact on pre-intermediate EFL students' reading comprehension as measured both by comprehension questions and written free recall.

The preparation for this prereading activity involved selecting the main ideas of the texts and creating a diagram that reflected the organizational patter of the text. The teacher/researcher would present each idea and ask students to try to identify how the ideas were related in the text to be read. The positive effect this procedure had on pre-intermediate EFL students' reading comprehension could be related to a decrease in the cognitive overload, the opposite of the effect caused by the prereading activity Contextual Redefinition. Taken together with the results of previous studies, it is possible to conclude that the prereading activities that are more appropriate for pre-intermediate EFL students have an element of forecasting the content of the text to be read. These prereading activities, which include the prereading activity Graphic Organizer used in the present study and the prereading activities Possible Sentences and Request Procedures employed by Tomitch (1991), allow students to predict what they will read through extracts carefully chosen by the researcher.

In turn, the prereading activity Graphic Organizer had a negative effect on advanced EFL students' reading comprehension as measured by written free recall and no effect when their reading comprehension was measured by comprehension questions. It is possible that, for the advanced level, the aforementioned prereading activity offered advanced students information that they could get by just reading the text. Perhaps if the topic of the texts the advanced students had to read involved information about other cultures, the prereading activity Graphic Organizer could have had a positive effect on their reading comprehension. For this reason, teachers should have in mind that the prereading activity they choose needs to be adequate for the type of text to be read as well.

All things considered, the present study contributed with empirical evidence for the use of specific prereading activities with Brazilian EFL students from the pre-intermediate and advanced levels of proficiency. When teachers are planning their reading lesson and have to choose appropriate prereading activities, they should bear in mind the level of proficiency of the students and how they should approach the text. As it was seen in the present study, when directed to focus on vocabulary without relating it to the text to be read, pre-intermediate participants could resort to bottom-up processing which distracts them from understanding the text as a whole and could also overload their cognitive resources. Moreover, when the appropriate prereading activity is chosen, it could mitigate the influence of individual differences such as working memory capacity.

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APPENDIX A – Reading proficiency test[44]

Teste de Proficiência

Participante nº:

_____

Olá! Você está participando da pesquisa:

"Ativação de Esquemas e Memória de Trabalho: O Efeito de Diferentes Atividades de Pré-Leitura na Compreensão Leitora de Estudantes de Inglês como Língua Estrangeira nos Níveis Pré-Intermediário e Avançado"

Vamos agora para a Etapa 2 do nosso primeiro encontro, o teste de proficiência!

❏Este teste tem foco na habilidade de leitura.

❏Você responderá 20 perguntas de compreensão com base em textos em inglês.

❏Serão apresentados **8 textos curtos**. Após ler cada texto, escolha a resposta correta para cada pergunta marcando um 'x' entre os parênteses (x) antes da opção desejada.

Faça todo o teste a _lápis_, pois se durante o teste você decidir mudar uma resposta, você poderá fazê-lo usando uma _borracha_. Você pode fazer _anotações_ durante o teste no próprio _caderno de respostas_.

Você terá **20 minutos** para completar o teste!

Data:

____/____/2019.

Text 1: What are you doing today?

BETTY CHAN: I usually stay home on Sundays and take it easy - read, clean the house, do stuff like that. But today I'm at the mall. I'm buying some things for my kids.

1. Betty is _____ today.

   a.(   ) shopping

   b.(   ) reading

   c.(   ) cleaning

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[44] This reading proficiency test was adapted from the Cambridge placement test.

d.(   ) resting

Text 2: What do you do?

TONY PEREZ: I'm a flight attendant with a major airline. Flying isn't dangerous, but it can be stressful. When I'm up in the air working, I always have something to do. I like it because I meet a lot of interesting people.

2. Tony's job is _____ .

a.(   ) busy

b.(   ) easy

c.(   ) relaxing

d.(   ) boring

Text 3: A vacation postcard

Dear Sal,

Greetings from France - it's so good to be back here again! We left the kids with their grandparents in Chicago, and we're biking across the French countryside by ourselves. We brought a tent and sleeping bags, so we can camp out if we want to, but we're really enjoying the small hotels we find along the way.

Love,

Michael and Paula

3. Michael and Paula _____ .

a.(   ) have been to France before

b.(   ) took their children with them

c.(   ) are visiting their grandparents

d.(   ) prefer to sleep outside

Text 4: The "zone"

You're deeply involved in a task and can ignore everything around you - ringing telephones, your neighbor's TV, even your own hunger - and still do things in record time. This is similar to what athletes call the "zone": the power to concentrate so hard that you can ignore everything else. This ability can bring success in any field, but in athletics it can mean all the difference between winning and losing a game or event.

4. In this reading, the "zone" refers to a person's _____ .

a.(   ) state of mind

b.(   ) neighborhood

c.(   ) physical condition

d.(   ) intelligence

5. Athletes in the "zone" are more likely to _____.

    a.(   ) fall

    b.(   ) compete

    c.(   ) win

    d.(   ) relax

Text 5: Henry Ford and the Model-T

Henry Ford became famous and rich because he found a better, faster way to build cars. This is shown in the history of the Model-T. When the Model-T was first introduced in 1908, it took 14 hours to build and cost $850. After Ford introduced into his own factory the mass-production techniques that he saw in a meat-packing plant, the time for building a Model-T was reduced to less than two hours. As a result, Ford was able to drop the price of the car to $265. By 1927, he had sold over 15 million Model-Ts.

6. The first Model-T was expensive because it _____.

    a.(   ) was new

    b.(   ) was very popular

    c.(   ) took a long time to build

    d.(   ) was built in a factory

7. The Model-T became popular because it was _____ than other cars.

    a.(   ) newer

    b.(   ) faster

    c.(   ) better

    d.(   ) cheaper

Text 6: It's a big country!

When it comes to body weight, Americans stand out. Most visitors to the United States, no matter where they go across this vast country, comment on the size of many Americans. In fact, these impressions are backed by numerous statistics. For example, the average 5'4" American weighs 162 pounds, or 15 pounds more than the average person of the same height from Western or Central Europe. Another comparison: At 150 pounds, the average 5'4" American woman is 24 pounds heavier than her Japanese counterpart.

Why are Americans so heavy? Some blame the American diet. Certainly it's true that Americans eat more high-fat foods - meat, dairy products, and processed food - and fewer grains and vegetables than people in other countries. But fat isn't the whole story. Lifestyle factors - including the tendency for Americans to drive rather than walk or ride a bicycle to work, to snack throughout the day, and to have so many labor-saving devices in the home - appear to contribute to the problem.

8. According to the article, visitors to the United States often comment on the size of the
_____.

    a.(   ) population

    b.(   ) cities

    c.(   ) country

    d.(   ) people

9. According to the article, the average Western European weighs _____.

    a.(   ) more than an American

    b.(   ) more than a Central European

    c.(   ) less than an American

    d.(   ) less than a Japanese person

10. In comparison with Americans, people in other countries eat more _____.

    a.(   ) meat

    b.(   ) dairy products

    c.(   ) processed food

    d.(   ) grains

11. The article implies that Americans would lose weight if they _____.

    a.(   ) snacked more often

    b.(   ) rode bicycles to work

    c.(   ) stayed at home more

    d.(   ) ate fewer vegetables

     Text 7: Small talk isn't so "small"

Small talk may not be about serious issues; nevertheless, researchers into the subject have concluded that it's important. That's because small talk keeps us connected to one another and can lead to bigger things, such as a job or a new friendship. Yet people who find themselves alone with another person often don't know what to say. Here are a few tips to help you start a conversation, and to keep the conversational ball rolling:

<u>Start with the obvious.</u> If you have something in common with another person (your job, hobbies, a person you both know, etc.), begin with that. If you don't know the person, it's always acceptable to bring up a neutral topic such as the weather or a recent news event. It isn't necessary to be clever - all that's required is to show interest in the other person and to be willing to talk.

<u>Compliment where appropriate.</u> If the other person has done something you like or is wearing something attractive, it's always appropriate to compliment. But avoid talking about the specifics of a person's physical appearance (people can't usually change how they look) and keep your compliments

short and to the point ("What a great tie!" or "You look great tonight!") and continue with another topic.

<u>Talk about yourself - then return to your partner.</u> It's perfectly OK to talk about your own interests for a while, but keep your conversation from becoming a monolog. It's only polite, for example, that after talking about your own children, you turn the conversation back to your partner by asking about his or her children.

12. According to the article, the main function of small talk is to _____.

    a.( ) show our own importance

    b.( ) get valuable information

    c.( ) relate to other people

    d.( ) talk about major issues

13. "Start with the obvious" means that you should talk about things that you _____.

    a.( ) have in common

    b.( ) enjoy doing

    c.( ) want to understand

    d.( ) know everything about

14. You need to be careful when complimenting someone because most people _____.

    a.( ) don't like compliments

    b.( ) can't change how they look

    c.( ) don't dress very well

    d.( ) haven't done anything interesting

15. You should avoid monologs because other people _____.

    a.( ) have no interest in what you say

    b.( ) already know a lot about you

    c.( ) like to talk about themselves, too

    d.( ) prefer to discuss neutral subjects

Text 8: Headaches

Everyone has experienced headaches, but only recently have medical researchers begun to learn more specifically about the causes and possible treatments for different types of headache pain.

The most common type of headache is the simple tension headache. Tension headaches are usually mild and short-lasting and can result from various factors, such as stress caused by worry or noise. Tension headaches are caused by a tightening of the neck or back muscles, which slows the flow of blood and, therefore, oxygen to the brain. It is the lack of oxygen that causes the pain. Most headaches can be relieved by taking a mild analgesic such as aspirin. Analgesics expand the blood vessels and restore the normal flow of blood and oxygen to the brain.

A more serious type of headache is the migraine. Migraine headaches are often extremely painful and can last for hours or days. Like tension headaches, they can be the result of different factors, including stress, hormonal changes, and allergies. Unlike tension headaches, however they are caused by an abnormal expansion or swelling (rather than a contraction) of the blood vessels within the head. Medicines that shrink swollen blood vessels can be used to treat migraine headaches.

A tiny minority of headaches can be linked to severe physical problems such as head injury or brain tumors. For these types of headaches, there are medicines to treat the symptoms, but there is no cure unless the underlying problem is removed.

16. This article discusses the _____.

    a.( ) tiny minority of people who have headaches

    b.( ) history of medical research into headaches

    c.( ) causes and remedies for headaches

    d.( ) physical problems caused by headaches

17. A tension headache can result when _____.

    a.( ) the neck and back muscles relax

    b.( ) people get injured in an accident

    c.( ) the flow of blood is restricted

    d.( ) too much oxygen goes to the brain

18. Migraine headaches _____.

    a.( ) are the most common kind of headache

    b.( ) usually last only a few minutes

    c.( ) can cause extreme pain

    d.( ) have one main cause

19. Medicines for migraines _____.

    a.( ) relax the head and neck

    b.( ) generally relieve tension

    c.( ) increase the flow of blood

    d.( ) cause blood vessels to contract

20. Headaches caused by serious physical problems _____.

    a.( ) can't be treated

    b.( ) don't cause much pain

    c.( ) have no symptoms

    d.( ) are not very common

Fim do Teste de Proficiência. / Muito obrigada pela sua participação!

APPENDIX B1 - Pre-intermediate Text 1 - Digital Habits Across Generations[45] (432 words)

Today's grandparents are joining their grandchildren on social media, but the different generations' online habits couldn't be more different. The over-55s are joining Facebook in increasing numbers, meaning that they will soon be the site's second biggest user group, with 3.5 million users aged 55–64 and 2.9 million over-65s.

Sheila, aged 59, says, 'I joined to see what my grandchildren are doing, as my daughter posts videos and photos of them. It's a much better way to see what they're doing than waiting for letters and photos in the post. That's how we did it when I was a child, but I think I'm lucky I get to see so much more of their lives than my grandparents did.'

Ironically, Sheila's grandchildren are less likely to use Facebook themselves. Children under 17 are leaving the site – only 2.2 million users are under 17 – but they're not going far from their smartphones. Chloe, aged 15, even sleeps with her phone. 'It's my alarm clock so I have to,' she says. 'I look at it before I go to sleep and as soon as I wake up.'

Unlike her grandmother's generation, Chloe's age group is spending so much time on their phones at home that they are missing out on spending time with their friends in real life. Sheila, on the other hand, has made contact with old friends from school she hasn't heard from in forty years. 'We use Facebook to arrange to meet all over the country,' she says. 'It's changed my social life completely.'

Teenagers might have their parents to thank for their smartphone and social media addiction as their parents were the early adopters of the smartphone. Peter, 38 and father of two teenagers, reports that he used to be on his phone or laptop constantly. 'I was always connected and I felt like I was always working,' he says. 'How could I tell my kids to get off their phones if I was always in front of a screen myself?' So, in the evenings and at weekends, he takes his SIM card out of his smartphone and puts it into an old-style mobile phone that can only make calls and send text messages. 'I'm not completely cut off from the world in case of emergencies, but the important thing is I'm setting a better example to my kids and spending more quality time with them.'

Is it only a matter of time until the generation above and below Peter catches up with the new trend for a less digital life?

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[45] https://learnenglish.britishcouncil.org/intermediate-b1-reading/digital-habits-across-generations. Accessed on March 27th, 2019.

APPENDIX B2 - Pre-intermediate Text 2 – The Legend of Fairies[46] (387 words)

Fairies today are the stuff of children's stories, little magical people with wings, often shining with light. Typically pretty and female, like Tinkerbell in *Peter Pan*, they usually use their magic to do small things and are mostly friendly to humans.

We owe many of our modern ideas about fairies to Shakespeare and stories from the 18th and 19th centuries. Although we can see the origins of fairies as far back as the Ancient Greeks, we can see similar creatures in many cultures. The earliest fairy-like creatures can be found in the Greek idea that trees and rivers had spirits called dryads and nymphs. Some people think these creatures were originally the gods of earlier, pagan religions that worshipped nature. They were replaced by the Greek and Roman gods, and then later by the Christian God, and became smaller, less powerful figures as they lost importance.

Another explanation suggests the origin of fairies is a memory of real people, not spirits. So, for example, when tribes with metal weapons invaded land where people only used stone weapons, some of the people escaped and hid in forests and caves. Further support for this idea is that fairies were thought to be afraid of iron and could not touch it. Living outside of society, the hiding people probably stole food and attacked villages. This might explain why fairies were often described as playing tricks on humans. Hundreds of years ago, people actually believed that fairies stole new babies and replaced them with a 'changeling' – a fairy baby – or that they took new mothers and made them feed fairy babies with their milk.

While most people no longer believe in fairies, only a hundred years ago some people were very willing to think they might exist. In 1917, 16-year-old Elsie Wright took two photos of her cousin, nine-year-old Frances Griffiths, sitting with fairies. Some photography experts thought they were fake, while others weren't sure. But Arthur Conan Doyle, the writer of the Sherlock Holmes detective stories, believed they were real. He published the original pictures, and three more the girls took for him, in a magazine called *The Strand*, in 1920. The girls only admitted the photos were fake years later in 1983, created using pictures of dancers that Elsie copied from a book.

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[46] https://learnenglish.britishcouncil.org/intermediate-b1-reading/legend-fairies. Accessed on March 24th, 2019.

APPENDIX B3 - Pre-intermediate Text 3 – Robot Teachers[47] (346 words)

If you think of the jobs robots could never do, you would probably put doctors and teachers at the top of the list. It's easy to imagine robot cleaners and factory workers, but some jobs need human connection and creativity. But are we underestimating what robots can do? In some cases, they already perform better than doctors at diagnosing illness. Also, some patients might feel more comfortable sharing personal information with a machine than a person. Could there be a place for robots in education after all?

British education expert Anthony Seldon thinks so. And he even has a date for the robot takeover of the classroom: 2027. He predicts robots will do the main job of transferring information and teachers will be like assistants. Intelligent robots will read students' faces, movements and maybe even brain signals. Then they will adapt the information to each student. It's not a popular opinion and it's unlikely robots will ever have empathy and the ability to really connect with humans like another human can.

One thing is certain, though. A robot teacher is better than no teacher at all. In some parts of the world, there aren't enough teachers and 9–16 percent of children under the age of 14 don't go to school. That problem could be partly solved by robots because they can teach anywhere and won't get stressed, or tired, or move somewhere for an easier, higher-paid job.

Those negative aspects of teaching are something everyone agrees on. Teachers all over the world are leaving because it is a difficult job and they feel overworked. Perhaps the question is not 'Will robots replace teachers?' but 'How can robots help teachers?' Office workers can use software to do things like organise and answer emails, arrange meetings and update calendars. Teachers waste a lot of time doing non-teaching work, including more than 11 hours a week marking homework. If robots could cut the time teachers spend marking homework and writing reports, teachers would have more time and energy for the parts of the job humans do best.

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[47] https://learnenglish.britishcouncil.org/intermediate-b1-reading/robot-teachers. Accessed on March 24th, 2019.

APPENDIX B4 - Advanced Text 1 – Do you have the right mindset?[48] (462 words)

Think back to when you were in a classroom, maybe a math's classroom, and the teacher set a difficult problem. (That could have been any time between this morning or a few years ago.) Which of the two following responses is closer to the way you reacted?

A: Oh no, this is too hard for me. I'm not even going to seriously try and work it out.

B: Ah, this is quite tricky but I like to push myself. Even if I don't get the answer right, maybe I'll learn something in the attempt.

Early in her career, the psychologist Carol Dweck of Stanford University gave a group of ten-year-olds problems that were slightly too hard for them. One group reacted positively, said they loved challenge and understood that their abilities could be developed. She says they had a 'growth mindset' and are focused on what they can achieve in the future. But another group of children felt that their intelligence was being judged and they had failed. They had a 'fixed mindset' and were unable to imagine improving. Some of these children said they might cheat in the future; others looked for someone who had done worse than them to boost their self-esteem.

Professor Dweck believes that there is a problem in education at the moment. For years, children have been praised for their intelligence or talent, but this makes them vulnerable to failure. They become performance-oriented, wanting to please by getting high grades, but they are not necessarily interested in learning for its own sake. The solution, according to Dweck, is to praise the process that children are engaged in: making an effort, using learning strategies, persevering and improving. This way they will become mastery-oriented (i.e. interested in getting better at something) and will achieve more. She contends that sustained effort over time is the key to outstanding achievement.

Psychologists have been testing these theories. Students were taught that if they left their comfort zone and learned something new and difficult, the neurons in their brains would form stronger connections, making them more intelligent. These students made faster progress than a control group. In another study, underperforming school children on a Native American reservation were exposed to growth mindset techniques for a year. The results were nothing less than staggering. They came top in regional tests, beating children from much more privileged backgrounds. These children had previously felt that making an effort was a sign of stupidity, but they came to see it as the key to learning. So, back to our original question. If you answered B, well done – you already have a growth mindset. If A, don't worry; everyone is capable of becoming mastery-oriented with a little effort and self-awareness.

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[48] https://learnenglishteens.britishcouncil.org/skills/reading/advanced-c1-reading/do-you-have-right-mindset. Accessed on March 24th, 2019.

APPENDIX B5 - Advanced Text 2 – Me and my brain[49] (472 words)

We all know that significant changes occur in our bodies during adolescence, but have you ever stopped to wonder what's actually going on inside our brains during this time?

To paint a clearer picture, we should first familiarize ourselves with the different parts of the brain. Did you know, for instance, that our brains are made up of around 100 billion nerve cells called neurons? And stemming from these neurons are several branch-like structures for sending and receiving electrical signals? Every time we do or think anything, a signal is transmitted. The signal travels down a long structure called the axon and, at the end, it passes across tiny gaps called synapses to the dendrites of another neuron, which receive the signal. In this way, messages are sent across our neural network.

Our brain structure changes dramatically as we grow up. Newborn babies have almost all their neurons but few connections between them, which is why they can't do very much. After a few months however, the number of connections explodes, which in turn helps tiny tots master a whole range of new skills such as walking and talking. Despite earlier myths that most brain development is completed in the first few years, we now know that our brains continue to develop throughout our lives and perhaps the most dramatic time of change and development is during puberty.

During this period of reorganisation, the brain witnesses a sudden increase in neurons not dissimilar to a plant growing uncontrollably in spring. Just as we prune a plant to make it stronger and healthier, we prune our brains. The connections that are used become stronger, whereas those which aren't used wither and die. So, the more frequently an action or thought is activated, the stronger the connections become between the neurons, which in turn strengthens the part of the brain being used. This explains why the more you do something, the better you become at it, reinforcing the old adage 'practice makes perfect'. In fact, it would seem that the teenage brain provides optimum conditions for perfecting skills such as playing a musical instrument, speaking another language or learning a complex computer game. It could therefore be argued that teenagers determine the development of their own gray matter through the activities and experiences they engage in.

It may also be unsurprising to many to learn that the last part of the adolescent brain to develop is the frontal cortex, responsible for self-control, problem solving and decision making. Consequently, long before teens become adept at rational, abstract thinking and logical decision making, they rely on the emotional center of the brain to make choices and think. So perhaps unpredictable, volatile, risk-taking teenage behavior, often put down to hormones, may actually have more to do with what's going on inside our brain.

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[49] https://learnenglishteens.britishcouncil.org/skills/reading/advanced-c1-reading/me-my-brain. Accessed on March 24th, 2019.

APPENDIX B6 - Advanced Text 3 – The rise of fake news[50] (466 words)

In December 2016 Edgar M. Welch drove six hours from his home to Washington DC, where he opened fire in a pizzeria with an assault rifle. He had previously read an online news story about the restaurant being the headquarters of a group of child abusers run by Hillary Clinton. He decided to investigate for himself; fortunately, no one was hurt.

The story about Hillary Clinton is one of the most famous examples of the growing phenomenon dubbed 'fake news'. The conspiracy theory about the pizzeria began to appear on websites and social networks in late October, before the US election. This was quickly denounced by publications such as *The New York Times* and *The Washington Post*. However, many people thought that these papers were themselves lying for political ends and instead of disappearing, the fake story snowballed. Tweets from 'Representative Steven Smith of the 15th District of Georgia' claimed that the mainstream media were telling falsehoods. Even though both this name and district were invented, the message was re-tweeted many times. A YouTube refutation of the *New York Times* article got 250,000 hits.

Fake news stories can be hard to control for several reasons. Many people mistrust established news sources and others just don't read them, so the debunking of a fake story by a serious newspaper or TV channel has limited effect. In addition, the internet is very hard to police. When users are caught misusing one media platform, they simply go to another one or start up a website themselves.

There are also various reasons why people create fake news. Some have political motives, to belittle or incriminate their opponents. Other websites, like The Onion, deliberately publish fake news as satire – humorous comment on society and current affairs. Another group is in it for the profit: many people clicking on entertaining fake news stories can bring in a lot of advertising revenue. One man running fake news sites from Los Angeles said he was making up to US$ 30,000 a month in this way. There are also those, like the small-town teenagers in Macedonia who wrote fake news stories about Donald Trump, who seem to be motivated partly by money and partly by boredom.

So, what can we do to stop fake news spreading? First, make sure that the websites you read are legitimate, for example by looking carefully at the domain name and the About Us section. Check the sources of any quotes or figures given in the story. Remember that amazing stories about famous people will be covered by the mainstream media if they are true. Only share stories you know are true and let your friends know, tactfully, when they unknowingly share fake news. Together we can turn around the post-truth world!

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[50] https://learnenglishteens.britishcouncil.org/skills/reading/advanced-c1-reading/rise-fake-news. Accessed on March 24th, 2019.

APPENDIX C - Words for Prereading Activity Contextual Redefinition

Pre-intermediate

Text 1	Text 2	Text 3
1. addiction	1. support	1. to adapt
2. unlike	2. weapon	2. to underestimate
3. ironically	3. worship	3. creativity
4. constantly	4. willing	4. a takeover
5. early adopters	5. stuff	5. to diagnose
6. join	6. wing	6. empathy
7. likely	7. owe	7. predict
8. matter	8. actually	8. perhaps
9. trend	9. fake	9. replace
10. to catch up	10. trick	10. report

Advanced

Text 1	Text 2	Text 3
1. boost	1. prune	1. mainstream
2. slightly	2. branch	2. previously
3. growth	3. gap	3. dubbed
4. achieve	4. tiny	4. falsehoods
5. improving	5. range	5. refutation
6. self-esteem	6. witness	6. debunking
7. praise	7. sudden	7. belittle
8. sake	8. wither	8. revenue
9. engaged	9. adage	9. quotes
10. effort	10. rely on	10. tactfully

APPENDIX D - Sentences for Prereading Activity Contextual Redefinition

Pre-intermediate

Text 1

1. While some people drink beer and smoke cigarettes, drinking coffee every day is his only <u>addiction</u>.
2. <u>Unlike</u> my friends, I don't like eating pizza. They love it!
3. Mary doesn't like basketball. <u>Ironically</u>, she won tickets to see the Chicago Bulls game.
4. My father is <u>constantly</u> telling me to study harder.
5. My friends and I are the first to use a new app to have food delivered in our houses. We are the <u>early adopters</u> of this app.
6. I was invited to participate in the school math club. Of course, I want to <u>join</u>!
7. It is more <u>likely</u> to rain today than yesterday, so I'm taking my umbrella to school.
8. What's the <u>matter</u> with you today? You don't seem very happy.
9. Everybody is trying to follow the <u>trend</u> of eating healthy food nowadays.
10. I'm new here, but I'll soon <u>catch up</u> on how things work.

Text 2

1. My father and mother give me their <u>support</u> on my decisions.
2. Knives, swords and guns are examples of <u>weapons</u>.
3. The ancient Egyptian used to <u>worship</u> gods with the head of animals.
4. I am <u>willing</u> to go to the party with you, if you buy me a new dress.
5. She is very busy today. She has lots of <u>stuff</u> to do.
6. Penguins are birds that have <u>wings</u>, but can't fly.
7. It wasn't my idea. I <u>owe</u> that idea to my best friend Joey.
8. His favorite food isn't sushi. <u>Actually</u>, it is sashimi.
9. That purse isn't original. It is obviously <u>fake</u>.
10. Every year, my younger brother plans a different <u>trick</u> for April Fool's Day.

Text 3

1. My new job is very different, but I think I will <u>adapt</u> to it soon.

2. Teachers shouldn't <u>underestimate</u> students with learning disabilities. They can do many things.

3. For one to become an artist, they need to have <u>creativity</u>.

4. Some Americans fear that there will be a Mexican <u>takeover</u> in the job market.

5. My friend was <u>diagnosed</u> with breast cancer. She had to undergo chemotherapy.

6. She said her best teacher has a lot of <u>empathy</u>, because she can understand the situations she lives in her life.

7. A fortune teller near my house <u>predicted</u> my neighbor would win the lottery and he did!

8. We only have three bananas left. <u>Perhaps</u> we should go to the supermarket to buy some more.

9. If you don't have mayonnaise in your house, you can <u>replace</u> it with yogurt.

10. My father has to write a <u>report</u> for Tuesday. His boss needs all the information about the company's financial situation.

Advanced

Text 1

1. My professor told be me I need to get better at my grades, so I have to <u>boost</u> my performance.

2. My cousin Timothy is <u>slightly</u> taller than me. The difference is only two centimeters.

3. One way to measure your personal <u>growth</u> is to check how much you have learned from your past experiences.

4. Teachers should help students <u>achieve</u> better results in their tests.

5. No one is perfect. There is always room for <u>improving</u> your abilities.

6. I have never seen anyone with that <u>self-esteem</u>. She is a very confident woman.

7. I love when my parents <u>praise</u> me for the things that I do right.

8. We know you don't like washing the dishes, but please do it, for your mother's <u>sake</u>.

9. Your brother is <u>engaged</u> in a very important school activity. Do not disturb him.

10. He is making a big <u>effort</u> in helping you build the house.

Text 2

1. We have to <u>prune</u> our apple tree. It is getting too big.

2. That tree has really long <u>branches</u>.

3. There is a <u>gap</u> in the school wall. You can see the street through it.

4. She has a <u>tiny</u> doll that she carries inside her pencil case.

5. We have a <u>range</u> of fruit to choose from.

6. She <u>witnessed</u> the crime and now the police is offering her protection.

7. Don't make any <u>sudden</u> movements or the dog will bite you.

8. The old tree <u>withered</u> until it died.

9. My mother's favorite <u>adage</u> is "one man's trash is another man's treasure".

10. I'm your best friend. You can always <u>rely on</u> me.

Text 3

1. Pop and rock are <u>mainstream</u> kinds of music. I prefer something more unusual like jazz and blues.

2. We had <u>previously</u> talked to him many times. He should have already changed that behavior.

3. Michael Jackson was <u>dubbed</u> as the king of pop.

4. If he keeps saying <u>falsehoods</u> about me, I'll talk to my lawyer and sue him.

5. The famous doctor offered a simple <u>refutation</u> of the argument that you can catch a cold by opening the refrigerator.

6. Many myths are <u>debunked</u> every day.

7. Even though she does all the house chores, he <u>belittled</u> her efforts.

8. The company's monthly <u>revenue</u> has increased five percent. We will have money to pay for the new computers.

9. I need to check the source of my <u>quotes</u> for the final paper. I still have to write the names of the authors.

10. He <u>tactfully</u> told me that my clothes were not appropriate for the social event we were going to attend.

APPENDIX E - Dictionary Entries for Prereading Activity Contextual Redefinition

Pre-intermediate

Text 1

1. Addiction - An inability to stop doing or using something, especially something harmful.
2. Unlike - Different from.
3. Ironically - In a way that is different or opposite from the result you would expect
4. Constantly - All the time or often.
5. Early adopters - Someone who is one of the first people to start using a new product, especially a new piece of technology.
6. Join - To get involved in an activity or journey with another person or group.
7. Likely - If something is likely, it will probably happen or is expected.
8. Matter - A situation or subject that is being dealt with or considered.
9. Trend - A general development or change in a situation or in the way that people are behaving.
10. To catch up - To do something you did not have time to do earlier.

Text 2

1. Support - To agree with and give encouragement to someone or something because you want him, her, or it to succeed.
2. Weapon - Any object used in fighting or war, such as a gun, bomb, knife, etc.
3. Worship - To have or show a strong feeling of respect and admiration for God or a god.
4. Willing - To be happy to do something if it is needed.
5. Stuff - Things that someone says or does, when you are referring to them in a general way without saying exactly what they are.
6. Wing - The flat part of the body that a bird, insect, or bat uses for flying, or one of the flat, horizontal structures that stick out from the side of an aircraft and support it when it is flying.
7. Owe - To need to pay or give something to someone because they have lent money to you, or in exchange for something they have done for you.
8. Actually - In fact or really.
9. Fake - An object that is made to look real or valuable in order to deceive people.
10. Trick - An action that is intended to deceive, either as a way of cheating someone, or as a joke or form of entertainment.

Text 3

1. To adapt - To change, or to change something, to suit different conditions or uses.
2. To underestimate - to fail to guess or understand the real cost, size, difficulty, etc. of something.
3. Creativity - The ability to produce original and unusual ideas, or to make something new or imaginative.
4. Takeover - An act of taking control of something.
5. To diagnose - To recognize and name the exact character of a disease or a problem, by examining it.
6. Empathy - The ability to share someone else's feelings or experiences by imagining what it would be like to be in that person's situation.
7. Predict - To say that an event or action will happen in the future, especially as a result of knowledge or experience.
8. Perhaps - Used to show that something is possible or that you are not certain about something.
9. Replace - To take the place of something, or to put something or someone in the place of something or someone else.
10. Report - A description of an event or situation.

Advanced

Text 1

1. Boost - To improve or increase something.
2. Slightly - A little.
3. Growth - An increase in the size or the importance of something.
4. Achieve - To succeed in finishing something or reaching an aim, especially after a lot of work or effort.
5. Improve - To (cause something to) get better.
6. Self-esteem - Belief and confidence in your own ability and value.
7. Praise - To express admiration or approval of the achievements or characteristics of a person or thing.
8. Sake - In order to help or bring advantage to someone.
9. Engaged - To become involved, or have contact, with someone or something.
10. Effort - Physical or mental activity needed to achieve something.

Text 2

1. Prune - To cut off branches from a tree, bush, or plant, especially so that it will grow better in the future.
2. Branch - One of the parts of a tree that grows out from the main trunk and has leaves, flowers, or fruit on it.
3. Gap - An empty space or opening in the middle of something or between two things.
4. Tiny - Extremely small.
5. Range - A set of similar things.
6. Witness - To see something happen, especially an accident or crime.
7. Sudden - Happening or done quickly and without warning.
8. Wither - (to cause) to become weak and dry and decay.
9. Adage - A wise saying.
10. Rely on - To depend on or trust someone or something.

Text 3

1. Mainstream - Considered normal, and having or using ideas, beliefs, etc. that are accepted by most people.
2. Previously - Before the present time or the time referred to.
3. Dubbed - To give something or someone a particular name, especially describing what you think of it, him, or her.
4. Falsehoods - A lie or a statement that is not correct.
5. Refutation - The act of saying or proving that a person, statement, opinion, etc. is wrong or false.
6. Debunk - To show that something is less important, less good, or less true than it has been made to appear.
7. Belittle - To make a person or an action seem as if he, she or it is not important.
8. Revenue - The income that a government or company receives regularly.
9. Quotes - To repeat the words that someone else has said or written.
10. Tactfully - In a way that avoids saying or doing anything that could upset someone.

APPENDIX F - Diagrams for the Prereading activity Graphic Organizer

Pre-intermediate Text 1

```
                    ┌─────────────────────────┐
                    │ Sheila's grandchildren   │
                    │ are less likely to use   │
                    │ Facebook themselves.     │
                    └─────────────────────────┘
┌──────────────────────┐  ┌──────────────┐  ┌──────────────────────┐
│ Teenagers might have │  │ Today's      │  │ Chloe's age group is │
│ their parents to     │  │ grandparents │  │ spending so much     │
│ thank for their      │  │ are joining  │  │ time on their phones │
│ smartphone and       │──│ their grand- │──│ at home that they    │
│ social media         │  │ children on  │  │ are missing out on   │
│ addiction as their   │  │ social media.│  │ spending time with   │
│ parents were the     │  │              │  │ their friends in     │
│ early adopters of    │  │              │  │ real life.           │
│ the smartphone.      │  └──────────────┘  └──────────────────────┘
└──────────────────────┘
                    ┌─────────────────────────┐
                    │ Is it only a matter of   │
                    │ time until the generation│
                    │ above and below Peter    │
                    │ catches up with the new  │
                    │ trend for a less digital │
                    │ life?                    │
                    └─────────────────────────┘
```

Pre-intermediate Text 2

Fairies today are the stuff of children's stories.	We owe many of our modern ideas about fairies to Shakespeare and stories from the 18th and 19th centuries.	The earliest fairy-like creatures can be found in the Greek idea that trees and rivers had spirits called dryads and nymphs.
Another explanation suggests the origin of fairies is a memory of real people, not spirits.	While most people no longer believe in fairies.	Only a hundred years ago some people were very willing to think they might exist.

Pre-intermediate Text 3

If you think of the jobs robots could never do.

You would probably put doctors and teachers at the top of the list.

Could there be a place for robots in education after all?

British education expert Anthony Seldon thinks so.

He predicts robots will do the main job of transferring information and teachers will be like assistants.

Advanced Text 1

The psychologist Carol Dweck of Stanford University gave a group of ten-year-olds problems that were slightly too hard for them.

They had a 'fixed mindset' and were unable to imagine improving.

She says they had a 'growth mindset' and are focused on what they can achieve in the future.

Professor Dweck believes that there is a problem in education at the moment.

The solution, is to praise the process that children are engaged in.

Children have been praised for their intelligence or talent.

She contends that sustained effort over time is the key to outstanding achievement.

Advanced Text 2

We all know that significant changes occur in our bodies during adolescence.

But have you ever stopped to wonder what's actually going on inside our brains during this time?

It may also be unsurprising to many to learn that the last part of the adolescent brain to develop is the frontal cortex.

Our brain structure changes dramatically as we grow up.

Advanced Text 3

There are also various reasons why people create fake news.

What can we do to stop fake news spreading?

In December 2016 Edgar M. Welch drove six hours from his home to Washington DC.

The story about Hillary Clinton is one of the most famous examples of the growing phenomenon dubbed 'fake news'.

Many people mistrust established news sources and others just don't read them, the internet is very hard to police.

Fake news stories can be hard to control for several reasons.

APPENDIX G - Sentences for the Reading Span Test

Training Session

1. Caiu o número de profissionais que diziam querer ficar por muito tempo no atual **emprego** (15 palavras, *Você S/A*, fevereiro de 2011, p.51)

2. O consumo de proteínas estimula a produção de células dos tecidos ósseos e musculares, acelerando o **crescimento**. (17 palavras, *Superinteressante*, agosto de 2000, versão online)

3. Adotar uma postura ética eleva tanto o nível de felicidade quanto ganhar um **aumento**. (14 palavras, *Superinteressante*, dezembro de 2010, versão online)

4. De modo geral, os imigrantes vindos do Terceiro Mundo têm famílias mais numerosas que os **europeus**. (16 palavras, *Veja*, 24 de outubro de 2007, p.120)

5. Descobriu-se que o grau de identificação com a equipe não tinha relação com as vitórias ou **derrotas**. (17 palavras, *Mente e Cérebro*, maio de 2011, p.41)

6. Para construir a trama os atores passaram, durante dois meses, por um processo diretamente influenciado pelo **cinema**. (17 palavras, *Mente e Cérebro*, maio de 2010, p.11)

7. O açúcar é uma parte natural da vida humana desde os primórdios de nossa **existência**. (15 palavras, *Veja*, 24 de outubro de 2007, p.11-12)

8. O consumo isolado de farinha de linhaça não vai baixar os tão desejados pontinhos da **balança**. (16 palavras, *Women's Health*, abril de 2010, p.46)

9. Não se esqueça de incluir a cidade de onde escreve e telefone para **contato**. (14 palavras, *Mente e Cérebro*, maio de 2010 p.7)

Main Study

1. O intelsat-6 foi lançado em 1990, mas nunca funcionou - ficou numa órbita **errada**. (13 palavras, *Veja*, 20 de maio de 1992, p.63)

2. A iniciativa deve partir da própria pessoa interessada em ter um corpo bonito e **saudável**. (15 palavras, *Veja SC*, 15 de abril de 1992, p.4)

3. Ele é uma pessoa que gosta de contar a todos o que anda fazendo, nos mínimos **detalhes** (17 palavras, *Mente e Cérebro*, maio de 2010, p.44)

4. As bactérias degradam as emulsões coloridas do filme, criando imagens que podem ser definidas como **futuristas**. (16 palavras, *Superinteressante*, fevereiro de 1992, p.14)

5. A padronização agrícola, para atender aos consumidores, ameaça a diversidade biológica do mundo **vegetal**. (14 palavras, *Superinteressante*, julho de 1992, p.10)

6. Os diálogos acontecem ao mesmo tempo, e cabe ao espectador escolher para onde dirigir sua **atenção**. (16 palavras, *Mente e Cérebro*, maio de 2010, p.7)

7. Para realizar as atividades cerebrais do pensamento, os neurônios tiram energia do oxigênio e da **glicose**. (14 palavras, *Superinteressante*, julho de 1992, p.10)

8. O truque, portanto, é partir triunfante rumo ao objetivo antes do início da **partida**. (14 palavras, *Mente e Cérebro*, maio de 2010, p.24)

9. Cerca de 250 milhões de pessoas, ao redor do mundo, se encontram na mais profunda **depressão**. (16 palavras, *Superinteressante*, setembro de 1992, p.57)

10. O repórter não deu grande importância à frase, mas esse parecia ser justamente o segredo do **sucesso**. (17 palavras, *Mente e Cérebro*, maio de 2010, p.24)

11. Uma manifestação estudantil ontem em Brasília foi marcada por atritos com a **polícia**. (13 palavras, *Folha de S. Paulo*, 17 de setembro de 1992)

12. Mostra a capacidade do homem em transformar coisas simples em obras de arte, através da **dedicação**. (16 palavras, *Superinteressante*, setembro de 1992, p.3)

13. A expressão refere-se à tentativa de conciliar o progresso com a preservação da **natureza**. (14 palavras, *Veja*, 3 de junho de 1992, p.34)

14. Cada volume traz textos inéditos escritos por psicólogos e psicanalistas, todos especialistas no **assunto**. (14 palavras, *Mente e Cérebro*, maio de 2010, p.8)

15. Pesquisa do Sebrae aponta que o novo salário mínimo deve provocar uma onda de **demissões**. (15 palavras, *Folha de S. Paulo*, 17 de setembro de 1992)

16. Se o Brasil pretende ir ao espaço sem pedir licença, não pode dispensar um programa de **foguetes**. (17 palavras, *Superinteressante*, setembro de 1992, p.10)

17. O médico deve levar em conta a idade, número de filhos e saúde do **paciente**. (15 palavras, *Folha de S. Paulo*, 17 de setembro de 1992)

18. Soube que o marido não ganhou o direito de protestar contra o abandono em momento tão **delicado**. (17 palavras, *Superinteressante*, setembro de 1992, p.4)

19. Nós pedimos para o mundo falar e a mensagem soou alta, clara e extraordinariamente **perfeita**. (15 palavras, *Veja*, 3 de junho de 1992, p.98)

20. A obra custou caro demais, a utilidade é incerta e o resultado final, **polêmico**. (14 palavras, *Veja*, 23 de setembro de 1992, p.60)

21. É a primeira vez que se consegue em órbita a ovulação e fertilização de espécies de **animais**. (16 palavras, *Veja*, 23 de setembro de 1992, p.61)

22. Os fabricantes de microcomputadores estão criando produtos com novas tecnologias, a preços mais **atraentes**. (14 palavras, *Folha de S. Paulo*, 23 de setembro de 1992)

23. Pesquisadores descobrem que o antílope das pradarias norte-americanas é o mais resistente dos mamíferos **terrestres**. (15 palavras, *Superinteressante*, julho de 1992, p.37)

24. O neandertal tinha testa curta e grossa, mandíbula forte, de queixo curto, e seus ossos eram **pesados**. (17 palavras, *Superinteressante*, julho de 1992, p.37)

25. Reconhecer a importância da identidade social abre as portas para novas possibilidades de **reflexão**. (14 palavras, *Mente e Cérebro*, maio de 2011, p.43)

26. Às vésperas do fim da reserva da informática, cresce a pressão por novos privilégios e **favores**. (16 palavras, *Veja*, 23 de setembro de 1992, p.80)

27. Seu público eram as pessoas que olham muito para a pechincha e pouco para a **qualidade**. (16 palavras, *Veja*, 23 de setembro de 1992, p.83)

28. O Brasil reforça sua presença no milionário clube de telefonia celular com o anúncio de novos **editais**. (17 palavras, *Veja*, 23 de setembro de 1992, p.85)

29. Quando o cineasta dá rédea solta ao puro amor pelas imagens, o filme arrebata os **sentidos**. (16 palavras, *Folha de S. Paulo*, 23 de setembro de 1992)

30. Na catarata, a vítima perde a visão gradualmente porque as células do cristalino tornam-se mais **opacas**. (16 palavras, *Superinteressante*, fevereiro de 1992, p.9)

31. É difícil acreditar no acidente que interrompeu a arrancada do trem voador japonês, rumo às rotas **comerciais**. (17 palavras, *Superinteressante*, fevereiro de 1992, versão online)

32. Os conservadores usaram e abusaram das teses de perversidade, da futilidade e da **ameaça**. (14 palavras, *Folha de S. Paulo*, 23 de setembro de 1992)

33. Elas mostraram sinais de rotas das caravanas de mercadores, que levaram os pesquisadores à **cidade**. (15 palavras, *Superinteressante*, junho de 1992, p.10)

34. Cartão-postal sob suspeita: radiação eletromagnética das antenas da Avenida Paulista pode afetar a saúde **humana**. (15 palavras, *Superinteressante*, junho de 1992, versão online.

35. O investidor pode estar procurando a segurança do ouro, um investimento tradicional, neste momento de crise **política**. (17 palavras, *Folha de S. Paulo*, 23 de setembro de 1992)

36. As fêmeas dos escorpiões só deixavam os abrigos dez vezes por ano, no **máximo**. (14 palavras, *Superinteressante*, agosto de 1992, p.8)

37. O caso de Jill continua sendo estudado por especialistas que buscam soluções para doenças relacionadas à **memória**. (17 palavras, *Mente e Cérebro*, maio de 2010, p.16)

38. Os satélites ajudam os oceanógrafos a descobrir a temperatura da água em diversos locais do **planeta**. (16 palavras, *Superinteressante*, agosto de 1992, p.5)

39. Nos casos de históricos de vida sedentária evitar esportes anaeróbicos que exigem melhor condicionamento **físico**. (15 palavras, *VIP EXAME*, junho de 1992, p.19)

40. Catástrofes à parte, a maior atração da viagem são a própria Galáxia e seus incríveis **habitantes**. (16 palavras, *Superinteressante*, agosto de 1992, p.24)

41. O computador mostrou que, mesmo sem se quebrarem, alguns capacetes transmitem muita energia mecânica para a **cabeça**. (17 palavras, *Superinteressante*, agosto de 1992, p.30)

42. A saúde instável do presidente serviu como outro elemento psicológico do ataque de nervos do **mercado**. (16 palavras, *Veja*, 23 de setembro de 1992)

43. É a primeira vez que o Brasil vende tênis em quantidades expressivas no **exterior**. (14 palavras, *Veja*, 23 de setembro de 1992, p.84)

44. O resto é luz do céu, claridade que desce da lua prateando a superfície **gelada**. (15 palavras, *VIP EXAME*, junho de 1992, p.44)

45. O IBGE lançou um Atlas que mostra trezentas e três espécies de animais ameaçadas de **extinção**. (16 palavras, *Folha de S. Paulo*, 23 de setembro de 1992)

46. O equipamento tem memória que permite dar ao usuário detalhes sobre eventuais defeitos e processos **industriais**. (16 palavras, *Folha de S. Paulo*, 23 de setembro de 1992)

47. Os bosques de mangues, regados pelas marés, garantem comida farta para a fauna e os **oceanos**. (15 palavras, *Superinteressante*, maio de 1992, p.25)

48. Hoje, quando o planeta é visto de cima pelos satélites, seus contornos não têm mais **segredo**. (16 palavras, *Superinteressante*, maio de 1992, p.34)

49. Mesmo sem saber o índice de queda nas vendas, desvalorizou as ações da **empresa**. (14 palavras, *Veja*, 23 de setembro de 1992, p.86)

50. Para os oitenta milhões de telespectadores brasileiros, a televisão significa lazer acessível e **barato**. (14 palavras, *Veja*, 23 de setembro de 1992, p.92)

51. É preciso desmontar os motores em terra para prever as falhas, trabalho que consome tempo e **dinheiro**. (17 palavras, *Superinteressante*, julho de 1992, p.10)

52. O paciente precisa de ressuscitação cardiorrespiratória o mais rápido possível, feita por pessoas **treinadas**. (14 palavras, *Folha de S. Paulo*, 28 de setembro de 1992)

53. Segundo Senna, a chuva fez com que o desgaste dos pneus fosse excessivo na **corrida**. (15 palavras, *Folha de S. Paulo*, 28 de setembro de 1992)

54. O povo com certeza irá ocupar as ruas para mostrar aos deputados o que querem seus **eleitores**. (17 palavras, *Folha de S. Paulo*, 28 de setembro de 1992)

55. O telefone celular pode ser usado em qualquer ponto da cidade coberto por uma **célula**. (15 palavras, *Folha de S. Paulo*, 28 de setembro de 1992)

56. Grandes quantidades de sal tornam a água mais pesada ou densa, diminuindo em consequência, seu **volume**. (16 palavras, *Superinteressante*, julho de 1992, p.17)

57. Como seres civilizados, deixamos as cavernas nas últimas glaciações, no início da Idade da Pedra **Polida**. (16 palavras, *Superinteressante*, agosto de 1992, p.73)

58. A desvalorização é o que mais dói no orgulho nacional e no bolso de suas **vítimas**. (16 palavras, *Veja*, 23 de setembro de 1992, p.78)

59. Não existe uma regra para definir a melhor hora para dar uma pausa no **trabalho**. (15 palavras, *Você S/A*, fevereiro de 2011, p.78)

60. Os efeitos do sal na pressão das artérias dependem de outros minerais no **organismo**. (14 palavras, *Superinteressante*, fevereiro de 1992, p.15)

APPENDIX H - Last word for each sentence of the Reading Span Test

Training Session

1. emprego
2. crescimento
3. aumento
4. europeus
5. derrotas
6. cinema
7. existência
8. balança
9. contato

Main Study

1. errada
2. saudável
3. detalhes
4. futuristas
5. vegetal
6. atenção

7. glicose
8. partida
9. depressão
10. sucesso
11. polícia
12. dedicação
13. natureza
14. assunto
15. demissões

16. foguetes
17. paciente
18. delicado
19. perfeita
20. polêmico
21. animais
22. atraentes
23. terrestres
24. pesados
25. reflexão
26. favores
27. qualidade

28. editais
29. sentidos
30. opacas
31. comerciais
32. ameaça
33. cidade
34. humana
35. política
36. máximo
37. memória
38. planeta
39. físico
40. habitantes
41. cabeça
42. mercado

43. exterior
44. gelada
45. extinção
46. industriais
47. oceanos
48. segredo
49. empresa
50. barato
51. dinheiro
52. treinadas
53. corrida
54. eleitores
55. célula
56. volume
57. Polida
58. vítimas
59. trabalho
60. organismo

APPENDIX I - Sentences for the Reading Span Test with syntactic alterations

Training Session

1. Caiu o número de profissionais que diziam por querer ficar muito tempo no atual **emprego** (15 palavras, *Você S/A*, fevereiro de 2011, p.51) - modified

2. O consumo de proteínas estimula a produção de células dos tecidos ósseos e musculares, acelerando o **crescimento**. (17 palavras, *Superinteressante*, agosto de 2000, versão online)

3. Adotar uma eleva postura ética tanto o nível de felicidade quanto ganhar um **aumento**. (14 palavras, *Superinteressante*, dezembro de 2010, versão online) - modified

4. De modo geral, os imigrantes vindos do Terceiro Mundo têm famílias mais numerosas que os europeus. (16 palavras, *Veja*, 24 de outubro de 2007, p.120)

5. Descobriu-se que o grau de identificação com a equipe não tinha relação com as vitórias ou **derrotas**. (17 palavras, *Mente e Cérebro*, maio de 2011, p.41)

6. Para construir a trama os atores passaram, durante dois meses, por um influenciado processo diretamente pelo **cinema**. (17 palavras, *Mente e Cérebro*, maio de 2010, p.11) - modified

7. O açúcar é uma parte natural da humana desde vida os primórdios de nossa **existência**. (15 palavras, *Veja*, 24 de outubro de 2007, p.11-12) - modified

8. O consumo isolado de farinha de linhaça não vai baixar os pontinhos desejados tão da **balança**. (16 palavras, *Women's Health*, abril de 2010, p.46)

9. Não se esqueça de incluir a cidade de onde escreve e telefone para **contato**. (14 palavras, *Mente e Cérebro*, maio de 2010 p.7)

Main Study

1. O intelsat-6 foi lançado em 1990, mas nunca funcionou - ficou numa órbita **errada**. (13 palavras, *Veja*, 20 de maio de 1992, p.63)

2. A iniciativa deve partir da própria pessoa interessada em ter um corpo bonito e **saudável**. (15 palavras, *Veja SC*, 15 de abril de 1992, p.4)

3. Ele é uma pessoa que gosta de contar a todos o que anda fazendo, nos mínimos **detalhes** (17 palavras, *Mente e Cérebro*, maio de 2010, p.44)

4. As bactérias degradam as emulsões coloridas do filme, criando imagens que podem ser definidas como **futuristas**. (16 palavras, *Superinteressante*, fevereiro de 1992, p.14)

5.A padronização agrícola, para atender aos consumidores, ameaça a diversidade biológica do mundo **vegetal**. (14 palavras, *Superinteressante*, julho de 1992, p.10)

6.Os diálogos acontecem ao mesmo tempo, e cabe ao espectador escolher para onde dirigir sua **atenção**. (16 palavras, *Mente e Cérebro*, maio de 2010, p.7)

7.Para realizar as atividades cerebrais do pensamento, os neurônios tiram energia do oxigênio e da **glicose**. (14 palavras, *Superinteressante*, julho de 1992, p.10)

8.O truque, portanto, é partir triunfante rumo ao objetivo antes do início da **partida**. (14 palavras, *Mente e Cérebro*, maio de 2010, p.24)

9.Cerca de 250 milhões de pessoas, ao redor do mundo, se encontram na mais profunda **depressão**. (16 palavras, *Superinteressante*, setembro de 1992, p.57)

10.O repórter não deu grande importância à frase, mas esse parecia ser justamente o segredo do **sucesso**. (17 palavras, *Mente e Cérebro*, maio de 2010, p.24)

11.Uma manifestação estudantil ontem em Brasília foi marcada por atritos com a **polícia**. (13 palavras, *Folha de S. Paulo*, 17 de setembro de 1992)

12.Mostra a capacidade do homem em transformar coisas simples em obras <u>através arte, de</u> da **dedicação**. (16 palavras, *Superinteressante*, setembro de 1992, p.3) - modified

13.A expressão refere-se à tentativa de conciliar o progresso com a preservação da **natureza**. (14 palavras, *Veja*, 3 de junho de 1992, p.34)

14.Cada volume <u>inéditos textos traz </u>escritos por psicólogos e psicanalistas, todos especialistas no **assunto**. (14 palavras, *Mente e Cérebro*, maio de 2010, p.8) - modified

15.Pesquisa do Sebrae aponta que o novo <u>mínimo deve salário</u> provocar uma onda de **demissões**. (15 palavras, *Folha de S. Paulo*, 17 de setembro de 1992) - modified

16.Se o Brasil pretende ir ao espaço sem pedir licença, não pode dispensar um programa de **foguetes**. (17 palavras, *Superinteressante*, setembro de 1992, p.10)

17.O médico <u>em levar deve</u> conta a idade, número de filhos e saúde do **paciente**. (15 palavras, *Folha de S. Paulo*, 17 de setembro de 1992) - modified

18.Soube que o marido não ganhou o direito de protestar contra o <u>momento abandono em</u> tão **delicado**. (17 palavras, *Superinteressante*, setembro de 1992, p.4) - modified

19.Nós pedimos para o mundo falar e a mensagem soou alta, clara e extraordinariamente **perfeita**. (15 palavras, *Veja*, 3 de junho de 1992, p.98)

20.A obra custou caro demais, a utilidade é incerta <u>o resultado e </u>final, **polêmico**. (14 palavras, *Veja*, 23 de setembro de 1992, p.60) - modified

21. É a primeira vez que se consegue em órbita a ovulação e <u>de espécies fertilização</u> de **animais**. (16 palavras, *Veja*, 23 de setembro de 1992, p.61) - modified

22. Os fabricantes de microcomputadores estão criando produtos <u>tecnologias, novas com</u> a preços mais **atraentes**. (14 palavras, *Folha de S. Paulo*, 23 de setembro de 1992) - modified

23. Pesquisadores descobrem que o antílope das pradarias norte-americanas é o mais resistente dos mamíferos **terrestres**. (15 palavras, *Superinteressante*, julho de 1992, p.37)

24. O neandertal tinha testa curta e grossa, mandíbula forte, de queixo curto, e seus ossos eram **pesados**. (17 palavras, *Superinteressante*, julho de 1992, p.37)

25. Reconhecer a importância da identidade social abre as portas para novas possibilidades de **reflexão**. (14 palavras, *Mente e Cérebro*, maio de 2011, p.43)

26. Às vésperas <u>da do fim</u> reserva da informática, cresce a pressão por novos privilégios e **favores**. (16 palavras, *Veja*, 23 de setembro de 1992, p.80) - modified

27. Seu público eram as pessoas que olham muito para a pechincha e pouco para a **qualidade**. (16 palavras, *Veja*, 23 de setembro de 1992, p.83)

28. O Brasil <u>presença sua reforça</u> no milionário clube de telefonia celular com o anúncio de novos **editais**. (17 palavras, *Veja*, 23 de setembro de 1992, p.85) - modified

29. Quando o <u>rédea cineasta dá</u> solta ao puro amor pelas imagens, o filme arrebata os **sentidos**. (16 palavras, *Folha de S. Paulo*, 23 de setembro de 1992) - modified

30. Na catarata, a vítima perde a visão gradualmente porque as células <u>cristalino tornam-se do</u> mais **opacas**. (16 palavras, *Superinteressante*, fevereiro de 1992, p.9) - modified

31. É difícil acreditar no acidente que interrompeu a arrancada do trem voador japonês, rumo às rotas **comerciais**. (17 palavras, *Superinteressante*, fevereiro de 1992, versão online)

32. Os conservadores usaram e abusaram das teses de perversidade, <u>futilidade da e</u> da **ameaça**. (14 palavras, *Folha de S. Paulo*, 23 de setembro de 1992) - modified

33. Elas mostraram <u>de sinais rotas</u> das caravanas de mercadores, que levaram os pesquisadores à **cidade**. (15 palavras, *Superinteressante*, junho de 1992, p.10) - modified

34. Cartão-postal sob suspeita: radiação eletromagnética das antenas da Avenida Paulista pode afetar a saúde **humana**. (15 palavras, *Superinteressante*, junho de 1992, versão online.

35. O investidor <u>procurando estar pode</u> a segurança do ouro, um investimento tradicional, neste momento de crise **política**. (17 palavras, *Folha de S. Paulo*, 23 de setembro de 1992) - modified

36. As fêmeas dos escorpiões só deixavam os abrigos dez <u>ano, vezes por</u> no **máximo**. (14 palavras, *Superinteressante*, agosto de 1992, p.8) - modified

37. O caso de Jill continua sendo estudado por especialistas que buscam soluções para doenças relacionadas à **memória**. (17 palavras, *Mente e Cérebro*, maio de 2010, p.16)

38. Os satélites <u>oceanógrafos ajudam os</u> a descobrir a temperatura da água em diversos locais do **planeta**. (16 palavras, *Superinteressante*, agosto de 1992, p.5) - modified

39. Nos casos de históricos de vida sedentária <u>anaeróbicos esportes evitar</u> que exigem melhor condicionamento **físico**. (15 palavras, *VIP EXAME*, junho de 1992, p.19) - modified

40. Catástrofes à parte, a maior atração da viagem são a própria <u>seus Galáxia e</u> incríveis **habitantes**. (16 palavras, *Superinteressante*, agosto de 1992, p.24) - modified

41. O computador <u>mesmo que, mostrou</u> sem se quebrarem, alguns capacetes transmitem muita energia mecânica para a **cabeça**. (17 palavras, *Superinteressante*, agosto de 1992, p.30) - modified

42. A saúde instável do presidente serviu como outro elemento psicológico do ataque de nervos do **mercado**. (16 palavras, *Veja*, 23 de setembro de 1992)

43. É a primeira vez que o Brasil vende tênis em quantidades expressivas no **exterior**. (14 palavras, *Veja*, 23 de setembro de 1992, p.84)

44. O resto é luz do céu, claridade que desce da lua prateando a superfície **gelada**. (15 palavras, *VIP EXAME*, junho de 1992, p.44)

45. O IBGE lançou um Atlas que mostra <u>e trezentas três</u> espécies de animais ameaçadas de **extinção**. (16 palavras, *Folha de S. Paulo*, 23 de setembro de 1992) - modified

46. O equipamento <u>memória que tem</u> permite dar ao usuário detalhes sobre eventuais defeitos e processos **industriais**. (16 palavras, *Folha de S. Paulo*, 23 de setembro de 1992) - modified

47. Os bosques de mangues, regados pelas marés, garantem comida farta para a fauna e os **oceanos**. (15 palavras, *Superinteressante*, maio de 1992, p.25)

48. Hoje, quando o planeta é visto de <u>satélites, pelos cima</u> seus contornos não têm mais **segredo**. (16 palavras, *Superinteressante*, maio de 1992, p.34) - modified

49.Mesmo sem saber o índice de queda <u>vendas, nas desvalorizou</u> as ações da **empresa**. (14 palavras, *Veja*, 23 de setembro de 1992, p.86) - modified

50.Para os oitenta milhões de telespectadores brasileiros, <u>significa televisão a</u> lazer acessível e **barato**. (14 palavras, *Veja*, 23 de setembro de 1992, p.92) - modified

51.É preciso desmontar os motores em terra <u>as para prever</u> falhas, trabalho que consome tempo e **dinheiro**. (17 palavras, *Superinteressante*, julho de 1992, p.10) - modified

52.O paciente precisa de ressuscitação cardiorrespiratória o mais rápido possível, feita por pessoas **treinadas**. (14 palavras, *Folha de S. Paulo*, 28 de setembro de 1992)

53.Segundo Senna, a chuva fez com que o desgaste dos pneus fosse excessivo na **corrida**. (15 palavras, *Folha de S. Paulo*, 28 de setembro de 1992)

54.O povo com certeza irá ocupar as ruas para mostrar aos deputados <u>querem que o</u> seus **eleitores**. (17 palavras, *Folha de S. Paulo*, 28 de setembro de 1992) - modified

55.O telefone celular pode ser usado em qualquer ponto da cidade coberto por uma **célula**. (15 palavras, *Folha de S. Paulo*, 28 de setembro de 1992)

56.Grandes quantidades de sal tornam a água mais pesada ou densa, diminuindo em consequência, seu **volume**. (16 palavras, *Superinteressante*, julho de 1992, p.17)

57.Como seres civilizados, deixamos as cavernas nas últimas glaciações, no início da Idade da Pedra **Polida**. (16 palavras, *Superinteressante*, agosto de 1992, p.73)

58.A desvalorização é o que mais dói no orgulho nacional e <u>de bolso no</u> suas **vítimas**. (16 palavras, *Veja*, 23 de setembro de 1992, p.78) - modified

59.Não existe uma regra para definir <u>hora melhor a</u> para dar uma pausa no **trabalho**. (15 palavras, *Você S/A*, fevereiro de 2011, p.78) - modified

60.Os efeitos do sal na pressão das <u>dependem de artérias</u> outros minerais no **organismo**. (14 palavras, *Superinteressante*, fevereiro de 1992, p.15) – modified

APPENDIX J - Booklet for the Reading Span Test

RST - Teste de Capacidade de Leitura	Participante nº: _____

Olá! Você está participando da pesquisa:

"Ativação de Esquemas e Memória de Trabalho: O Efeito de Diferentes Atividades de Pré-Leitura na Compreensão Leitora de Estudantes de Inglês como Língua Estrangeira nos Níveis Pré-Intermediário e Avançado"

Vamos agora para a Etapa 3 do nosso primeiro encontro, o teste de capacidade de leitura! Este teste é completamente em português.

Instruções:

Você deverá ler silenciosamente uma oração que vai aparecer na tela do computador. Essa oração ficará na tela por 12 segundos. Essa oração pode estar gramaticalmente correta ou incorreta. Você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;

☒ se a oração estiver gramaticalmente incorreta.

Após os 12 segundos, outra oração aparecerá na tela e, novamente, você deverá fazer a leitura silenciosa dessa oração e julgar se ela está correta ou incorreta, através da marcação acima.
Quando o tempo terminar, aparecerão na tela pontos de interrogação ???, sinalizando que você deve tentar lembrar a última palavra das duas orações que você leu, na ordem em que elas apareceram. Para isso, você deverá escrever as palavras no espaço apropriado (faremos uma prática para aprender o procedimento).

Logo após de escrever as palavras, outra sequência de orações começará, seguindo o mesmo procedimento. No total, você lerá 60 (sessenta) orações, que serão apresentadas em 15 conjuntos. O número de orações por conjunto vai de 2 a 6 (3 conjuntos de 2 orações, 3 conjuntos de 3 orações, 3 conjuntos de 4 orações, 3 conjuntos de 5 orações e 3 conjuntos de 6 orações).

Antes de iniciar o teste, vamos praticar! Você lerá 9 orações em português; essas orações estão divididas em 3 conjuntos. O número de orações por conjunto vai de 2 a 4 (1 conjunto de 2 orações, 1 conjunto de 3 orações, 1 conjunto de 4 orações).

Data: ____/____/2019.

RST - Teste de Capacidade de Leitura

<u>Sessão de Treino</u>

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 1	
Oração 1	
Oração 2	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

Para isso, vá para a próxima página.

RST - Teste de Capacidade de Leitura

<u>Sessão de Treino</u>

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 1	
Oração 1	
Oração 2	

Vá para a próxima página.

RST - Teste de Capacidade de Leitura

<u>Sessão de Treino</u>

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 2	
Oração 1	
Oração 2	
Oração 3	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

Para isso, vá para a próxima página.

RST - Teste de Capacidade de Leitura

Sessão de Treino

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 2	
Oração 1	
Oração 2	
Oração 3	

Vá para a próxima página.

RST - Teste de Capacidade de Leitura

Sessão de Treino

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 3	
Oração 1	
Oração 2	
Oração 3	
Oração 4	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

Para isso, vá para a próxima página.

RST - Teste de Capacidade de Leitura

Sessão de Treino

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 3	
Oração 1	
Oração 2	
Oração 3	
Oração 4	

Fim da sessão de treino.

Você ainda tem alguma dúvida?

Vamos começar o teste!

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 1	
Oração 1	
Oração 2	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 1	
Oração 1	
Oração 2	

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 2	
Oração 1	
Oração 2	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

Para isso, vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 2	
Oração 1	
Oração 2	

Vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 3	
Oração 1	
Oração 2	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

Para isso, vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 3	
Oração 1	
Oração 2	

Vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 4	
Oração 1	
Oração 2	
Oração 3	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

Para isso, vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 4	
Oração 1	
Oração 2	
Oração 3	

Vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 5	
Oração 1	
Oração 2	
Oração 3	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

Para isso, vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 5	
Oração 1	
Oração 2	
Oração 3	

Vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 6	
Oração 1	
Oração 2	
Oração 3	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

Para isso, vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 6	
Oração 1	
Oração 2	
Oração 3	

Vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 7	
Oração 1	
Oração 2	
Oração 3	

Oração 4	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

Para isso, vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 7	
Oração 1	
Oração 2	
Oração 3	
Oração 4	

Vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 8	
Oração 1	
Oração 2	
Oração 3	
Oração 4	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 8	
Oração 1	
Oração 2	
Oração 3	
Oração 4	

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 9	
Oração 1	
Oração 2	
Oração 3	
Oração 4	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 9	
Oração 1	
Oração 2	
Oração 3	
Oração 4	

Vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 10	
Oração 1	
Oração 2	
Oração 3	
Oração 4	
Oração 5	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

Para isso, vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 10	
Oração 1	
Oração 2	
Oração 3	
Oração 4	
Oração 5	

Vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 11	
Oração 1	
Oração 2	
Oração 3	
Oração 4	
Oração 5	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

Para isso, vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 11	
Oração 1	
Oração 2	
Oração 3	
Oração 4	
Oração 5	

Vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 12	
Oração 1	
Oração 2	
Oração 3	
Oração 4	
Oração 5	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

Para isso, vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 12	
Oração 1	
Oração 2	
Oração 3	
Oração 4	
Oração 5	

Vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 13	
Oração 1	
Oração 2	
Oração 3	
Oração 4	
Oração 5	
Oração 6	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

Para isso, vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 13	
Oração 1	
Oração 2	
Oração 3	
Oração 4	
Oração 5	
Oração 6	

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 14	
Oração 1	
Oração 2	
Oração 3	
Oração 4	
Oração 5	
Oração 6	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 14	
Oração 1	
Oração 2	
Oração 3	
Oração 4	
Oração 5	
Oração 6	

RST - Teste de Capacidade de Leitura

Aqui você deverá julgar se a oração está correta utilizando a marcação abaixo:

☑ se a oração estiver gramaticalmente correta;
☒ se a oração estiver gramaticalmente incorreta.

Conjunto 15	
Oração 1	
Oração 2	
Oração 3	
Oração 4	
Oração 5	
Oração 6	

Note que você não pode escrever a última palavra das orações nessa fase, apenas quando os pontos de interrogação aparecerem na tela.

Para isso, vá para a próxima página.

RST - Teste de Capacidade de Leitura

Aqui você deverá escrever a última palavra de cada oração na ordem em que elas apareceram na tela.

Conjunto 15	
Oração 1	
Oração 2	
Oração 3	
Oração 4	
Oração 5	
Oração 6	

Fim do teste.

Muito obrigada pela sua participação!
Até o próximo encontro!

APPENDIX K - Handout for the written free recall

Participante nº: _____

Written free recall

Por favor, tente escrever tudo o que você se lembra do texto. Tente usar frases completas.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Participante nº: _____

Written free recall

Por favor, tente escrever tudo o que você se lembra do texto. Tente usar frases completas.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

APPENDIX L1 - Comprehension questions for Pre-intermediate Text 1

Responda às perguntas abaixo de acordo com o texto "Digital habits across generations".

1. Segundo o texto, qual geração está utilizando as redes sociais com cada vez mais frequência?

_____
_____
_____
_____

2. Por que algumas pessoas, como Sheila, decidem utilizar as redes sociais?

_____
_____
_____
_____

3. De acordo com o texto, por que Chloe dorme com seu celular?

_____
_____
_____
_____

4. Qual atividade os adolescentes estão deixando de fazer por passar muito tempo no celular?

_____
_____
_____
_____

5. Como Peter se sentia quando estava sempre no celular e no computador?

_____
_____
_____
_____

6. O que Peter faz à noite e aos finais de semana?

_____
_____
_____
_____

APPENDIX L2 - Comprehension questions for Pre-intermediate Text 2

Responda às perguntas abaixo de acordo com o texto "The legend of fairies".

1. De onde surgiu a figura moderna das fadas?

_____
_____
_____
_____

2. Segundo o texto, que tipo de objeto não pode ser tocado pelas fadas?

_____
_____
_____
_____

3. Qual a explicação que o texto oferece para a crença de que as fadas pregavam peças em humanos?

_____
_____
_____

4. Centenas de anos atrás, o que as pessoas acreditavam que as fadas faziam com bebês recém-nascidos?

_____
_____
_____
_____

5. Em 1917, o que duas meninas fizeram para fazer com que as pessoas acreditassem em fadas?

_____
_____
_____
_____

6. Quem acreditou na história das meninas sobre as fadas?

_____
_____
_____
_____

APPENDIX L3 - Comprehension questions for Pre-intermediate Text 3

Responda às perguntas abaixo de acordo com o texto "Robot Teachers".

1. Qual o ponto positivo de se realizar uma consulta médica com um robô?

_____
_____
_____
_____

2. Segundo o especialista em educação, Anthony Sheldon, o que robôs inteligentes farão em uma sala de aula?

_____
_____
_____
_____

3. Qual a vantagem da possibilidade de utilizar robôs como professores?

_____
_____
_____
_____

4. Qual problema ainda é recorrente com relação à educação em algumas partes do mundo?

_____
_____
_____
_____

5. Segundo o texto, o que costuma acontecer com professores que não aconteceria com robôs?

_____
_____
_____
_____

6. Como os robôs podem ajudar os professores a terem um melhor desempenho?

_____
_____
_____
_____

APPENDIX L4 - Comprehension questions for Advanced Text 1

Responda às perguntas abaixo de acordo com o texto "Do you have the right mindset?".

1. Como a psicóloga Carol Dweck testou o grupo de crianças?

_____
_____
_____
_____

2. O que o grupo de crianças que reagiu positivamente disse?

_____
_____
_____
_____

3. O que a psicóloga Carol Dweck disse sobre o grupo de crianças que reagiu positivamente?

_____
_____
_____
_____

4. O que o grupo de crianças que reagiu negativamente disse?

_____
_____
_____
_____

5. O que torna as crianças vulneráveis a falhas?

_____
_____
_____
_____

6. Qual é a solução oferecida por Dweck para o problema da educação?

_____
_____
_____
_____

APPENDIX L5 - Comprehension questions for Advanced Text 2

Responda às perguntas abaixo de acordo com o texto "Me and my brain".

1. De acordo com o texto, o que muda no nosso corpo durante a adolescência?
_____
_____
_____
_____

2. O que acontece no nosso cérebro toda vez que pensamos em alguma coisa?
_____
_____
_____
_____

3. Como é o cérebro de bebês recém-nascidos?
_____
_____
_____
_____

4. Em que fase do desenvolvimento acontecem mais mudanças significativas no nosso cérebro?
_____
_____
_____
_____

5. Por que fazemos a poda de plantas?
_____
_____
_____
_____

6. De acordo com o texto, qual parte do cérebro os adolescentes utilizam para tomar decisões?
_____
_____
_____
_____

APPENDIX L6 - Comprehension questions for Advanced Text 3

Responda às perguntas abaixo de acordo com o texto "The rise of fake news".

1. O que aconteceu em dezembro de 2016?

_____
_____
_____
_____

2. Alguém se machucou no incidente em Washington?

_____
_____
_____
_____

3. Quando a história da pizzaria começou a aparecer?

_____
_____
_____

4. Que publicações denunciaram a história da pizzaria?

_____
_____
_____
_____

5. Por que alguns sites, como o The Onion, criam notícias falsas?

_____
_____
_____
_____

6. Segundo o texto, por que os adolescentes da Macedonia criaram uma notícia falsa sobre Donald Trump?

_____
_____
_____
_____

APPENDIX M - Retrospective questionnaires

Questionário Retrospectivo **RST - Teste de Capacidade de Leitura**	Participante nº: _____

Instruções

Por favor responda as perguntas abaixo. Você não precisa fornecer respostas longas, mas peço que tente responder da forma mais completa possível.

1. O que você achou do teste de memória? Como você se sentiu durante sua realização?
_____
_____
_____

2. Você conseguiu perceber as alterações gramaticais nas orações? Você teve alguma dificuldade? Você usou algum tipo de estratégia? Se sim, qual?
_____
_____
_____

3. O que você fez para conseguir memorizar as últimas palavras? Você usou algum tipo de estratégia? Se sim, qual?
_____
_____
_____

4. Com relação à dificuldade, como você classifica o RST, Teste de Capacidade de Leitura?
Muito fácil   (   ) 1 (   ) 2   (   ) 3 (   ) 4   Muito difícil

5. Você teve alguma outra dificuldade ao realizar este teste? Se sim, quais? Por favor, explique.
_____
_____
_____

6. Você tem algum outro comentário ou sugestão?
_____
_____

Data: ____/____/2019   Muito obrigada pela sua participação!

Questionário Retrospectivo **Leitura Texto 1**	Participante nº: _____

<u>Instruções</u>
Por favor, responda as perguntas abaixo. Você não precisa fornecer respostas longas, mas peço que tente responder da forma mais completa possível.

1. O que você achou do texto lido? Como você se sentiu durante a leitura?
_____
_____
_____

2. Como você se sentiu ao realizar a primeira tarefa de compreensão, na qual você tinha que escrever tudo que lembrava sobre o texto usando orações completas?
_____
_____
_____

3. Como você se sentiu ao responder as perguntas de compreensão? Você teve alguma dificuldade? Se sim, qual?
_____
_____
_____

4. Com relação à dificuldade, como você classifica o texto lido?
        Muito fácil   ( ) 1 ( ) 2 ( ) 3( ) 4   Muito difícil

5. Você teve alguma outra dificuldade ao realizar as tarefas desta etapa? Se sim, quais? Por favor, explique.
_____
_____
_____

6. Você tem algum outro comentário ou sugestão?
_____
_____

Data: ____/____/2019   Muito obrigada pela sua participação!

Questionário Retrospectivo **Leitura Texto 2**	Participante nº: _____

Instruções

Por favor, responda as perguntas abaixo. Você não precisa fornecer respostas longas, mas peço que tente responder da forma mais completa possível.

1. O que você achou do texto lido? Como você se sentiu durante a leitura?

_____
_____

2. Você acredita que a atividade realizada antes da leitura do texto tenha tido algum impacto em sua compreensão? Comente, por favor.

_____
_____

3. Como você se sentiu ao realizar a primeira tarefa de compreensão, na qual você tinha que escrever tudo que lembrava sobre o texto usando orações completas?

_____
_____

4. Como você se sentiu ao responder as perguntas de compreensão? Você teve alguma dificuldade? Se sim, qual?

_____
_____

5. Com relação à dificuldade, como você classifica o texto lido?

          Muito fácil   () 1　(　) 2　(　) 3( ) 4　 Muito difícil

6. Você teve alguma outra dificuldade ao realizar as tarefas desta etapa? Se sim, quais? Por favor, explique.

_____
_____

7. Você tem algum outro comentário ou sugestão?

_____
_____

Data: ____/____/2019   Muito obrigada pela sua participação!

Questionário Retrospectivo **Leitura Texto 3**	Participante nº: _____

<u>Instruções</u>
Por favor, responda as perguntas abaixo. Você não precisa fornecer respostas longas, mas peço que tente responder da forma mais completa possível.

1. O que você achou do texto lido? Como você se sentiu durante a leitura?
_____
_____

2. Você acredita que a atividade realizada antes da leitura do texto tenha tido algum impacto em sua compreensão? Comente, por favor.
_____
_____

3. Como você se sentiu ao realizar a primeira tarefa de compreensão, na qual você tinha que escrever tudo que lembrava sobre o texto usando orações completas?
_____
_____

4. Como você se sentiu ao responder as perguntas de compreensão? Você teve alguma dificuldade? Se sim, qual?
_____
_____

5. Com relação à dificuldade, como você classifica o texto lido?
        Muito fácil   ( ) 1 (   ) 2   (   ) 3 (   ) 4   Muito difícil

6. Você teve alguma outra dificuldade ao realizar as tarefas desta etapa? Se sim, quais? Por favor, explique.
_____
_____

7. Você tem algum outro comentário ou sugestão?
_____
_____

Data: ____/____/2019   Muito obrigada pela sua participação!

APPENDIX N - Profile questionnaire[51]

Questionário de Perfil	Participante nº: _____ Idade: _____ anos

1. Há quanto tempo você estuda inglês em curso extracurricular? _____ semestres

2. Em uma escala de 1 a 4, quanto tempo você se dedica a estudar inglês em casa?   ( ) 1   ( ) 2   ( ) 3   ( ) 4 Não estudo em casa   Dedico bastante tempo

3. Você tem contato com a língua inglesa em outras atividades do seu dia a dia? Por exemplo, através de filmes, seriados, músicas, games, internet, TV, rádio, etc.   ( ) Sim   ( ) Não

Se respondeu "sim", quais? Assinale todas as que se aplicarem. ( ) filmes ( ) seriados ( ) músicas ( ) games ( ) internet ( ) TV ( ) rádio ( ) outro - especifique: _____	Se respondeu "sim", quantas horas por dia (em média) você se envolve em atividades nas quais acontece esse contato com a língua inglesa? ( ) Menos de 1 hora ( ) De 1 a 2 horas ( ) Mais de 2 horas

4. Você costuma ler textos escritos em inglês além daqueles estudados no curso?   ( ) Sim   ( ) Não

Se respondeu "sim", quantas horas por dia (em média) você se dedica a ler esses textos escritos em inglês: ( ) Menos de 1 hora   ( ) De 1 a 2 horas   ( ) Mais de 2 horas

5. Em uma escala de 1 a 4, o que você faz quando lê textos em inglês?
Considere os textos lidos dentro e fora de sala de aula.
a.Costumo parar a leitura quando encontro palavras desconhecidas.
    Nunca ( ) 1   ( ) 2   ( ) 3   ( ) 4 Sempre
  b. Quando encontro uma palavra desconhecida, procuro seu significado no dicionário.
    Nunca ( ) 1   ( ) 2   ( ) 3   ( ) 4 Sempre
  c. Tento entender o significado de palavras desconhecidas através do próprio texto.
    Nunca ( ) 1   ( ) 2   ( ) 3   ( ) 4 Sempre
  d. Tento identificar a forma como o texto está organizado para compreendê-lo melhor.
    Nunca ( ) 1   ( ) 2   ( ) 3   ( ) 4 Sempre

Data: ____/____/2019   Muito obrigada pela sua participação!

---

[51] This profile questionnaire was based on the questionnaire developed by Woelfer (2016).

APPENDIX O1 – Propositional Analysis – Pre-intermediate Text 1

( ) Digital Habits (   ) Across (   ) Generations

( ) Today's ( ) grandparents ( ) are joining ( ) their grandchildren ( ) on social media, ( ) but ( ) the different generations' ( ) online habits ( ) couldn't be ( ) more different. ( ) The over-55s ( ) are joining ( ) Facebook ( ) in increasing numbers, ( ) meaning that ( ) they ( ) will soon be ( ) the site's ( ) second biggest ( ) user group, ( ) with 3.5 million users ( ) aged 55–64 ( ) and 2.9 million ( ) over-65s.

( ) Sheila, ( ) aged 59, ( ) says, '( ) I ( ) joined ( ) to see what my ( ) grandchildren ( ) are doing, ( ) as ( ) my daughter ( ) posts ( ) videos ( ) and photos ( ) of them. ( ) It's ( ) a much better ( ) way ( ) to see what ( ) they ( ) 're doing ( ) than waiting ( ) for letters ( ) and photos ( ) in the post. ( ) That's ( ) how ( ) we ( ) did it ( ) when ( ) I was ( ) a child, ( ) but ( ) I ( ) think ( ) I'm ( ) lucky ( ) I ( ) get to see ( ) so much ( ) more ( ) of their ( ) lives ( ) than ( ) my grandparents ( ) did.'

( ) Ironically, ( ) Sheila's ( ) grandchildren ( ) are ( ) less likely ( ) to use ( ) Facebook ( ) themselves. ( ) Children ( ) under 17 ( ) are leaving ( ) the site – ( ) only ( ) 2.2 million ( ) users ( ) are ( ) under 17 – ( ) but ( ) they're not ( ) going far from ( ) their ( ) smartphones. ( ) Chloe, ( ) aged 15, ( ) even sleeps ( ) with her ( ) phone. '( ) It's ( ) my ( ) alarm clock ( ) so ( ) I have to,' ( ) she ( ) says. ( ) 'I ( ) look ( ) at it ( ) before   ( ) I ( ) go to sleep ( ) and ( ) as soon as ( ) I ( ) wake up.'

( ) Unlike ( ) her ( ) grandmother's ( ) generation, ( ) Chloe's ( ) age group ( ) is spending ( ) so much time ( ) on their ( ) phones ( ) at home ( ) that ( ) they ( ) are missing out on ( ) spending ( ) time ( ) with ( ) their ( ) friends ( ) in real life. ( ) Sheila, ( ) on the other hand, ( ) has made ( ) contact ( ) with ( ) old friends ( ) from school ( ) she ( ) hasn't heard from ( ) in forty (   ) years. '( ) We ( ) use ( ) Facebook ( ) to arrange to meet ( ) all over the country,' ( ) she ( ) says. ( ) 'It's changed ( ) my ( ) social life ( ) completely.'

( ) Teenagers ( ) might have ( ) their ( ) parents ( ) to thank for ( ) their ( ) smartphone and ( ) social media ( ) addiction ( ) as ( ) their ( ) parents ( ) were ( ) the early adopters ( ) of the smartphone. ( ) Peter, ( ) 38 and ( ) father ( ) of two teenagers, ( ) reports that ( ) he ( ) used to be ( ) on his phone or ( ) laptop ( ) constantly. '( ) I ( ) was ( ) always connected and ( ) I ( ) felt like ( ) I ( ) was always ( ) working,' ( ) he ( ) says. '( ) How ( ) could ( ) I ( ) tell ( ) my ( ) kids ( ) to get off ( ) their ( ) phones ( ) if ( ) I   ( ) was ( ) always ( ) in front of a ( ) screen ( ) myself?' ( ) So, ( ) in the evenings and ( ) at weekends, ( ) he ( ) takes ( ) his ( ) SIM card ( ) out of ( ) his ( ) smartphone and ( ) puts it into ( ) an old-style ( ) mobile phone ( ) that can ( ) only ( ) make calls and ( ) send ( ) text messages. ( ) 'I'm not ( ) completely ( ) cut off from ( ) the world ( ) in case of ( ) emergencies, ( ) but ( ) the important thing ( ) is ( ) I'm setting ( ) a better ( ) example to ( ) my ( ) kids and ( ) spending ( ) more ( ) quality ( ) time ( ) with ( ) them.'

( ) Is it only ( ) a matter of time ( ) until ( ) the generation above and ( ) below ( ) Peter ( ) catches up with ( ) the new trend ( ) for a less ( ) digital life?

PI - Text 1 – Prereading activity Contextual Redefinition

P21 - (X) Os avós (X) postam (X) vídeos, ( ) textos e (X) fotos (X) nas redes sociais. (X) As redes sociais ( ) são (X) um vício.
P21 - 7

P22 - ( ) O texto ( ) traz que (X) pessoas de mais idade ( ) também (X) estão utilizando (X) redes sociais, ( ) como por exemplo (X) o Facebook. ( ) Uma das pessoas ( ) citadas (X) diz que (X) é (X) uma forma (X) de acompanhar (X) a vida ( ) dos filhos. ( ) Pessoas (X) mais novas, ( ) segundo ( ) o texto, (X) interagem ( ) mais (X) pelo celular ( ) do que (X) com pessoas reais.
P22 - 13

P23 - Blank
P23 - 0

P24 - ( ) O texto ( ) fala ( ) sobre ( ) o uso de (X) rede sociais. ( ) No caso ( ) o uso do (X) Facebook (X) pela Sheila ( ) é ( ) pelo ( ) seu ( ) Face. (X) Ela (X) justifica que ( ) é (X) pelo face que ( ) ela ( ) tem (X) sua (X) vida social. (X) O fone ( ) ela (X) dorme (X) com (X) ele e (X) o ( ) usa ( ) como (X) despertador.
P24 - 14

P25 - ( ) É apresentado ( ) uma história ( ) de algumas pessoas, ( ) que usam (X) rede social e ( ) tecnologia. ( ) No caso (X) de Sheila, (X) avó, ( ) serve muito (X) para acompanhar (X) o que ( ) as netas (X) fazem (X) e ela (X) considera que (X) em sua infância ( ) fez (X) mais coisas ( ) que sua neta. ( ) Serve ( ) também (X) para reencontrar (X) amigas, (X) de mais de 40 (X) anos ( ) passados, ( ) que atualmente ( ) vivem (X) em outros lugares. (X) A vida social (X) de Sheila (X) mudou muito (X) com o Facebook. ( ) Entretanto ( ) existem ( ) também ( ) o caso (X) do pai (X) de adolescentes, ( ) que utiliza ( ) para acompanhamento…
P25 - 21

PI - Text 1 - Control

P27 - ( ) Estavam comparando (X) a geração (X) das avós ( ) dele (X) com as crianças (X) de hoje em dia.
P27 - 4

P28 - ( ) O texto ( ) mostra (X) uma diferença ( ) entre (X) a geração (X) dos seus avós e ( ) a geração (X) das crianças (X) hoje em dia, ( ) dizendo que (X) na época

(   ) dos avós (   ) não existia (X) telefone (X) mas, (X) com (   ) essa evolução (   ) tecnológica, (   ) as crianças (   ) de hoje em dia (   ) podem (   ) se comunicar (   ) bem mais (   ) rápido (   ) com (   ) as outras (   ) usando (X) mensagens e (X) redes sociais.

P28 - 11

P30 - (   ) Eu (   ) lembro que (   ) a maioria (X) dos adolescentes, (   ) que usam (   ) a internet (   ) hoje em dia, (X) tem (   ) entre 15 e 19 (X) anos (X) de idade.

P30 - 4

P31 - (   ) Eu (   ) lembro que (   ) pessoas (   ) deram (   ) seu (   ) depoimento (   ) sobre (X) a rede social (X) do Facebook, (   ) tanto (   ) senhoras (   ) quanto (   ) pessoas (X) mais jovens, (   ) sobre (   ) o porque (   ) delas usarem (   ) essa (X) rede social. (   ) Também (   ) aparecem (   ) a quantidade (X) de usuários (X) da sua idade.

P31 – 6

P32 - (   ) É (X) uma avó (   ) contando que (   ) ela (X) passa (X) muito tempo (   ) na internet (X) Facebook, (   ) e ela (   ) gosta de (X) olhar (X) as postagens que (X) a filha (   ) faz (X) com os netos. (X) Os netos (   ) tem (X) celular (   ) a mão (   ) de vez em quando (   ) pega (   ) os celulares   (X) para dar uma olhada.

P32 - 11

P33 - (   ) Existem (X) 3,5 milhões (   ) de pessoas (X) acima de 65 anos (X) de idade (   ) e aproximadamente (   ) 1 milhão (   ) de pessoas (   ) abaixo (   ) de 65 anos (   ) de idade (   ) usando   (X) o Facebook. (   ) Normalmente (   ) a maioria (   ) das pessoas (   ) acima de 17 anos (   ) de idade (X) já não usa mais (X) o Facebook. (X) A avó (X) de uma menina (   ) não…

P33 - 8

P34 - (X) As gerações (X) de avós (X) de hoje em dia (   ) gostam de (   ) usar (X) as redes sociais (   ) para ficarem informadas (   ) sobre sua família, (   ) como por exemplo (X) a Sheila, (X) que vê (X) posts (X) de sua filha (   ) com sua neta.

P34 - 8

PI - Text 1 – Prereading activity Graphic Organizer

P36 - (X) Idosos (X) avós (   ) estão usando (X) mídias sociais (X) e pode ter (X) mais contatos (X) com seus netos, (   ) com mais oportunidades (   ) para falar (X) ou vê-los. (X) Na contrapartida, (X) jovens (X) estão ampliando (   ) o uso (X) de smartphones e (X) não usando   (X) as mídias (   ) que os avós (   ) acabaram de conhecer.

P36 - 13

P37 - (X) Hoje, (   ) bilhões (   ) de pessoas (X) dispendem (X) muito tempo (X) às mídias sociais.   (X) As mídias sociais (   ) são utilizadas (   ) para encontrar (   )

pessoas. (X) Os adolescentes (X) são (X) os que mais (   ) utilizam (   ) as redes sociais. (X) Os adolescentes (X) estão (X) viciados   (X) nos smartphones. (X) Dormem (X) com (X) seus smartphones.

       P37 - 15

       P40 - (X) Sheila (   ) gosta de (   ) usar (X) Facebook (X) para ver (X) fotos e (X) vídeos (   ) de sua neta. (X) Ela (   ) gosta (   ) também (   ) de usar (X) Facebook (X) para contactar (X) com amigos (   ) dela (   ) da juventude. (   ) Tem (X) um pai (X) de dois (X) adolescentes (X) que diz (X) que seus filhos (   ) perdem (X) muito tempo (X) com smartphones (X) mas (X) ele (   ) não   (X) pode (   ) cobrá-los (   ) por isso, (   ) pois (   ) ele (   ) faz (   ) a mesma coisa.

       P40 - 19

APPENDIX O2 – Propositional Analysis – Pre-intermediate Text 2

(   ) The Legend (   ) of Fairies

(   ) Fairies (   ) today (   ) are (   ) the stuff (   ) of children's (   ) stories, (   ) little (   ) magical   (   ) people (   ) with wings, (   ) often (   ) shining (   ) with light. (   ) Typically (   ) pretty (   ) and female, (   ) like (   ) Tinkerbell (   ) in *Peter Pan*, (   ) they (   ) usually (   ) use (   ) their magic (   ) to do   (   ) small (   ) things (   ) and are (   ) mostly (   ) friendly (   ) to humans.

(   ) We (   ) owe (   ) many (   ) of our (   ) modern (   ) ideas (   ) about (   ) fairies (   ) to Shakespeare (   ) and stories (   ) from the 18th (   ) and 19th (   ) centuries. (   ) Although (   ) we   (   ) can see (   ) the origins (   ) of fairies (   ) as far back as (   ) the Ancient Greeks, (   ) we (   ) can see (   ) similar (   ) creatures (   ) in many (   ) cultures. (   ) The earliest (   ) fairy-like (   ) creatures   (   ) can be (   ) found (   ) in the Greek (   ) idea (   ) that trees (   ) and rivers (   ) had (   ) spirits (   ) called (   ) dryads (   ) and nymphs. (   ) Some (   ) people (   ) think (   ) these creatures (   ) were (   ) originally (   ) the gods (   ) of earlier, (   ) pagan (   ) religions (   ) that worshipped (   ) nature. (   ) They (   ) were (   ) replaced (   ) by the Greek (   ) and Roman (   ) gods, (   ) and then (   ) later   (   ) by the Christian (   ) God, (   ) and became (   ) smaller, (   ) less (   ) powerful (   ) figures (   ) as   (   ) they (   ) lost (   ) importance.

(   ) Another (   ) explanation (   ) suggests (   ) the origin (   ) of fairies (   ) is (   ) a memory   (   ) of real (   ) people, (   ) not (   ) spirits. (   ) So, (   ) for example, (   ) when (   ) tribes (   ) with metal (   ) weapons (   ) invaded (   ) land (   ) where (   ) people (   ) only (   ) used (   ) stone (   ) weapons,   (   ) some (   ) of the people (   ) escaped (   ) and hid (   ) in forests (   ) and caves. (   ) Further (   ) support for (   ) this idea (   ) is (   ) that fairies (   ) were thought (   ) to be (   ) afraid of (   ) iron (   ) and could not (   ) touch it. (   ) Living (   ) outside of (   ) society, (   ) the hiding (   ) people (   ) probably (   ) stole (   ) food and (   ) attacked (   ) villages. (   ) This (   ) might (   ) explain (   ) why (   ) fairies (   ) were (   ) often (   ) described as (   ) playing (   ) tricks on (   ) humans. (   ) Hundreds of (   ) years ago, (   ) people (   ) actually (   ) believed that (   ) fairies (   ) stole (   ) new (   ) babies and (   ) replaced (   ) them (   ) with a 'changeling' – (   ) a fairy (   ) baby – (   ) or that (   ) they (   ) took   (   ) new (   ) mothers (   ) and made (   ) them (   ) feed (   ) fairy (   ) babies (   ) with their (   ) milk.

(   ) While (   ) most (   ) people (   ) no longer (   ) believe (   ) in fairies, (   ) only (   ) a hundred (   ) years ago (   ) some (   ) people (   ) were (   ) very willing (   ) to think (   ) they (   ) might (   ) exist. (   ) In 1917, (   ) 16-year-old (   ) Elsie (   ) Wright (   ) took (   ) two (   ) photos (   ) of her cousin, (   ) nine-year-old (   ) Frances (   ) Griffiths, (   ) sitting with (   ) fairies. (   ) Some (   ) photography (   ) experts (   ) thought (   ) they (   ) were (   ) fake, (   ) while (   ) others (   ) weren't (   ) sure. (   ) But (   ) Arthur (   ) Conan (   ) Doyle, (   ) the writer (   ) of the Sherlock (   ) Holmes (   ) detective (   ) stories, (   ) believed (   ) they (   )

were (   ) real. (   ) He (   ) published (   ) the original (   ) pictures, (   ) and three (   ) more (   ) the girls (   ) took for (   ) him, (   ) in a magazine (   ) called   (   ) *The Strand*, (   ) in 1920. ( ) The girls (   ) only (   ) admitted (   ) the photos (   ) were (   ) fake (   ) years (   ) later (   ) in 1983, (   ) created (   ) using (   ) pictures (   ) of dancers (   ) that Elsie (   ) copied from (   ) a book.

PI - Text 2 – Prereading activity Graphic Organizer

P21 - (X) Muitas (X) pessoas (X) ao fugirem (X) de ataque (   ) entravam (X) em florestas (   ) e pediam (   ) ajuda (X) a outros (   ) seres (   ) com intuito (   ) de não ser ( ) atingido (X) por pedras   (   ) ou lanças (X) de metal.
P21 - 8

P22 - (   ) O texto (   ) diz (X) que hoje (X) as fadas (X) são (X) apenas (X) histórias (X) de crianças. (   ) Ele (   ) mostra (X) algumas (   ) hipóteses (   ) de como (X) as histórias (X) sobre (X) fadas (X) podem (   ) ter surgido, (X) por exemplo, (   ) se (   ) foi (   ) através (   ) dos livros (X) de Shakespeare, (   ) se surgiu (   ) através (X) das lendas (X) gregas (X) sobre (   ) druídas (X) e ninfas. (   ) Além disso, (   ) ele (   ) traz que (X) a 100 (X) anos atrás (X) as pessoas (X) estavam (X) inclinadas (X) a acreditar (X) em fadas, (   ) por causa (X) de fotos (X) falsas (X) divulgadas (   ) no jornal.
P22 - 27

P23 - (X) Antigamente (X) as pessoas (X) acreditavam (X) em fadas (X) e achavam (X) que eram (X) pessoas e (X) não (X) espíritos. (X) Algumas (   ) referências (   ) de antigamente (X) de histórias (X) da Grécia, (X) as fadas (   ) viviam (   ) em ???? (X) e rios. (   ) Uma pessoa (X) tirou (X) foto (X) da sua prima (   ) ao lado (X) de uma fada, (X) mas (X) as pessoas (   ) não (X) acreditaram (X) e acharam que (X) era (X) mentira, (   ) mas (X) depois (   ) ela (   ) foi (X) publicada (X) em uma revista.
P23 - 27

P24 - (   ) O texto (   ) explana (X) várias (X) origens (X) das fadas. (X) Uma sugestão (X) que as fadas (   ) tem (X) sua origem (   ) nos textos (X) de Shakespeare, (X) outra (X) na Grécia, (   ) associa (X) a sua origem (X) aos espíritos (X) das árvores (X) e dos rios. (X) Mas (X) atualmente, (X) a maioria (X) das pessoas (X) não (X) acredita mais (X) nas fadas.
P23 - 20

P25 - (X) A lenda (X) das fadas. (   ) Inicialmente (X) pensavam (   ) que a lenda (X) das fadas (X   ) eram (X) originadas (X) de Shakespeare. (X) Entretanto (X) já (   ) na mitologia (X) grega (   ) ela (   ) estava (   ) presente. (   ) Na época, (X) com deuses (X) pagãos (   ) tal (   ) imagem (   ) era (X) "acreditada". (X) No entanto, (   ) com o fim (   ) dos reis (X) gregos (X) e romanos (   ) e a chegada (X) do cristianismo, (X) virou (   ) lenda (X) ou história (X) infantil.

P25 - 20

PI - Text 2 – Prereading activity Contextual Redefinition

P27 - (   ) Esse texto (   ) conta (X) sobre (X) a existência (X) das fadas, (X) como, exemplo (X) do conto (   ) famoso (X) de Peter Pan (   ) em que (   ) umas (   ) acreditam (   ) e outras (   ) não (X) acreditam (X) em fadas, (   ) então, (X) Sherlock (X) Holmes (   ) estava (   ) investigando (   ) isso.
P27 - 10

P28 - (   ) O texto (   ) fala (X) sobre (X) acreditar (X) em fadas (   ) e como (   ) elas (X) são (X) mágicas (   ) e tratadas (   ) como (X) deusas (   ) em alguns (   ) países, (X) um exemplo (   ) delas (   ) pode ser (   ) a fada (X) da natureza (X) a ninfa. (   ) Além de (   ) falar (X) de uma foto (X) falsa (   ) com um homem (   ) do lado de (X) várias (X) fadas (   ) na foto.
P28 - 13

P30 - (   ) Eu (   ) me lembro que (X) as crianças, (   ) postavam (   ) coisas (   ) nos seus (X) stories.
P30 - 2

P31 - (   ) Eu (   ) lembro que (   ) o texto (   ) fala sobre (   ) como (X) as fadas (X) surgiram (   ) pelo menos (   ) eu (   ) acho que (   ) eram (X) fadas (X) de verdade e (   ) não como (X) achamos (   ) isso.
P31 - 5

P32 - (   ) Fala (X) sobre (X) fadas (X) e pessoas (X) acreditarem que (   ) elas (X) existem.
P32 - 5

P33 - (X) Muita (X) gente (   ) não (X) acredita (X) em fadas. (   ) Em 1920 (   ) houve (X) uma foto (X) feita por (X) algumas (   ) meninas, (X) com fadas (X) na foto, (   ) gerando assim (   ) polêmicas (   ) e controvérsias (   ) entre a (   ) população (   ) daquela época, (X) aí depois de (   ) um tempo (X) as meninas (X) declararam (X) que era (X) mentira.
P33 - 14

P34 - (   ) No texto (   ) dizia (X) sobre (   ) *faires*, (X) que para crianças (   ) era (X) apenas (X) histórias, (   ) no texto (   ) deu (X) alguns (X) exemplos de (   ) "*faires*" (   ) como as (X) de Shakeaspere (   ) e o que envolvia (X) o escritor (X) de Sherlock (X) Holmes e (X) umas fotos (X) falsas.
P34 - 12

PI - Text 2 - Control

P36 - (X) Crianças (X) em histórias (X) antigas ( ) são ( ) comuns ( ) em todos os ( ) povos ( ) e tempos. (X) Shakespeare ( ) escreveu ( ) sobre isso ( ) em seu ( ) tempo. (X) A ideia ( ) de que associamos (X) com histórias ( ) que ouvimos ( ) durante ( ) o tempo ( ) tradição ( ) oral. (X) Gregos (X) e romanos ( ) passaram (X) para a cultura (X) muitas (X) dessas histórias.

P36 - 11

P37 - ( ) O texto ( ) fala (X) das lendas (X) das fadas. (X) Acreditava-se que ( ) essas (X) criaturas ( ) viviam ( ) longe das ( ) cidades. (X) Acreditava-se que (X) as criaturas (X) roubavam (X) os bebês (X) de suas mães. (X) Acreditava-se que (X) estavam (X) nos rios. ( ) Isso ( ) aconteceu (X) há centenas (X) de anos atrás. (X) Shakespeare (X) publicou (X) fotos (X) em uma revista.

P37 - 18

P40 - (X) A maioria (X) das histórias (X) de crianças, (X) nos dias de hoje, ( ) tem (X) fadas. (X) A origem (X) das fadas ( ) se passa (X) na Grécia, ( ) onde (X) as fadas ( ) viviam ( ) nas plantas. ( ) Na idade média, ( ) eles (X) acreditavam que (X) as fadas (X) roubavam (X) os metais (X) das armas ( ) de guerra. ( ) Existe ( ) relato (X) que existe (X) fadas, (X) foi publicado (X) uma foto (X) com uma delas. (X) Mas (X) em 1983 (X) foi dito (X) que era (X) fake.

P40 - 24

APPENDIX O3 – Propositional Analysis – Pre-intermediate Text 3

(   ) Robot (   ) Teachers

(   ) If (   ) you (   ) think of (   ) the jobs (   ) robots (   ) could (   ) never (   ) do, (   ) you (   ) would (   ) probably (   ) put (   ) doctors (   ) and teachers (   ) at the top (   ) of the list. (   ) It's (   ) easy (   ) to imagine (   ) robot (   ) cleaners (   ) and factory (   ) workers, (   ) but (   ) some (   ) jobs (   ) need (   ) human (   ) connection (   ) and creativity. (   ) But (   ) are (   ) we (   ) underestimating (   ) what (   ) robots (   ) can (   ) do? (   ) In some (   ) cases, (   ) they (   ) already (   ) perform (   ) better than (   ) doctors (   ) at diagnosing (   ) illness. (   ) Also, (   ) some (   ) patients (   ) might (   ) feel (   ) more (   ) comfortable (   ) sharing (   ) personal (   ) information (   ) with a machine (   ) than (   ) a person. (   ) Could (   ) there be ( ) a place (   ) for robots (   ) in education (   ) after all?

(   ) British (   ) education (   ) expert (   ) Anthony (   ) Seldon (   ) thinks (   ) so. (   ) And (   ) he (   ) even (   ) has (   ) a date (   ) for the (   ) robot (   ) takeover (   ) of the classroom: (   ) 2027. (   ) He (   ) predicts (   ) robots (   ) will do (   ) the main (   ) job (   ) of transferring (   ) information (   ) and teachers (   ) will be (   ) like (   ) assistants. (   ) Intelligent (   ) robots (   ) will read (   ) students' (   ) faces, (   ) movements (   ) and maybe ( ) even (   ) brain (   ) signals. (   ) Then (   ) they (   ) will adapt (   ) the information (   ) to each (   ) student. (   ) It's (   ) not (   ) a popular (   ) opinion (   ) and it's (   ) unlikely (   ) robots ( ) will (   ) ever have (   ) empathy (   ) and the ability to (   ) really (   ) connect with (   ) humans (   ) like (   ) another (   ) human (   ) can.

(   ) One (   ) thing (   ) is (   ) certain, (   ) though. (   ) A robot (   ) teacher (   ) is better than (   ) no (   ) teacher at all. (   ) In some (   ) parts (   ) of the world, (   ) there aren't (   ) enough (   ) teachers (   ) and 9–16 (   ) percent (   ) of children (   ) under (   ) the age (   ) of 14 (   ) don't go (   ) to school. (   ) That problem (   ) could (   ) be (   ) partly (   ) solved (   ) by robots (   ) because (   ) they (   ) can teach (   ) anywhere (   ) and won't get (   ) stressed, ( ) or tired, (   ) or move (   ) somewhere (   ) for an easier, (   ) higher-paid (   ) job.

(   ) Those (   ) negative (   ) aspects (   ) of teaching (   ) are (   ) something (   ) everyone (   ) agrees on. (   ) Teachers (   ) all over (   ) the world (   ) are leaving (   ) because (   ) it is (   ) a difficult (   ) job (   ) and they (   ) feel (   ) overworked. (   ) Perhaps (   ) the question (   ) is not (   ) 'Will (   ) robots (   ) replace (   ) teachers?' (   ) but (   ) 'How (   ) can ( ) robots (   ) help (   ) teachers?' (   ) Office (   ) workers (   ) can (   ) use (   ) software (   ) to do (   ) things (   ) like (   ) organise and (   ) answer (   ) emails, (   ) arrange (   ) meetings and (   ) update (   ) calendars. (   ) Teachers (   ) waste (   ) a lot of (   ) time (   ) doing (   ) non-teaching (   ) work, (   ) including (   ) more than (   ) 11 hours (   ) a week (   ) marking (   ) homework. (   ) If (   ) robots (   ) could (   ) cut (   ) the time (   ) teachers (   ) spend (   ) marking (   ) homework (   ) and writing (   ) reports, (   ) teachers (   ) would have (   ) more ( ) time (   ) and energy (   ) for the parts (   ) of the job (   ) humans (   ) do (   ) best.

PI - Text 3 - Control

P21 - (X) Os robôs (X) serão (X) como (X) um assistente (X) para os professores. ( ) Um dos (X) pontos ( ) impopulares (X) é ( ) a falta (X) de empatia (X) dos robôs. (X) A pergunta (X) não é '( ) como (X) os robôs (X) vão substituir (X) os professores (X) mas (X) como (X) eles (X) podem (X) ajudar'.
P21 - 19

P22 - ( ) O texto ( ) traz ( ) a seguinte ( ) possibilidade (X) de substituir (X) humanos (X) por robôs (X) nas profissões (X) médicos (X) e professores. (X) Para médicos, ( ) ele ( ) fala ( ) que talvez ( ) as pessoas ( ) não (X) se sintam (X) confortáveis (X) caso ( ) fosse ( ) receber (X) algum (X) diagnóstico. (X) Para professor, ( ) uma instituição (X) prevê que (X) em 2027 (X) já (X) terá (X) professores (X) robôs, ( ) e que seria, ( ) bom ( ) já que (X) professores (X) humanos (X) estão ( ) sempre (X) esgotados. (X) Porém ( ) algumas ( ) pessoas ( ) não gostam ( ) disso, (X) pois ( ) não teria (X) a conexão ( ) entre (X) aluno (X) e professor. ( ) Então ( ) ela ( ) traz ( ) a seguinte ( ) explanação, (X) que os robôs (X) poderiam (X) auxiliar (X) na sala de aula (X) os professores.
P22 - 33

P23 - (X) Alguns (X) robôs (X) podem (X) trabalhar (X) em fábricas ( ) e empresas, (X) mas (X) alguns (X) humanos (   ) não (X) podem (X) ser (X) substituídos (X) por robôs, (X) precisam da (X) criatividade. ( ) Existem (X) alguns (X) robôs (X) que são (X) médicos ( ) e fazem (X) o diagnóstico ( ) de problemas.
P23 - 19

P24 - ( ) O texto ( ) compara ( ) a atividade (X) do professor ( ) com a (X) de um robô. ( ) Pergunta ( ) quais atividades (X) o robô (X) pode (X) substituir (X) o professor. ( ) E as vantagens (X) do robô: ( ) ele (X) não (X) se cansa ( ) não ( ) come, ( ) não (X) tem stress. ( ) Levanta ( ) a questão ( ) de quais (X) profissões (X) o robô (X) pode ( ) substituir (X) o ser humano.
P24 - 14

P25 - ( ) Quem (X) o robô (X) consegue (X) substituir? ( ) Tudo? ( ) Inclusive (X) doutores (X) e professores. ( ) De fato, (X) alguns (X) pacientes ( ) contariam ( ) tudo (X) para uma máquina ( ) ao invés (X) de um médico. ( ) Um estudioso ( ) inglês (X) Anthony ( ) Sel ( ) apontou (X) uma data: (X) em 2027 (X) o robô (X) irá substituir (X) o professor. ( ) Com diversas ( ) características: (X) leitura ( ) das emoções (X) dos alunos, ( ) poderia ( ) até ( ) particularizar ( ) o ensinamento, (X) adequando (X) o conteúdo. (X) Mas, ( ) enquanto (X) algumas (X) regiões (X) do mundo ( ) possuem ( ) muito pouco ( ) professores (X) de 9 a 16% (X) das crianças (X) abaixo de (X) 14 anos (X) não vão ( ) a aula…

P25 - 28

PI - Text 3 – Prereading activity Graphic Organizer

P27 - ( ) Eu ( ) lembro que ( ) esse texto ( ) fala ( ) sobre ( ) a possibilidade (X) de robôs (X) substituírem (X) os seres humanos (X) nas escolas (X) mas (X) também ( ) para outras ( ) atividades ( ) fora ( ) do ambiente ( ) escolar.
P27 - 6

P28 - ( ) Fala ( ) sobre (X) uma probabilidade ( ) em um futuro ( ) próximo (X) 2027 (X) de existir (X) robôs ( ) capazes (X) de substituir (X) ou ajudar (X) os professores, (X) o robô ( ) iria ( ) reportar ( ) os erros (X) dos professores ( ) e ajudá-los ( ) a melhorar.
P28 - 9

P30 - (X) Os robôs (X) são ( ) muito (X) inteligentes. ( ) Um dia ( ) eles (X) vão substituir ( ) tarefas ( ) e uma delas ( ) é a função (X) da educação, ( ) como por exemplo (X) as(os) professoras(es).
P30 - 6

P31 - ( ) Eu ( ) lembro ( ) do texto ( ) falar ( ) sobre (X) os robôs (X) e como ( ) eles (X) podem (X) substituir (X) doutores (X) e professores, ( ) pelo depoimento (X) de um especialista (X) os robôs (X) podem (X) sim ( ) substituir (X) os professores ( ) dentro (X) de sala de aula.
P31 - 12

P32 - ( ) Fala (X) que os robôs (X) podem (X) trabalhar ( ) na área (X) de educação (X) em 2027 (X) e podem (X) sim (X) pegar o lugar (X) dos professores.
P32 - 9

P33 - ( ) Os "pesquisadores" (X) acham que (X) os robôs (X) podem (X) tomar o lugar (X) dos professores ( ) e educadores (X) porém ( ) depois de ( ) analisar (X) os pontos ( ) positivos (X) e negativos ( ) e perceberam (X) que os robôs (X) podem (X) ser (X) assistentes.
P33 - 12

P34 - ( ) O texto ( ) falava (X) que os robôs (X) poderiam (X) ser ( ) várias (X) coisas (X) como (X) até mesmo (X) um doutor, (X) também ( ) falava ( ) que muitas ( ) vezes (X) poderia ( ) até (X) fazer um papel (X) melhor do que (X) o próprio ser humano, ( ) sendo ( ) mais ( ) rápido ( ) e mais ( ) eficiente, ( ) e que futuramente (X) as professoras (X) seriam ( ) apenas (X) ajudantes (X) dos robôs.
P34 - 16

PI - Text 3 – Prereading activity Contextual Redefinition

P36 - ( ) Você (X) acredita (X) que os robôs (X) poderão (X) substituir (X) os humanos? ( ) É possível ( ) que façam ( ) tarefas (X) como (X) diagnóstico (X) de doenças ( ) e outras ( ) tarefas (X) de fábricas. (X) Já ( ) é possível (X) prever ( ) o avanço (X) no uso (X) de robôs, ( ) inclusive ( ) na função (X) de professor, ( ) principalmente ( ) por que ( ) faltam (X) para as faixas etárias ( ) menores. (X) Robôs ( ) não faltam, ( ) entendem. (X) Mas, ( ) seria (X) melhor ( ) em funções ( ) de apoio…
P36- 18

P37 - (X) Robôs (X) professores (X) para substituir (X) os professores (X) humanos. (X) Acredita-se (X) que em 2027 ( ) isso ( ) seja ( ) possível. (X) Alguns ( ) acreditam (X) que talvez ( ) não seja ( ) possível ( ) substituir (X) o professor (X) humano, (X) mas (X) robô (X) professor (X) poderia (X) ajudar ( ) em tarefas (X) mais ( ) simples, (X) como (X) emitir (X) relatórios, ( ) deixando (X) mais (X) tempo ( ) livre (X) para o professor (X) humano ( ) se dedicar ( ) ao lazer.
P37 - 24

P40 - ( ) O texto ( ) fala ( ) a respeito (X) de usar (X) robôs (X) para ensinar. (X) Em alguns (X) locais (X) do mundo, ( ) pessoas (X) com 14 ou 16 ( ) anos (X) nunca ( ) foram (X) a escola ( ) por alguma ( ) razão. (X) Nesses casos (X) os robôs ( ) seriam ( ) muito ( ) bem vindos (X) pois (X) podem ( ) ir ( ) até longas ( ) distâncias ( ) e ensinariam, (X) ajudariam ( ) essas pessoas. (X) Os robôs ( ) podem ( ) ajudar (X) os professores (X) humanos (X) respondendo ( ) em aula ( ) para eles (X) ou organizando (X) agendas (X) também.
P40 - 21

APPENDIX O4 – Propositional Analysis – Advanced Text 1

(   ) Do you (   ) have (   ) the right (   ) mindset?

(   ) Think back to (   ) when (   ) you (   ) were (   ) in a classroom, (   ) maybe (   ) a maths (   ) classroom, (   ) and the teacher (   ) set (   ) a difficult (   ) problem. (   ) That could (   ) have been (   ) any time (   ) between (   ) this morning (   ) or a few (   ) years ago.) (   ) Which (   ) of the two (   ) following (   ) responses (   ) is closer (   ) to the way(   ) you (   ) reacted?

A: (   ) Oh no, (   ) this is (   ) too (   ) hard (   ) for me. (   ) I'm not (   ) even (   ) going to (   ) seriously (   ) try (   ) and work it out.

B: (   ) Ah, (   ) this is (   ) quite tricky (   ) but (   ) I (   ) like (   ) to push (   ) myself. (   ) Even (   ) if (   ) I don't (   ) get (   ) the answer (   ) right, (   ) maybe (   ) I'll learn (   ) something (   ) in the attempt.

(   ) Early (   ) in her (   ) career, (   ) the psychologist (   ) Carol (   ) Dweck (   ) of Stanford (   ) University (   ) gave (   ) a group (   ) of ten-year-olds (   ) problems (   ) that were (   ) slightly (   ) too hard (   ) for them. (   ) One group (   ) reacted (   ) positively, (   ) said (   ) they (   ) loved (   ) challenge (   ) and understood that (   ) their (   ) abilities (   ) could be (   ) developed. (   ) She (   ) says (   ) they (   ) had (   ) a 'growth (   ) mindset' (   ) and are (   ) focused on (   ) what (   ) they (   ) can (   ) achieve (   ) in the future. (   ) But (   ) another (   ) group (   ) of children (   ) felt that (   ) their intelligence (   ) was being (   ) judged (   ) and they (   ) had failed. (   ) They (   ) had (   ) a 'fixed (   ) mindset' (   ) and were (   ) unable (   ) to imagine (   ) improving. (   ) Some of (   ) these children (   ) said (   ) they (   ) might cheat (   ) in the future; (   ) others (   ) looked for (   ) someone (   ) who (   ) had done worse (   ) than them (   ) to boost (   ) their (   ) self-esteem.

(   ) Professor (   ) Dweck (   ) believes that (   ) there is (   ) a problem (   ) in education (   ) at the moment. (   ) For years, (   ) children (   ) have been praised (   ) for their intelligence (   ) or talent, (   ) but (   ) this (   ) makes (   ) them (   ) vulnerable (   ) to failure. (   ) They (   ) become (   ) performance-(   ) oriented, (   ) wanting (   ) to please (   ) by getting (   ) high (   ) grades, (   ) but (   ) they (   ) are not (   ) necessarily (   ) interested in (   ) learning (   ) for its own sake. (   ) The solution, (   ) according to (   ) Dweck, (   ) is to praise (   ) the process (   ) that children (   ) are (   ) engaged in: (   ) making (   ) an effort, (   ) using (   ) learning (   ) strategies, (   ) persevering (   ) and improving. (   ) This way (   ) they (   ) will become (   ) mastery-(   ) oriented (   ) i.e. (   ) interested in (   ) getting better (   ) at something (   ) and will achieve (   ) more. (   ) She (   ) contends that (   ) sustained (   ) effort (   ) over time (   ) is (   ) the key (   ) to outstanding (   ) achievement.

(   ) Psychologists (   ) have been (   ) testing (   ) these theories. (   ) Students (   ) were taught that (   ) if (   ) they (   ) left (   ) their (   ) comfort (   ) zone (   ) and learned (   ) something (   ) new (   ) and difficult, (   ) the neurons (   ) in their (   ) brains (   ) would form (   ) stronger (   ) connections, (   ) making (   ) them (   ) more (   ) intelligent. (   ) These students (   ) made (   ) faster (   ) progress (   ) than (   ) a control (   ) group. (   ) In another (   ) study, (   ) underperforming (   ) school (   ) children (   ) on a Native (   ) American (   ) reservation (   ) were exposed (   ) to growth (   ) mindset (   ) techniques (   ) for a year. (   ) The results (   ) were (   ) nothing less (   ) than (   ) staggering. (   ) They (   ) came (   ) top (   ) in regional (   ) tests, (   ) beating (   ) children (   ) from much more (   ) privileged (   ) backgrounds. (   ) These children (   ) had previously (   ) felt (   ) that making (   ) an effort (   ) was (   ) a sign (   ) of stupidity, (   ) but (   ) they (   ) came (   ) to see it (   ) as the key (   ) to learning.

(   ) So, (   ) back to (   ) our (   ) original (   ) question. (   ) If (   ) you answered (   ) B, (   ) well done – (   ) you (   ) already (   ) have (   ) a growth (   ) mindset.(   ) If (   ) A, (   ) don't (   ) worry; (   ) everyone (   ) is (   ) capable (   ) of becoming (   ) mastery-oriented (   ) with a little (   ) effort (   ) and self-awareness.

ADV - Text 1 - Control

P1 - (   ) O texto (   ) falava (   ) sobre (   ) como (   ) as pessoas (X) reagem (   ) a situações (X) difíceis, (   ) sobre (X) a capacidade (   ) de persistir (X) e chegar (   ) em seu objetivo. (X) A professora (X) Carol (   ) fez (X) um teste (X) com "ten-years-old (X) problems" (X) e um grupo (X) relatou (X) que gosta (X) de ser (X) desafiado (X) e acha (   ) muito bom (X) e o outro, (X) disse (X) que sentia (X) sua inteligência (X) ser julgada. (   ) Hoje em dia (X) as crianças (X) estão (X) focadas (   ) em ser (X) alunos (   ) perfeitos (   ) e com boas (X) notas, (X) mas (X) nem estão (   ) ligando (   ) para o essencial (   ) que é (   ) o conteúdo (X) em si.
P1 - 28

P2 - (   ) Muitas (X) crianças (X) quando (   ) enfrentam (X) um desafio (X) acham que (X) sua inteligência (X) está sendo (X) julgada, (   ) e desistem. (X) Estudos (   ) dizem que (X) aprender (   ) sobre (X) novas (   ) coisas (   ) fortalece (   ) a mente, (X) e o aluno (X) se torna (X) mais (X) inteligente. (   ) Como (   ) tem (X) crianças (   ) que desistem, (   ) há (X) crianças (X) que tentam (   ) até o final, (   ) com o objetivo (   ) de aprender (   ) novas (   ) coisas. (   ) No texto (   ) foi citado (   ) o caso (X) da psicóloga (   ) que trabalhou (X) com crianças (X) de 10 anos (   ) que tinham (   ) essas dificuldades.
P2 - 20

P3 - (   ) O texto (   ) trata (   ) de um assunto (   ) muito (   ) comum (   ) de hoje. (   ) Os casos (   ) de não utilização (   ) correta (   ) de um mecanismo (   ) chamado (X) cérebro, (   ) existem (X) dois (   ) tipos (   ) de utilizações. (X) A - (X) quando (X)

a professora (X) passa (X) algo (X) muito difícil (X) e você (X) nem tentou (X) e já (   ) fala (   ) que não é (X) capaz (X) de resolver. (X) B - (   ) a professora (   ) passa (X) algo (X) difícil (X) porém (X) você (   ) não sabe, (X) mas (   ) busca (   ) compreender (   ) o texto (X) por si só, (X) assim (   ) sua mente (   ) trabalha (X) e você (   ) estará aprendendo, (   ) a memorizar (   ) corretamente. (X) Um professor (X) de uma universidade (X) fala (   ) que isso (   ) é causado (   ) pelo ensinamento(X) ou mais (   ) fácil (   ) falando, (   ) o responde (   ) tudo, (   ) com isso (X) o aluno (   ) não trabalha (X) seu cérebro.

P3 - 28

ADV - Text 1 – Prereading activity Contextual Redefinition

P4 - (   ) O texto (   ) fala (   ) sobre (   ) diferentes (   ) percepções (   ) sobre (X) a aprendizagem. (   ) Sinteticamente, (   ) fala (   ) sobre (X) dois (X) grupos (   ) de pessoas (X) A (X) um que (X) não se acha (X) capaz (X) de resolver (X) problemas (X) difíceis (X) e B (X) outro (   ) que se sente (   ) motivado (X) com desafios. (   ) Também (   ) cita que (X) de acordo (X) com estudos, (   ) o segundo (X) grupo (   ) se mostra (X) mais (X) capaz (   ) de crescer (   ) cognitivamente (   ) por permitir (   ) o surgimento (X) de novas (X) conexões (   ) neurais (X) ao se esforçar (   ) para resolver (X) um problema.

P4 - 22

P6 - (   ) Começa (X) com uma pergunta (   ) pessoal (   ) sobre (X) um desafio (   ) de uma questão (X) difícil (X) de matemática. (   ) Depois (   ) mostra (   ) dados (   ) sobre (X) crianças (X) expostas (X) a esse teste (   ) e sobre (X) seu desempenho. (X) As crianças (   ) que aceitaram (X) o desafio (   ) e tentaram (   ) fazer (   ) as contas (   ) tiveram (X) um desempenho (X) melhor (X) em outras (   ) atividades (   ) do que as (   ) que desistiram. (   ) E por fim (   ) fala (   ) que esse método (   ) foi implantado (X) em algumas (X   ) escolas (X) americanas, (   ) o que (   ) fez (X) seus alunos (X) avançarem (X) e se tornarem (X) mais (X) inteligentes.

P6 - 21

P7 - (   ) O texto (   ) fala (   ) sobre (X) a mentalidade (   ) das pessoas. (   ) Logo (   ) no começo (   ) temos (   ) uma hipótese (   ) sobre (X) um problema (X) difícil (X) com duas (   ) alternativas (X) como resposta. (   ) O mesmo (   ) diz (   ) que foi dado (X) à crianças (X) de 10 anos (X) alguns (X) problemas (X) de matemática (X) difíceis (X) para a idade delas. (   ) Algumas (X) crianças (X) tentaram (   ) resolver (X) os problemas (   ) enquanto (X) outras (X) nem se deram o trabalho.

P7 - 17

ADV - Text 1 – Prereading activity Graphic Organizer

P10 - (X) Uma psicóloga (   ) aplicou (X) um teste (X) em crianças (X) de 10 anos (   ) e obteve (X) resultados (   ) distintos. (   ) O primeiro (X) se sentiu (   ) desafiado (   ) e obteve (   ) bons (   ) resultados, (   ) sendo considerado (   ) mentalmente (   ) desenvolvido (   ) e dispostos (X) a aprender (X) mais (X) no futuro. (X) Outro (X) grupo (X) falha (   ) e foi considerado (   ) o oposto (   ) do primeiro. (   ) A conclusão (   ) da pesquisadora (   ) é que (   ) há falhas (   ) no sistema (X) de ensino (X) que valoriza (X) a inteligência e a…

P10 - 15

P11 - (   ) É perguntado (   ) a minha (   ) reação (X) a uma questão (   ) complexa (X) de matemática. (   ) Minha (X) resposta: (   ) procuro (X) resolver, (   ) procuro (   ) ajuda (   ) se não souber. (   ) Na continuação (   ) do texto (   ) analisa-se (X) dois (X) grupos (X) de estudantes (   ) em particular: (   ) os que (   ) desistem (   ) facilmente (   ) e os que (X) perseveram.(   ) Também (   ) é apresentado (X) estudo (   ) técnico (X) que tenta (   ) demonstrar (   ) que deve-se (X) elogiar (X) o "processo (   ) de atividade" (   ) e não (X) os alunos (   ) que realizam (   ) o processo. (   ) Apresenta-se (   ) ainda (   ) casos (   ) práticos (   ) onde (   ) esse estudo (   ) foi aplicado, (   ) demonstrando que…

P11 - 13

P12 - (   ) Existem (X) dois (   ) tipos (X) de pensamentos, (   ) como (X) "a" (   ) que não iria conseguir (   ) por não ter (X) essa capacidade (   ) de conhecimento (X) e "b" (   ) que tentaria (X) mesmo (   ) se não soubesse (   ) direito. (X) A psicóloga (X) Carol (   ) fez (X) testes (X) com crianças (X) de 10 anos, (   ) teve (X) um grupo (X) que reagiu (   ) bem, (   ) porque (   ) teve (   ) incentivos (   ) de que era (X) capaz (X) e o outro (   ) não muito, (   ) por que (   ) achava (   ) que estavam (   ) testando (   ) sua capacidade. (   ) No fim (X) ela diz (X) que se você (   ) tem (X) o pensamento (X) "a" (X) para não ficar (X) preocupado (   ) pois (   ) isso (   ) tem (X) solução.

P12 - 22

P13 - (X) Psicóloga (X) Carol (   ) formou (X) dois (X) grupos (X) de crianças (X) de 10 anos (X) para um estudo. (X) Um grupo (   ) mostrou-se (   ) aberto (   ) a dificuldades (X) e aprende, (X) o outro (   ) menos (   ) aberto. (X) A chave (X) para o aprendizado (X) pode ser (X) a forma (   ) como (X) as crianças (   ) são incentivadas (   ) a estudar (   ) e a superar (   ) suas dificuldades (X) de aprendizado. (X) Um grupo (X) de crianças (X) nativo (X) americanas (   ) tiveram (   ) um método (X) de aprendizado (   ) aplicado…

P13 - 21

ADV - Text 1 - Control

P15 - (   ) O texto (   ) é sobre (X) mentalidade. (X) Um teste (   ) foi feito (X) em dois (X) grupos (X) de crianças. (   ) 1 (   ) aqueles (X) que gostam (X) de

desafios (   ) 2 aqueles que (X) se sentiram (X) julgados. (X) Psicóloga (X) e professor (   ) tem (   ) opiniões (   ) sobre (   ) as duas (   ) categorias (X) dos grupos.

P15 - 12

P16 - (   ) Para resolver (X) problemas (X) difíceis (   ) as pessoas (X) reagem (X) de formas (   ) diferentes. (X) Um grupo (X) acha que (X) o problema (   ) é muito (X) difícil (   ) e por isso (   ) não conseguirão (X) resolvê-los. (X) Outro (X) grupo (   ) enfrenta (   ) a situação (   ) com positividade (X) tentando (   ) resolver (X) o problema (   ) apresentado. (X) Um psicólogo (   ) fez (X) um estudo (X) com crianças (   ) e confirmou (   ) a situação (   ) acima.

P16 - 16

P17 - (   ) O texto (   ) fala (   ) sobre (X) estudos e (X) testes (X) que vem (X) sendo (   ) feito (X) em crianças (   ) para verificar (   ) a teoria (   ) de que quanto (X) mais (   ) instigadas (   ) elas (   ) são, (X) mais (X) inteligentes (   ) elas (   ) ficam (X) e mais (X) conquistas (   ) elas (   ) terão. (X) Tirar (   ) as pessoas (X) da zona (X) de conforto, (   ) fazer (X) perseverar (X) mesmo (   ) em situações (X) difíceis, (   ) faz com que (X) os neurônios (X) façam (X) uma forte (X) conexão (   ) e trabalhem (X) melhor (   ) na busca (X) dos resultados.

P17 - 22

P18 - (X) Quando (X) os alunos (   ) recebiam (   ) uma tarefa (X) difícil (   ) havia (X) dois (   ) tipos (   ) de reação: (X) A - (   ) Isto é (X) muito difícil (X) para mim. (X) Eu (X) não sou (X) capaz (X) de resolver. (X) B - (   ) Acho (X) difícil, (X) mas (   ) vou tentar. (X) Gosto de (X) desafios. (X) Um psicólogo (   ) fez (X) um estudo (   ) sobre (   ) o perfil (X) de quem (   ) gosta (X) de aprender (   ) e se sente (   ) motivado (   ) e de quem (   ) só (X) pensa (X) em tirar (   ) boas (X) notas.

P18 - 23

P19 - (   ) Entendi (   ) muito (   ) pouco (   ) o texto, (   ) em razão (   ) de muitas (   ) palavras (   ) desconhecidas. (   ) Penso que (   ) não tenha (   ) me concentrado (   ) o suficiente.

P19 - 0

APPENDIX O5 – Propositional Analysis – Advanced Text 2

(   ) Me (   ) and my (   ) brain

(   ) We all (   ) know that (   ) significant (   ) changes (   ) occur (   ) in our (   ) bodies (   ) during (   ) adolescence, (   ) but (   ) have you (   ) ever (   ) stopped (   ) to wonder (   ) what's (   ) actually (   ) going on (   ) inside (   ) our (   ) brains (   ) during (   ) this time?

(   ) To paint (   ) a clearer (   ) picture, (   ) we (   ) should (   ) first (   ) familiarize (   ) ourselves (   ) with the different (   ) parts (   ) of the brain. (   ) Did you (   ) know, (   ) for instance, (   ) that our (   ) brains (   ) are made up (   ) of around (   ) 100 billion (   ) nerve (   ) cells (   ) called (   ) neurons? (   ) And stemming (   ) from (   ) these neurons (   ) are (   ) several (   ) branch-like (   ) structures (   ) for sending (   ) and receiving (   ) electrical (   ) signals? (   ) Every (   ) time (   ) we (   ) do (   ) or think (   ) anything, (   ) a signal (   ) is transmitted. (   ) The signal (   ) travels down (   ) a long (   ) structure (   ) called (   ) the axon (   ) and, (   ) at the end, (   ) it passes across (   ) tiny (   ) gaps (   ) called (   ) synapses (   ) to the dendrites (   ) of another (   ) neuron, (   ) which receive (   ) the signal. (   ) In this way, (   ) messages (   ) are (   ) sent across (   ) our (   ) neural(   ) network.

(   ) Our (   ) brain (   ) structure (   ) changes (   ) dramatically (   ) as (   ) we (   ) grow up. (   ) Newborn (   ) babies (   ) have (   ) almost (   ) all (   ) their (   ) neurons (   ) but (   ) few (   ) connections (   ) between (   ) them, (   ) which is (   ) why (   ) they (   ) can't do (   ) very much. (   ) After (   ) a few (   ) months (   ) however, (   ) the number (   ) of connections (   ) explodes, (   ) which in turn (   ) helps (   ) tiny (   ) tots (   ) master (   ) a whole (   ) range (   ) of new (   ) skills (   ) such as (   ) walking (   ) and talking. (   ) Despite (   ) earlier (   ) myths (   ) that most (   ) brain (   ) development (   ) is completed (   ) in the first (   ) few years, (   ) we (   ) now (   ) know (   ) that our (   ) brains (   ) continue (   ) to develop (   ) throughout (   ) our (   ) lives (   ) and perhaps (   ) the most (   ) dramatic (   ) time (   ) of change (   ) and development (   ) is during (   ) puberty.

(   ) During (   ) this period (   ) of reorganisation, (   ) the brain (   ) witnesses (   ) a sudden (   ) increase (   ) in neurons (   ) not dissimilar (   ) to a plant (   ) growing (   ) uncontrollably (   ) in spring. (   ) Just as (   ) we (   ) prune (   ) a plant (   ) to make it (   ) stronger (   ) and healthier, (   ) we (   ) prune (   ) our (   ) brains. (   ) The connections (   ) that are (   ) used (   ) become (   ) stronger, (   ) whereas (   ) those (   ) which aren't (   ) used (   ) wither (   ) and die. (   ) So, (   ) the more (   ) frequently (   ) an action (   ) or thought (   ) is activated, (   ) the stronger (   ) the connections (   ) become (   ) between (   ) the neurons, (   ) which in turn (   ) strengthens (   ) the part (   ) of the brain (   ) being used. (   ) This explains (   ) why (   ) the more (   ) you (   ) do (   ) something, (   ) the better (   ) you (   ) become at it, (   ) reinforcing (   ) the old (   ) adage (   ) 'practice makes

perfect'. (   ) In fact, (   ) it would seem that (   ) the teenage (   ) brain (   ) provides (   ) optimum (   ) conditions (   ) for perfecting (   ) skills (   ) such as (   ) playing (   ) a musical (   ) instrument, (   ) speaking (   ) another (   ) language (   ) or learning (   ) a complex (   ) computer (   ) game. (   ) It could (   ) therefore (   ) be argued (   ) that teenagers (   ) determine (   ) the development (   ) of their (   ) own (   ) gray (   ) matter ( ) through (   ) the activities (   ) and experiences (   ) they (   ) engage in.

(   ) It may (   ) also (   ) be (   ) unsurprising (   ) to many (   ) to learn that (   ) the last (   ) part (   ) of the adolescent (   ) brain (   ) to develop (   ) is (   ) the frontal (   ) cortex, (   ) responsible for (   ) self-control, (   ) problem (   ) solving (   ) and decision (   ) making. (   ) Consequently, (   ) long (   ) before (   ) teens (   ) become (   ) adept (   ) at rational, (   ) abstract (   ) thinking (   ) and logical (   ) decision (   ) making, (   ) they (   ) rely on (   ) the emotional (   ) center (   ) of the brain (   ) to make (   ) choices (   ) and think. (   ) So (   ) perhaps (   ) unpredictable, (   ) volatile, (   ) risk-taking (   ) teenage (   ) behavior, (   ) often (   ) put down (   ) to hormones, (   ) may (   ) actually (   ) have (   ) more (   ) to do with (   ) what's (   ) going on (   ) inside (   ) our (   ) brain.

ADV - Text 2 – Prereading activity Contextual Redefinition

P1 - (   ) O texto (   ) falava (   ) sobre (X) as mudanças (X) do nosso (X) cérebro (   ) desde (X) crianças (X) até puberdade (   ) e mais além. (   ) Quando (   ) somos (X) bebês (   ) não temos (   ) tantas (X) ligações (X) entre (X) os neurônios (   ) e outras (X) partes (   ) do corpo (X) e depois (   ) de um tempo (X) essas ligações (   ) surgem (X) rapidamente (X) e assim (   ) temos (X) as habilidades, (X) como (X) falar (X) ou andar. (   ) Quando (   ) somos (X) adolescentes, (   ) na puberdade, (X) nosso (X) cérebro (X) e nossas (X) conexões (   ) estão (   ) certinhas, (X) mas (   ) precisamos (X) reorganizar (   ) isso, (   ) assim (X) ficando (X) mais (X) fortes.
P1 - 28

P2 - (   ) O texto (   ) fala (   ) sobre (   ) a mente. (   ) O texto (X) no primeiro ( ) parágrafo (   ) fala (   ) sobre (   ) como (   ) funciona (X) nosso (X) cérebro (X) os neurônios. (   ) No segundo (   ) parágrafo (   ) fala (   ) como (X) ele muda (X) durante (X) toda (X) nossa (   ) vida (   ) e que cada (X) ligação (X) entre (X) nossos (X) neurônios (   ) nos faz (X) crescer (   ) mentalmente. (   ) No terceiro (   ) parágrafo (   ) fala (X) que tudo (X) que fazemos (   ) exercita (X) o cérebro (X) e ajuda (   ) no seu (X) desenvolvimento. (   ) No quarto (   ) parágrafo (   ) fala (   ) sobre (   ) como (X) os adolescentes (X) pensam (   ) e que tem (   ) um lugar (X) no cérebro (X) para tomar (X) decisões.
P2 - 23

P3 - (   ) O texto (   ) fala (   ) sobre (   ) nós (X) e nossos (X) cérebros (   ) ele conta (   ) que temos (   ) milhares (X) de conexões (X) que mandam (X) e recebem (

) pulsações (   ) de energia. (X) Também (   ) o texto (   ) fala (   ) sobre (X) que nosso (X) corpo (X) está (   ) em constante (X) mudança, (   ) principalmente (X) na puberdade, (   ) onde (   ) milhares (X) de conexões (   ) se formam (   ) e outras (   ) milhares (   ) se desconectam, (   ) fazendo (X) assim (X) uma mudança (X) radical (   ) no corpo (X) e pensamento.

P3 - 16

ADV - Text 2 – Prereading activity Graphic Organizer

P4 - (   ) O texto (   ) fala (   ) sobre (X) o "crescimento" (X) do cérebro (X) durante (X) a adolescência, (   ) quanto (   ) à sua capacidade (X) de aprender. (X) Depois (   ) fala (   ) como (   ) acontece (X) o pensamento, (   ) em termos (   ) físicos. (   ) E aborda (X) a diferença (X) entre (X) a capacidade (X) do cérebro (X) de recém-nascidos (X) e de crianças (X) durante (X) o crescimento, (   ) tendo (   ) como (   ) ápice (   ) a adolescência.

P4 - 15

P6 - (   ) Fala (   ) sobre (X) as mudanças (   ) que ocorrem (X) nos cérebros (X) de adolescentes. (   ) Cita (X) também (   ) que quando (X) bebês, (X) nossas (X) conexões (X) nervosas (X) vão aumentando (   ) fazendo com que (   ) os bebês (X) desenvolvam (X) novas (X) capacidades (X) como (X) andar (X) e falar. (X) Na adolescência (X) ocorre (X) uma reorganização (X) no cérebro (X) e a última (X) parte (X) a se desenvolver (   ) é a que (   ) nos (X) ajuda (X) a fazermos (X) escolhas (X) e é por isso (   ) que levamos (   ) muito (   ) em consideração (X) a parte (X) emocional.

P6 - 28

P7 - (   ) O texto (   ) fala (   ) sobre (X) as mudanças (X) na adolescência. (   ) Logo (X) no primeiro (   ) parágrafo (   ) temos (   ) uma pergunta (   ) sobre (X) o que (X) ocorre (X) no cérebro (X) do adolescente. (   ) Nos demais (   ) parágrafos, (   ) o texto (   ) nos (   ) dá (   ) informações (   ) sobre (X) o cérebro (X) e seu desenvolvimento, (X) como por exemplo (   ) o fato (   ) de termos (X) aproximadamente (X) 100 (X) bilhões (X) de neurônios. (X) Os recém-nascidos (   ) não (X) desenvolvem (X) "ações (   ) adultas" (   ) por causa (   ) da quantidade (X) de neurônios (   ) ligados (   ) uns aos outros.

P7 - 18

ADV - Text 2 - Control

P10 - (X) Nosso (X) cérebro (X) é formado (X) por bilhões (X) de neurônios (X) que transmitem (X) sinais (X) elétricos (X) entre si (   ) que correspondem (   ) a informações. (X   ) O desenvolvimento (X) do cérebro (   ) se dá (X) por um longo (X) período (   ) e é destacado (X) nos primeiros (X) meses (   ) de

vida, (   ) quando (   ) se formam (X) as conexões (X) sinapses (X) e depois (X) na adolescência, (   ) quando (X) o cérebro (X   ) testemunha (X   ) uma explosão (X) de crescimento (X) de neurônios, (X) como (X) uma planta (X) incontrolável (X) na primavera. (X) E o desenvolvimento (X) do cérebro (   ) depende (   ) de exercício, (X   ) quanto mais (   ) exercitado (X) melhor (   ) cumpre (   ) suas (   ) funções, (   ) valendo (   ) a frase (X) "a prática leva à perfeição". (X) Uma das últimas (   ) áreas (X) a se desenvolver (X) nos adolescentes (X) é o córtex (X) frontal, (X) responsável (X   ) pelo controle (X) emocional.
P10 - 41

P11 - (   ) O texto (   ) tenta (X) explicar (   ) o funcionamento (X) do cérebro, ( ) destacadamente (   ) os "acontecimentos (X) mudanças" (X) que ocorrem (   ) nele (X   ) durante (X) a adolescência. (X) Primeiro (   ) explica (X) as partes (X) do cérebro, (X) com seus 100 (X) bilhões (X) de neurônios, (   ) etc. (X) Depois, (   ) comenta (   ) a evolução (   ) desde (   ) o nascimento, (   ) ainda (   ) sem (X) mais (X) conexões (X) no cérebro, (X) mas (   ) rapidamente (X) aumentando. (   ) Explica ( ) ainda (   ) a grande (X) capacidade (X) do cérebro (X) de um adolescente (X) aprender (   ) "coisas", (X) como (X) música, (X) língua (   ) estrangeira, (   ) etc... , (   ) ficando (X) por último (   ) outros (X) aprendizados, (X) como (X) o controle (X) emocional.
P11 - 30

P12 - (   ) Fala (   ) sobre (X) nossos (X) neurônios (X) e o avanço (   ) deles (X) no nosso(X) corpo. (   ) Temos (   ) milhares (   ) deles, (X) mas (   ) quando (X) bebê (   ) são (X) pouco interligados (X) e com poucos (X) meses (X) depois (   ) eles têm (X) uma explosão (X) de conhecimentos (   ) e começam (X) a andar (X) e falar. (   ) Isso (X) vai aumentando (   ) cada vez mais, (X) na puberdade (X) e na adolescência. (   ) Na adolescência (   ) tem (   ) a formação (X) de todas (X) as emoções (   ) e também (   ) a noção (X) de responsabilidades (X) e ações. (X) Tudo (   ) por conta (X) dos nossos (X   ) neurônios.
P12 - 25

P13 - (   ) Até então (   ) pensava-se que (X) os neurônios (X) paravam (X) de se desenvolver(X) nos primeiros (X) anos (X) de nossas (X) vidas. (X) Agora (X) sabe-se que (X) eles continuam (X) se desenvolvendo (X) por toda (   ) a vida. (X) O período (X) mais (X) dramático (X) é a adolescência (   ) quando (X) acontecem (X) muitas (X) mudanças (X) no nosso (X) corpo (X) como (X) as hormonais. (X) Durante (X) a adolescência (X) é o período (   ) onde (X) o cérebro (X) mais (X) consegue aprender (X) e é também (   ) quando (X) o cérebro (   ) tem dificuldades (X) com tomar (X   ) decisões (   ) que envolvem…
P13 - 33

ADV - Text 2 – Prereading activity Contextual Redefinition

APPENDIX O6 – Propositional Analysis – Advanced Text 3

(   ) The rise (   ) of fake news

(   ) In December (   ) 2016 (   ) Edgar (   ) M. Welch (   ) drove (   ) six hours (   ) from his home (   ) to Washington DC, (   ) where (   ) he opened (   ) fire (   ) in a pizzeria (   ) with an assault (   ) rifle. (   ) He had (   ) previously (   ) read (   ) an online (   ) news (   ) story (   ) about (   ) the restaurant (   ) being (   ) the headquarters (   ) of a group (   ) of child (   ) abusers (   ) run by (   ) Hillary (   ) Clinton. (   ) He decided (   ) to investigate (   ) for himself; (   ) fortunately, (   ) no one (   ) was hurt.

(   ) The story (   ) about (   ) Hillary (   ) Clinton (   ) is one (   ) of the most (   ) famous (   ) examples (   ) of the growing (   ) phenomenon (   ) dubbed (   ) 'fake news'. (   ) The conspiracy (   ) theory (   ) about (   ) the pizzeria (   ) began (   ) to appear (   ) on websites (   ) and social (   ) networks (   ) in late (   ) October, (   ) before (   ) the US (   ) election. (   ) This was (   ) quickly (   ) denounced (   ) by publications (   ) such as (   ) *The New York Times* (   ) and *The Washington Post*. (   ) However, (   ) many (   ) people (   ) thought that (   ) these papers (   ) were (   ) themselves (   ) lying (   ) for political (   ) ends (   ) and instead of (   ) disappearing, (   ) the fake (   ) story (   ) snowballed.(   ) Tweets (   ) from 'Representative (   ) Steven (   ) Smith (   ) of the 15th (   ) District (   ) of Georgia' (   ) claimed that (   ) the mainstream (   ) media (   ) were telling (   ) falsehoods. (   ) Even though (   ) both (   ) this name (   ) and district (   ) were invented, (   ) the message (   ) was re-tweeted (   ) many (   ) times. (   ) A YouTube (   ) refutation (   ) of the *New York Times* (   ) article (   ) got (   ) 250,000 (   ) hits.

(   ) Fake news (   ) stories (   ) can be (   ) hard (   ) to control (   ) for several (   ) reasons. (   ) Many (   ) people (   ) mistrust (   ) established (   ) news (   ) sources and (   ) others (   ) just (   ) don't read (   ) them, (   ) so (   ) the debunking (   ) of a fake (   ) story (   ) by a serious (   ) newspaper (   ) or TV channel (   ) has (   ) limited (   ) effect. (   ) In addition, (   ) the internet (   ) is very hard (   ) to police. (   ) When (   ) users (   ) are caught (   ) misusing (   ) one (   ) media (   ) platform, (   ) they (   ) simply (   ) go to (   ) another one (   ) or start up (   ) a website (   ) themselves.

(   ) There are (   ) also (   ) various (   ) reasons (   ) why (   ) people (   ) create (   ) fake news. (   ) Some (   ) have (   ) political (   ) motives, (   ) to belittle (   ) or incriminate (   ) their opponents. (   ) Other (   ) websites, (   ) like (   ) The Onion, (   ) deliberately (   ) publish (   ) fake news (   ) as satire – (   ) humorous (   ) comment (   ) on society (   ) and current (   ) affairs. (   ) Another (   ) group (   ) is in it (   ) for the profit: (   ) many (   ) people (   ) clicking (   ) on entertaining (   ) fake news (   ) stories (   ) can bring in (   ) a lot of (   ) advertising (   ) revenue. (   ) One man (   ) running (   ) fake news (   ) sites (   ) from Los Angeles (   ) said (   ) he was (   ) making up to (   ) US$ 30,000 (   ) a month (   ) in this way. (   ) There are (   ) also (   ) those, (   ) like (   ) the small-town (

) teenagers (   ) in Macedonia (   ) who wrote (   ) fake news (   ) stories (   ) about (   ) Donald (   ) Trump, (   ) who seem (   ) to be (   ) motivated (   ) partly (   ) by money (   ) and partly (   ) by boredom.

(   ) So, (   ) what (   ) can we (   ) do to (   ) stop (   ) fake news (   ) spreading? ( ) First, (   ) make sure (   ) that the websites (   ) you (   ) read (   ) are (   ) legitimate, (   ) for example (   ) by looking (   ) carefully (   ) at the domain (   ) name (   ) and the About Us (   ) section. (   ) Check (   ) the sources (   ) of any quotes (   ) or figures (   ) given (   ) in the story. (   ) Remember that (   ) amazing (   ) stories (   ) about (   ) famous (   ) people (   ) will be covered (   ) by the mainstream (   ) media (   ) if they are (   ) true. (   ) Only ( ) share (   ) stories (   ) you know (   ) are (   ) true (   ) and let (   ) your friends (   ) know, (   ) tactfully, (   ) when (   ) they (   ) unknowingly (   ) share (   ) fake news. (   ) Together (   ) we can (   ) turn around (   ) the post-truth (   ) world!

ADV - Text 3 – Prereading activity Graphic Organizer

P1 - (X) Edgar (   ) queria (   ) descobrir (X) por si só, (X) se (X) o que (   ) estavam falando (X) de Hillary (X) era verdade. (   ) O caso (X) de Hillary (X) foi (X) um dos mais (X) famosos (X) de "fake news", (X) jornais (X) como (X) New York Times (X) publicaram (X) matérias (X) sobre. (   ) Teve (   ) grande (   ) repercussão (   ) no Twitter (X) também. (X) As fake news (   ) são (X) criadas (X) por vários (X) motivos, (X) dinheiro, (   ) calúnia, (   ) etc… (X) Podemos (X) parar (X) de espalhar (X) fake news (X) checando (X) as fontes (X) e compartilhando (   ) aquilo (X) que temos (X) certeza (X) que é verdade.
P1 - 33

P2 - (   ) O texto (   ) fala (X) sobre (X) fake news. (X) No primeiro (   ) parágrafo (   ) fala (X) da história (   ) em que (X) um homem (X) foi (   ) vítima (X) de fake news. (   ) No segundo (   ) parágrafo (   ) fala (X) sobre (   ) como (X) a Hillary (X) Clinton (   ) se envolveu (   ) nesse caso (   ) e foi acusada (   ) de participar. ( ) Depois disso, (   ) o texto (   ) explica (X) sobre (X) as "fake news", (   ) como (   ) prevenir, (   ) a não (X) espalhar (   ) e a combater.
P2 - 13

P3 - (   ) Em 19 (X) de dezembro (X) de 2016. (   ) Um homem (   ) viajava (X) dirigindo (X) por 6 horas (   ) para casa, (X) quando (   ) escutou (X) uma notícia (X) que em uma pizzaria (   ) havia sido (   ) queimada (   ) e assaltada (X) por rifles (X) de assalto. (   ) No mesmo (   ) caso, (   ) ele viu (X) uma página (   ) que fez (X) uma "fake news", (X) onde (   ) juntou (   ) o caso (X) da pizzaria (X) com o de Hillary, ( ) onde (   ) uma coisa (   ) aconteceu (   ) em um lugar (X) e a outra (X) em outro (   ) lugar. (   ) Aí (   ) ele conta (   ) os perigos (X) do fake news (X) pode trazer (   ) pois (X) muitas (X) pessoas (X) compartilham (X) fake news (X) sem saber (X) o que (X) compartilham.

P3 - 25

ADV - Text 3 - Control

P4 - (   ) O texto (   ) fala (X) sobre (   ) a disseminação (X) de fake news. (   ) Para isso, (   ) cita (   ) o caso (X) de uma falsa notícia (   ) relacionada (X) à Hillary (X) Clinton. (   ) O texto (   ) aborda (X) também (X) algumas (X) razões (   ) pelas quais (X) as fake news (X) são (X) tão difíceis (X) de conter. (   ) Dentre eles, (   ) a dificuldade (X) de policiar (X) a internet, (   ) e o hábito (X) de algumas (X) pessoas (X) em repassar (   ) informações (   ) sem (X) ler (X) ou verificar (X) a fonte. (   ) Quanto (X) ao motivo (X) para criar (X) essas notícias falsas (   ) o texto (   ) cita (X) questões (X) políticas (X) e monetárias.
P4 - 26

P6 - (   ) O texto (   ) fala (X) sobre (X) a "fake news" (   ) e formas (   ) de combater. (   ) No início (   ) ele cita (X) a história (X) de um homem (X) que abriu (X) fogo (X) em um restaurante (X) por achar (X) que ali (X) era onde (X) abusadores (X) de crianças (   ) se encontravam. (   ) Depois (X) sobre (X) um boato (X) da Hillary (X) Clinton. (   ) No terceiro (   ) parágrafo (   ) ele fala (X) sobre (   ) como (X) é difícil (   ) combater (X) a fake news (   ) e no quarto (X) sobre (X) o que (X) podemos (X) fazer (   ) para acabar (X) com a fake news.
P6 - 24

P7 - (   ) O texto (   ) fala (X) sobre (   ) como (X) as fake news (   ) são perigosas. (X) Uma das (X) fake news (X) mais (X) famosas (X) é sobre (X) Hillary. (X) Afirmavam (   ) que ela (X) comandava (   ) um lugar (X) onde (X) crianças (X) eram (   ) mal tratadas, (X) então (X) outro (X) homem (X) achando (X) que esta notícia (X) fosse (X) verdadeira, (X) dirigiu (X) por 6 horas (X) de sua casa (X) até Washington D.C. (   ) e entrou (   ) neste lugar (   ) que atualmente (X) é uma pizzaria (X) com um rifle.
P7 - 26

ADV - Text 3 – Prereading activity Contextual Redefinition

P10 - (X) Em 2016 (X) um homem (X) abriu (X) fogo (X) com um rifle (X) em uma pizzaria (   ) depois (X) de dirigir (X) por seis horas, (   ) acreditando (X) que ali (   ) se reuniam (X) abusadores (X) de crianças (X) liderados (X) pela (   ) então candidata (X) Hillary (X) Clinton. (X) Este foi (X) o exemplo (X) mais (X) famoso (   ) do que pode (   ) resultar (X) o que (   ) se passou (X) a chamar (X) de fake news. (X) Esta história (X) surgiu (X) em outubro (X) anterior (X) às eleições (X) e foi retuitadas (X   ) inúmeras (X) vezes. (X) A grande (X) mídia (X) publicou (X) desmentindo (X) mas (   ) isso (   ) não ajudou.
P10 - 35

P11 - (X) Um homem (X) dirigiu ( ) seu carro (X) até uma pizzaria (X) e "abriu (X) fogo" ( ) porque (X) achava que ( ) aquele ( ) local (X) era ( ) um ponto ( ) de encontro (X) de pessoas (X) que divulgavam ( ) realizavam ( ) fantasias ( ) sexuais ( ) proibidas. (X) A notícia ( ) de que aquela (X) pizzaria ( ) era um local ( ) com essas ( ) características (X) era falsa, ( ) como (X) são falsas (X) muitas (X) notícias ( ) e fotos (X) comentadas (X) por pessoas. (X) As razões (X) para surgirem (X) notícias falsas (X) são várias, ( ) desde ( ) interesses ( ) pessoais ( ) até…

P11 - 21

P12 - ( ) O texto ( ) fala (X) sobre (X) fake news. (X) Sobre ( ) um ocorrido (X) em uma pizzaria (X) e um homem (X) decidiu (X) investigar (X) por conta própria (X) o que ( ) aconteceu (X) com um rifle (X) de assalto, (X) mas (X) felizmente (X) ninguém (X) se machucou. (X) Fake news ( ) é algo (X) muito difícil (X) de parar, (X) pois (X) tem várias (X) razões, ( ) uma delas ( ) é que ( ) todos (X) compartilham ( ) sem ( ) ao menos (X) checar ( ) para ver(X) se ( ) é correta ( ) a informação. ( ) E no fim ( ) avisa (X) sobre ( ) não (X) compartilhar (X) fake news.

P12 - 27

P13 - (X) Um homem ( ) viajou ( ) por 5 horas (X) da sua casa (X) até uma pizzaria (X) em Washington (X) e abriu (X) fogo (X) com um rifle. (X) Ele leu (X) na internet (X) que ali ( ) funcionava (X) um quartel general (X) para abuso (X) de crianças. (X) Ninguém (X) se feriu. ( ) É importante (X) ter cuidado (X) com as notícias falsas ( ) na internet. ( ) Importantes (X) grupos (X) de mídia (X) noticiaram (X) que a história (X) era (X) uma fake news (X) mas (X) muitas (X) pessoas ( ) não se informam.

P13 - 26

ADV - Text 3 – Prereading activity Graphic Organizer

P15 - ( ) O texto (X) é sobre (X) fake news. ( ) Informa ( ) que um atirador (X) dirigiu (X) 6 horas (X) da casa dele (X) até Washington D.C. (X) e abriu (X) fogo (X) em uma pizzaria, ( ) porque ( ) viu (X) notícias (X) online (X) sobre (X) Hillary (X) Clinton… (X) antes (X) das eleições… (X) Fake news (X) são motivadas (X) por questões (X) políticas, (X) famosos, ( ) para ganhar (X) dinheiro, ( ) likes ( ) seguidores. (X) As pessoas ( ) não costumam (X) checar (X) as fake news.

P15 - 25

P16 - (X) Um homem ( ) viajou (X) da sua casa (X) até Washington D.C. (X) onde (X) abriu (X) fogo (X) contra um restaurante. (X) Ele (X) tinha lido (X

) na internet (X) que o local (X) seria (X) o quartel general (X) de um grupo (X) de abusadores (X) de crianças (X) liderado (X) por Hillary (X) Clinton.

P16 - 19

P17 - ( ) O texto ( ) fala (X) sobre ( ) como (X) as fake news ( ) podem ( ) influenciar (X) as pessoas. ( ) Contou (X) a história (X) de um homem (X) que dirigiu (X) horas ( ) para cometer ( ) um crime, ( ) se baseando (X) em falsas (X) histórias (X) divulgadas (X) sobre (X) a Hillary (X) Clinton (X) pouco antes (X) da eleição. ( ) Mostrou ( ) como ( ) esse tipo (X) de site (X) pode (X) dar dinheiro (X) com propagandas. ( ) Por fim ( ) termina ( ) aconselhando (X) as pessoas ( ) a prestarem ( ) mais ( ) atenção (X) no que leem.

P17 - 21

P18 - ( ) Uma pessoa (X) dirigiu (X) por seis horas (X) de sua casa (X) até Washington ( ) para assaltar (X) uma pizzaria (X) motivada (X) por fake news ( ) que envolvia (X) Hillary (X) Clinton. (X) Felizmente (X) ninguém (X) se feriu.(X) As fake news (X) se espalham ( ) por que (X) as pessoas ( ) não (X) se certificam (X) se (X) a notícia (X) é verdadeira.

P18 - 19

P19 - (X) "Fake news" ( ) é algo (X) difícil (X) de controlar ( ) até pela própria ( ) polícia. ( ) Geralmente ( ) estão relacionadas (X) à política (X) e são difíceis ( ) de serem ( ) detectadas. ( ) Devemos ( ) sempre (X) checar (X) os sites ( ) que estamos ( ) consultando ( ) para não ( ) nos enganarmos (X) com "fake news".

P19 – 8

APPENDIX P1 - Comprehension questions answer key for Pre-intermediate Text 1

Responda às perguntas abaixo de acordo com o texto "Digital habits across generations".

1. Segundo o texto, qual geração está utilizando as redes sociais com cada vez mais frequência?
A (geração 0,5) que está (utilizando 0,5) as (redes sociais 0,5) com cada vez (mais 0,5) (frequência 0,5) é a geração dos (avós 0,5), ou o grupo de pessoas acima de 55 anos.

2. Por que algumas pessoas, como Sheila, decidem utilizar as redes sociais?
Elas (decidem usar 0,5) as (redes sociais 0,5) para (ver 0,5) (o que 0,5) seus (netos 0,5) estão (fazendo 0,5), a medida que os filhos postam fotos e vídeos deles. É mais fácil do que esperar por fotos e cartas pelo correio.

3. De acordo com o texto, por que Chloe dorme com seu celular?
(Chloe 0,5) (dorme 0,5) com seu (celular 0,5) (porque 0,5) ela (utiliza 0,5) o aparelho como (despertador 0,5).

4. Qual atividade os adolescentes estão deixando de fazer por passar muito tempo no celular?
Os (adolescentes 0,5) estão (deixando 0,5) de (passar tempo 0,5) com seus (amigos 0,5) na (vida real 0,5) por ficar muito (tempo no celular 0,5).

5. Como Peter se sentia quando estava sempre no celular e no computador?
Peter (sentia 0,5) que estava (sempre 0,5) (trabalhando 0,5) e que não poderia dizer para seus filhos largarem o celular se ele não fazia a mesma coisa. Ele sentia que (não 0,5) estava sendo um (bom 0,5) (exemplo 0,5) para seus filhos.

6. O que Peter faz à noite e aos finais de semana?
À noite e aos finais de semana, Peter (tira 0,5) o (chip 0,5) do seu (celular 0,5), fazendo com que seu aparelho funcione (à moda antiga 0,5), sendo capaz apenas de fazer (ligações 0,5) e enviar (mensagens de texto 0,5).

APPENDIX P2 - Comprehension questions answer key for Pre-intermediate Text 2

Responda às perguntas abaixo de acordo com o texto "The legend of fairies".

1. De onde surgiu a figura moderna das fadas?
A figura (moderna 0,5) das (fadas 0,5) (surgiu 0,5) das obras de (Shakespeare 0,5) e (outras histórias 0,5) dos (séculos 18 e 19 0,5).

2. Segundo o texto, que tipo de objeto não pode ser tocado pelas fadas?
As (fadas 0,5) (não 0,5) (podem 0,5) (tocar 0,5) (objetos 0,5) feitos (de metal 0,5), o que pode estar relacionado a quando tribos com objetos de metal invadiam as terras de pessoas que utilizavam armas de pedra e estas então escapavam e se escondiam na floresta.

3. Qual a explicação que o texto oferece para a crença de que as fadas pregavam peças em humanos?
Que a ideia das fadas está relacionada a situação de (pessoas 0,5) que (viviam 0,5) (à margem da sociedade 0,5) e estas tinham que (se esconder 0,5) e provavelmente (roubavam comida 0,5) e (atacavam vilas 0,5).

4. Centenas de anos atrás, o que as pessoas acreditavam que as fadas faziam com bebês recém-nascidos?
As pessoas (acreditavam 0,5) que as (fadas 0,5) (roubavam 0,5) os (bebês recém-nascidos 0,5) e os (trocava 0,5) por um ('*changeling*', ou um bebê de fada 0,5).

5. Em 1917, o que duas meninas fizeram para fazer com que as pessoas acreditassem em fadas?
Em 1917, duas meninas (forjaram 0,5) (fotos 0,5) em que uma delas aparecia uma (suposta 0,5) (fada 0,5). Elas disseram que criaram as fotos usando (figuras de dançarinas 0,5) que uma delas havia copiado de um (livro 0,5).

6. Quem acreditou na história das meninas sobre as fadas?
(Arthur Conan Doyle, o autor das histórias de detetives de Sherlock Holmes 0,5) (acreditou 0,5) na (história 0,5) das meninas sobre as (fadas 0,5). Ele (publicou 0,5) as (fotos numa revista 0,5) chamada '*The Strand*' em 1920.

APPENDIX P3 - Comprehension questions answer key for Pre-intermediate Text 3

Responda às perguntas abaixo de acordo com o texto "Robot Teachers".

1. Qual o ponto positivo de se realizar uma consulta médica com um robô?
Alguns (pacientes 0,5) podem se (sentir 0,5) (mais confortáveis 0,5) em (compartilhar 0,5) (informações pessoais 0,5) com uma (máquina 0,5) ao invés de com um médico durante a consulta.

2. Segundo o especialista em educação, Anthony Sheldon, o que robôs inteligentes farão em uma sala de aula?
(Anthony Seldon, o especialista em educação 0,5), (acredita 0,5) que os (robôs inteligentes 0,5) farão (o trabalho principal 0,5) de (transferir 0,5) (informações 0,5). Ele serão capazes de ler os movimentos dos rostos dos alunos e até mesmo seus sinais cerebrais, adaptando as informações para cada aluno.

3. Qual a vantagem da possibilidade de utilizar robôs como professores?
Os (robôs 0,5) (podem 0,5) (fazer 0,5) o (trabalho 0,5) (de escritório 0,5), (como utilizar software para organizar e responder e-mails, marcar reuniões e atualizar calendários 0,5).

4. Qual problema ainda é recorrente com relação à educação em algumas partes do mundo?
Em algumas partes do mundo (não 0,5) há (professores suficientes 0,5). E professores no mundo inteiro estão (deixando 0,5) seus empregos porque são (difíceis 0,5) e porque eles se (sentem 0,5) (sobrecarregados 0,5).

5. Segundo o texto, o que costuma acontecer com professores que não aconteceria com robôs?
Os (professores 0,5) ficam (estressados 0,5) ou (cansados 0,5) e às vezes (procuram empregos 0,5) (mais fáceis 0,5) e que (pagam melhor 0,5). Isso não aconteceria com robôs.

6. Como os robôs podem ajudar os professores a terem um melhor desempenho?
Se os (robôs 0,5) pudessem ser (utilizados 0,5) para (corrigir as tarefas e escrever relatórios 0,5), os (professores 0,5) teriam (mais tempo e energia 0,5) para aquilo que (os humanos fazem melhor 0,5).

APPENDIX P4 - Comprehension questions answer key for Advanced Text 1

Responda às perguntas abaixo de acordo com o texto "Do you have the right mindset?".

1. Como a psicóloga Carol Dweck testou o grupo de crianças?
Ela deu alguns (problemas 0,5) que eram um pouco (difíceis 0,5) para (um grupo 0,5) (de crianças 0,5) de 10 anos de idade. Os problemas estavam um pouco (acima 0,5) do nível de dificuldade apropriado para crianças desta (idade 0,5).

2. O que o grupo de crianças que reagiu positivamente disse?
Eles disseram que (adoravam 0,5) (desafios 0,5) e que (entendiam 0,5) que suas (habilidades 0,5) (poderiam 0,5) ser (desenvolvidas 0,5).

3. O que a psicóloga Carol Dweck disse sobre o grupo de crianças que reagiu positivamente?
Ela disse que as crianças tinham uma (mentalidade 0,5) de (crescimento 0,5) e que elas são (focadas 0,5) no que elas (conseguem 0,5) (alcançar 0,5) no (futuro 0,5).

4. O que o grupo de crianças que reagiu negativamente disse?
Algumas disseram que poderiam (trapacear 0,5) no (futuro 0,5), já que não foram tão bem no teste, outras procuraram (alguém 0,5) que tinha tirado uma (nota menor 0,5) para (aumentar 0,5) sua (auto-estima 0,5).

5. O que torna as crianças vulneráveis a falhas?
Quando as crianças são (elogiadas 0,5) por sua inteligência ou talento, elas se tornam (orientadas 0,5) para o (desempenho 0,5) e buscar agradar tirando (notas altas 0,5), mas elas não estão necessariamente (interessadas 0,5) na (aprendizagem 0,5) por si mesmos.

6. Qual é a solução oferecida por Dweck para o problema da educação?
(Elogiar 0,5) o (processo 0,5) em que as crianças estão envolvidas: fazendo um esforço e usando estratégias de aprendizagem, perseverando e melhorando. Desta forma, eles se tornarão (orientados 0,5) para o (domínio 0,5), isto é, interessados e (melhorar 0,5) alguma coisa e (alcançarão mais 0,5).

APPENDIX P5 - Comprehension questions answer key for Advanced Text 2

Responda às perguntas abaixo de acordo com o texto "Me and my brain".

1. De acordo com o texto, o que muda no nosso corpo durante a adolescência?
Durante a adolescência, o nosso (cérebro 0,5) passa pela (fase 0,5) de (desenvolvimento 0,5) mais dramática, quando o cérebro testemunha um (aumento 0,5) (súbito 0,5) de (neurônios 0,5).

2. O que acontece no nosso cérebro toda vez que pensamos em alguma coisa?
Toda vez que pensamos em alguma coisa, um (sinal 0,5) é (transmitido 0,5). Esse sinal (viaja 0,5) por uma longa (estrutura 0,5) chamada axônio e, no final, passa por pequenas lacunas chamadas sinapses até os dentritos de outros (neurônios 0,5), que (recebem 0,5) o sinal.

3. Como é o cérebro de bebês recém-nascidos?
O (cérebro 0,5) de bebês (recém-nascidos 0,5) tem (quase todos 0,5) os seus (neurônios 0,5), mas (poucas conexões 0,5) entre eles, o que explica porque eles não conseguem fazer muita coisa.

4. Em que fase do desenvolvimento acontecem mais mudanças significativas no nosso cérebro?
A (fase 0,5) do (desenvolvimento 0,5) na qual acontecem mais (mudanças 0,5) (significativas 0,5) no nosso (cérebro 0,5) é durante a (puberdade 0,5).

5. Por que fazemos a poda de plantas?
Nós (podamos 0,5) as (plantas 0,5) para (torná-las 0,5) (mais 0,5) (fortes 0,5) e (saudáveis 0,5).

6. De acordo com o texto, qual parte do cérebro os adolescentes utilizam para tomar decisões?
Como o (córtex 0,5) (frontal 0,5), que é a parte do cérebro responsável pela tomada de decisões ainda está em (desenvolvimento 0,5) no cérebro adolescentes, estes (usam 0,5) o (centro 0,5) (emocional 0,5) para fazer escolhas e pensar.

APPENDIX P6 - Comprehension questions answer key for Advanced Text 3

Responda às perguntas abaixo de acordo com o texto "The rise of fake news".

1. O que aconteceu em dezembro de 2016?

Em dezembro de 2016, (Edgar 0,5) M. Welch (dirigiu 0,5) seis horas desde sua casa até (Washington D. C. 0,5), onde ele (abriu fogo 0,5) em uma (pizzaria 0,5) com um (rifle de assalto 0,5) porque ele havia lido uma notícia online dizendo que o restaurante era a sede de um grupo de molestadores de crianças comandados por Hillary Clinton.

2. Alguém se machucou no incidente em Washington?

(Não 0,5), (ninguém 0,5) se (machucou 0,5) no (incidente 0,5) em (Washington 0,5), (felizmente 0,5).

3. Quando a história da pizzaria começou a aparecer?

A (teoria de conspiração 0,5) sobre a (pizzaria 0,5) (começou 0,5) a (aparecer 0,5) em páginas e redes sociais (no final de outubro 0,5), (antes da eleição 0,5) americana.

4. Que publicações denunciaram a história da pizzaria?

A (história 0,5) da (pizzaria 0,5) foi (denunciada 0,5) pelas (publicações 0,5) ('*The New York Times*' 0,5) e ('*Washington Post*' 0,5).

5. Por que alguns sites, como o The Onion, criam notícias falsas?

(Sites como o The Onion 0,5) (criam 0,5) (notícias falsas 0,5) deliberadamente como (sátiras 0,5), ou seja, (comentários 0,5) (humorísticos 0,5) sobre a sociedade e temas atuais.

6. Segundo o texto, por que os adolescentes da Macedonia criaram uma notícia falsa sobre Donald Trump?

Os (adolescentes da Macedonia 0,5) (criaram 0,5) (uma notícia falsa 0,5) sobre (Donald Trump 0,5) motivados por (dinheiro 0,5) e (tédio 0,5).

APPENDIX Q1 - Consent forms (Underage participants)[52]

UNIVERSIDADE FEDERAL DE SANTA CATARINA

PROGRAMA DE PÓS-GRADUAÇÃO EM INGLÊS: ESTUDOS LINGUÍSTICOS E LITERÁRIOS
Termo de Assentimento Livre e Esclarecido (TALE) - Alunos Menores de Idade

Prezado(a) aluno(a):

Sou **Tatiana Koerich Rondon**, estudante de **Mestrado da Universidade Federal de Santa Catarina**. Faço pesquisa na área de leitura e cognição e sou orientada pela professora **Lêda Maria Braga Tomitch**. Sou professora de inglês no Sesc - Unidade Estreito Florianópolis desde 2013.

Convidamos você para ser participante da pesquisa: **"Ativação de Esquemas e Memória de Trabalho: O Efeito de Diferentes Atividades de Pré-Leitura na Compreensão Leitora de Estudantes de Inglês como Língua Estrangeira nos Níveis Pré-Intermediário e Avançado"**. Explicaremos os detalhes abaixo.

Por que esta pesquisa está sendo realizada?
Ao trabalhar com compreensão de textos, o professor pode facilitar a leitura utilizando atividades de pré-leitura e assim contribuir para que fatores como diferenças na capacidade de memória de trabalho e conhecimento prévio tenham um impacto menor no desempenho dos alunos.
Temos como objetivo investigar como diferentes atividades de pré-leitura influenciam a compreensão leitora de alunos de inglês como língua estrangeira nos níveis pré-intermediário e avançado.

Que atividades serão realizadas?
As atividades serão divididas em **seis etapas** (descritas abaixo) e realizadas nas próprias dependências do Sesc, em dois encontros realizados durante as aulas, sem prejuízo para o andamento do curso. As atividades serão aplicadas pela própria pesquisadora. Informamos que a realização das atividades foi devidamente autorizada pelo Sesc e que, caso você e/ou seus pais ou responsáveis decida(m) não participar da pesquisa, os dados obtidos nas atividades não serão utilizados pelas pesquisadoras, sem prejuízo para você.

Na etapa 1 você responderá a um questionário sobre seu perfil como leitor(a); **na etapa 2** você realizará um teste para verificar sua proficiência em Língua Inglesa, respondendo a questões de múltipla escolha que envolvem a habilidade de leitura; **na etapa 3** você realizará

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[52] The TCLEs used in this study were based on Roscioli (2017).

um teste de memória, envolvendo a leitura de frases em língua portuguesa e, logo após, você descreverá por escrito suas impressões ao realizar esse teste; **na etapa 4** você lerá um texto, tentará lembrar de suas ideias principais, responderá seis perguntas de compreensão sobre ele e, logo após, você descreverá por escrito suas impressões ao realizar as atividades desta etapa; **na etapa 5** você participará de uma atividade de pré-leitura, lerá um texto relacionado a esta atividade, tentará lembrar de suas ideias principais, responderá seis perguntas de compreensão sobre ele e, logo após, você descreverá por escrito suas impressões ao realizar as atividades desta etapa; por fim, **na etapa 6**, você realizará as mesmas atividades descritas na quinta parte, porém, com uma atividade de pré-leitura diferente. No primeiro encontro você realizará as etapas 1, 2 e 3 enquanto que no segundo encontro serão realizadas as etapas 4, 5 e 6.

Haverá algum risco envolvido na realização dessas atividades?
Na verdade, estas atividades são muito parecidas com aquelas que você já realiza nas aulas de inglês, por isso, os riscos são mínimos. O que pode acontecer é você ficar um pouco ansioso(a) ou talvez se sentir constrangido(a), pois essa geralmente é a reação que as pessoas têm quando pensam que podem ter suas limitações expostas.
Com relação ao teste de memória, para evitar que você se sinta ansioso(a) e/ou constrangido(a), você receberá instruções bem detalhadas e realizará sessões de treino antes do teste propriamente dito.
Quanto aos testes de leitura, das etapas 4, 5 e 6, salientamos que, apesar de envolverem textos escritos em inglês, as perguntas de compreensão estarão escritas em português e devem ser respondidas nessa língua, o que pode ajudá-lo(a) a ficar menos ansioso(a).
Já com relação aos questionários, você também poderá se sentir cansado(a) ou aborrecido(a) ao respondê-los. Para evitar que isso aconteça, as perguntas que compõem os questionários foram testadas e apenas aquelas consideradas importantes foram mantidas, tornando assim o seu preenchimento mais rápido.
E, finalmente, quanto à quebra de sigilo, para prevenir a exposição dos participantes, informamos que todos os dados serão confidenciais. Ressaltamos que sempre existe a possibilidade da quebra do sigilo, mesmo que remota e não intencional, cujas consequências serão tratadas nos termos da lei. Informamos ainda que os resultados dessa pesquisa poderão ser utilizados em apresentações de trabalho e artigos científicos, sem revelar os nomes dos participantes e da instituição de forma a proteger a sua privacidade.

E haverá algum benefício?
Sim. As atividades de leitura que você realizará podem ajudá-lo a conhecer o seu perfil leitor, a saber como está o seu conhecimento de inglês na habilidade de leitura e a desenvolver essa habilidade, auxiliando-o(a) no processo de ativação e construção de conhecimento necessário para compreender textos nesse idioma. Quanto ao teste de memória, destacamos que não há nenhum benefício decorrente desta atividade.

A sua identidade será revelada?
Não. Como mencionamos anteriormente, todos os seus dados serão confidenciais, ou seja, seu nome não será divulgado. Você e os demais participantes serão identificados como 'Participante 1, Participante 2, 3, 4...'.

Haverá acompanhamento de alguém em caso de necessidade?
Sim. Em todas as etapas você terá o meu acompanhamento. Quaisquer dúvidas ou dificuldades serão atendidas prontamente.

Você, seus pais, ou responsáveis terão acesso aos resultados da pesquisa?
Sim. após a coleta e a análise dos dados informaremos quais foram as conclusões obtidas com o estudo através de um relatório impresso que será entregue a cada participantes, que em particular poderá tirar dúvidas sobre seu desempenho.

A participação nessa coleta de dados é obrigatória?
Não. A sua participação é totalmente voluntária. Este documento se trata de um convite. Se você não desejar participar, sua decisão será respeitada e isso não afetará a sua relação com o Sesc, nem tampouco as suas notas.

Haverá alguma despesa para quem decide participar?
Não. A coleta de dados ocorrerá no Sesc mesmo e em horário de aula, portanto, não haverá despesas extras com transporte ou alimentação. Mesmo assim, as pesquisadoras se comprometem a ressarcir quaisquer despesas eventuais que possam vir a ocorrer e que sejam decorrentes da participação na pesquisa. No caso de alguma eventualidade em que a coleta de dados ocorra em horário em que o(a) aluno(a) não precisaria estar no Sesc, as despesas com transporte e alimentação serão devidamente ressarcidas.

Haverá compensação financeira para os participantes?
Não. Esclarecemos que não haverá compensação financeira em função da sua participação na pesquisa, mas as pesquisadoras se comprometem a garantir indenização diante de eventuais danos comprovadamente decorrentes da pesquisa.

É possível desistir de participar depois de ter aceitado?
Sim. Mesmo que você tenha aceitado participar da pesquisa, e por qualquer razão queira desistir, você poderá fazê-lo a qualquer momento, sem prejuízo em suas notas e sem problemas de relação com a escola. Basta que me comunique através do telefone (48) 99145-9634, ou mesmo pessoalmente no Sesc.

Em caso de outras dúvidas, com quem se deve entrar em contato?
Em caso de dúvidas ou sugestões, o contato pode ser feito através do endereço: Rua Maria Vieira dos Santos, n 818, casa 2 | São Sebastião | CEP: 88136-220 | Palhoça/SC, e de meu e-mail (tati.koerich@gmail.com) ou do e-mail de minha orientadora (leda@cce.ufsc.br).

Se você precisar entrar em contato com o Comitê de Ética em Pesquisa com Seres Humanos - CEPSH-UFSC, que é o departamento que aprova a realização deste tipo de pesquisa, você pode escolher uma das seguintes formas de contato:
Comitê de Ética em Pesquisas com Seres Humanos - CEPSH - UFSC
Rua Desembargador Vitor Lima, n 222, sala 401, Trindade, Florianópolis/SC
CEP 88.040-400
Contato: (48) 3721-6094
cep.propesq@contato.ufsc.br

Esta pesquisa cumpre todas as exigências legais necessárias?
Sim. Declaramos para os devidos fins e efeitos legais que cumpriremos os termos das Resoluções CNS 466/12, CNS 510/16 e complementares, que são os documentos que normatizam a realização deste tipo de pesquisa no Brasil.

Este documento deverá ser assinado em duas vias, todas as páginas rubricadas, ficando uma via com você e outra com a pesquisadora. Assinando a Declaração de Assentimento Pós-Informação abaixo, você estará assentindo com o uso dos seus dados coletados para a pesquisa. Guarde cuidadosamente a sua via, pois é um documento que traz importantes informações de contato e garante os seus direitos como participante da pesquisa. Muito obrigada!

Declaração de Assentimento Pós-Informação:

Eu, _____ (nome completo), declaro que li as informações do presente Formulário de Assentimento Livre e Esclarecido, referente à pesquisa intitulada **Ativação de Esquemas e Memória de Trabalho: O Efeito de Diferentes Atividades de Pré-Leitura na Compreensão Leitora de Estudantes de Inglês como Língua Estrangeira nos Níveis Pré-Intermediário e Avançado**, e concordo em participar da presente pesquisa por livre e espontânea vontade, bem como autorizo a divulgação e a publicação de toda informação por mim transmitida. Além disso, declaro que quando necessário, fiz perguntas e recebi esclarecimentos.

_____
Assinatura do Participante

CPF: _____

Assinatura das Pesquisadoras

_____   _____
Tatiana Koerich Rondon   Lêda Maria Braga Tomitch
Pesquisadora   Orientadora/Responsável

Florianópolis, _____ de _____ de 2019

APPENDIX Q2 - Consent forms (Adult participants)[53]

UNIVERSIDADE FEDERAL DE SANTA CATARINA

PROGRAMA DE PÓS-GRADUAÇÃO EM INGLÊS: ESTUDOS LINGUÍSTICOS E LITERÁRIOS
Termo de Consentimento Livre e Esclarecido (TCLE) - Alunos Maiores de Idade

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Que atividades serão realizadas?
As atividades serão divididas em **seis etapas** (descritas abaixo) e realizadas nas próprias dependências do Sesc, em dois encontros realizados durante as aulas, sem prejuízo para o andamento do curso. As atividades serão aplicadas pela própria pesquisadora. Informamos que a realização das atividades foi devidamente autorizada pelo Sesc e que, caso você e/ou seus pais ou responsáveis decida(m) não participar da pesquisa, os dados obtidos nas atividades não serão utilizados pelas pesquisadoras, sem prejuízo para você.

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[53] The TCLEs used in this study were based on Roscioli (2017).

Na etapa 1 você responderá a um questionário sobre seu perfil como leitor(a); **na etapa 2** você realizará um teste para verificar sua proficiência em Língua Inglesa, respondendo a questões de múltipla escolha que envolvem a habilidade de leitura; **na etapa 3** você realizará um teste de memória, envolvendo a leitura de frases em língua portuguesa e, logo após, você descreverá por escrito suas impressões ao realizar esse teste; **na etapa 4** você lerá um texto, tentará lembrar de suas ideias principais, responderá seis perguntas de compreensão sobre ele e, logo após, você descreverá por escrito suas impressões ao realizar as atividades desta etapa; **na etapa 5** você participará de uma atividade de pré-leitura, lerá um texto relacionado a esta atividade, tentará lembrar de suas ideias principais, responderá seis perguntas de compreensão sobre ele e, logo após, você descreverá por escrito suas impressões ao realizar as atividades desta etapa; por fim, **na etapa 6**, você realizará as mesmas atividades descritas na quinta parte, porém, com uma atividade de pré-leitura diferente. No primeiro encontro você realizará as etapas 1, 2 e 3 enquanto que no segundo encontro serão realizadas 4, 5 e 6.

Haverá algum risco envolvido na realização dessas atividades?
Na verdade, estas atividades são muito parecidas com aquelas que você já realiza nas aulas de inglês, por isso, os riscos são mínimos. O que pode acontecer é você ficar um pouco ansioso(a) ou talvez se sentir constrangido(a), pois essa geralmente é a reação que as pessoas têm quando pensam que podem ter suas limitações expostas.
Com relação ao teste de memória, para evitar que você se sinta ansioso(a) e/ou constrangido(a), você receberá instruções bem detalhadas e realizará sessões de treino antes do teste propriamente dito.
Quanto aos testes de leitura, das etapas 4, 5 e 6, salientamos que, apesar de envolverem textos escritos em inglês, as perguntas de compreensão estarão escritas em português e devem ser respondidas nessa língua, o que pode ajudá-lo(a) a ficar menos ansioso(a).
Já com relação aos questionários, você também poderá se sentir cansado(a) ou aborrecido(a) ao respondê-los. Para evitar que isso aconteça, as perguntas que compõem os questionários foram testadas e apenas aquelas consideradas importantes foram mantidas, tornando assim o seu preenchimento mais rápido.
E, finalmente, quanto à quebra de sigilo, para prevenir a exposição dos participantes, informamos que todos os dados serão confidenciais. Ressaltamos que sempre existe a possibilidade da quebra do sigilo, mesmo que remota e não intencional, cujas consequências serão tratadas nos termos da lei. Informamos ainda que os resultados dessa pesquisa poderão ser utilizados em apresentações de trabalho e artigos científicos, sem revelar os nomes dos participantes e da instituição de forma a proteger a sua privacidade.

E haverá algum benefício?
Sim. As atividades de leitura que você realizará podem ajudá-lo a conhecer o seu perfil leitor, a saber como está o seu conhecimento de inglês na habilidade de leitura e a desenvolver essa habilidade, auxiliando-o(a) no processo de ativação e construção de conhecimento necessário para compreender textos nesse idioma. Quanto ao teste de memória, destacamos que não há nenhum benefício decorrente desta atividade.

A sua identidade será revelada?
Não. Como mencionamos anteriormente, todos os seus dados serão confidenciais, ou seja, seu nome não será divulgado. Você e os demais participantes serão identificados como 'Participante 1, Participante 2, 3, 4…'.

Haverá acompanhamento de alguém em caso de necessidade?

Sim. Em todas as etapas você terá o meu acompanhamento. Quaisquer dúvidas ou dificuldades serão atendidas prontamente.

Você, seus pais, ou responsáveis terão acesso aos resultados da pesquisa?
Sim. após a coleta e a análise dos dados informaremos quais foram as conclusões obtidas com o estudo através de um relatório impresso que será entregue a cada participantes, que em particular poderá tirar dúvidas sobre seu desempenho.

A participação nessa coleta de dados é obrigatória?
Não. A sua participação é totalmente voluntária. Este documento se trata de um convite. Se você não desejar participar, sua decisão será respeitada e isso não afetará a sua relação com o Sesc, nem tampouco as suas notas.

Haverá alguma despesa para quem decide participar?
Não. A coleta de dados ocorrerá no Sesc mesmo e em horário de aula, portanto, não haverá despesas extras com transporte ou alimentação. Mesmo assim, as pesquisadoras se comprometem a ressarcir quaisquer despesas eventuais que possam vir a ocorrer e que sejam decorrentes da participação na pesquisa. No caso de alguma eventualidade em que a coleta de dados ocorra em horário em que o(a) aluno(a) não precisaria estar no Sesc, as despesas com transporte e alimentação serão devidamente ressarcidas.

Haverá compensação financeira para os participantes?
Não. Esclarecemos que não haverá compensação financeira em função da sua participação na pesquisa, mas as pesquisadoras se comprometem a garantir indenização diante de eventuais danos comprovadamente decorrentes da pesquisa.

É possível desistir de participar depois de ter aceitado?
Sim. Mesmo que você tenha aceitado participar da pesquisa, e por qualquer razão queira desistir, você poderá fazê-lo a qualquer momento, sem prejuízo em suas notas e sem problemas de relação com a escola. Basta que me comunique através do telefone (48) 99145-9634, ou mesmo pessoalmente no Sesc.

Em caso de outras dúvidas, com quem se deve entrar em contato?
Em caso de dúvidas ou sugestões, o contato pode ser feito através do endereço: Rua Maria Vieira dos Santos, n 818, casa 2 | São Sebastião | CEP: 88136-220 | Palhoça/SC, e de meu e-mail (tati.koerich@gmail.com) ou do e-mail de minha orientadora (leda@cce.ufsc.br).

Se você precisar entrar em contato com o Comitê de Ética em Pesquisa com Seres Humanos - CEPSH-UFSC, que é o departamento que aprova a realização deste tipo de pesquisa, você pode escolher uma das seguintes formas de contato:
Comitê de Ética em Pesquisas com Seres Humanos - CEPSH - UFSC
Rua Desembargador Vitor Lima, n 222, sala 401, Trindade, Florianópolis/SC
CEP 88.040-400
Contato: (48) 3721-6094
cep.propesq@contato.ufsc.br

Esta pesquisa cumpre todas as exigências legais necessárias?

Sim. Declaramos para os devidos fins e efeitos legais que cumpriremos os termos das Resoluções CNS 466/12, CNS 510/16 e complementares, que são os documentos que normatizam a realização deste tipo de pesquisa no Brasil.

Este documento deverá ser assinado em duas vias, todas as páginas rubricadas, ficando uma via com você e outra com a pesquisadora. Assinando a Declaração de Consentimento Pós-Informação abaixo, você estará consentindo com o uso dos dados coletados para a pesquisa. Guarde cuidadosamente a sua via, pois é um documento que traz importantes informações de contato e garante os seus direitos como participante da pesquisa. Muito obrigada!

Declaração de Consentimento Pós-Informação:

Eu, _____ (nome completo), declaro que li as informações do presente Formulário de Consentimento Livre e Esclarecido, referente à pesquisa intitulada **Ativação de Esquemas e Memória de Trabalho: O Efeito de Diferentes Atividades de Pré-Leitura na Compreensão Leitora de Estudantes de Inglês como Língua Estrangeira nos Níveis Pré-Intermediário e Avançado**, e concordo em participar da presente pesquisa por livre e espontânea vontade, bem como autorizo a divulgação e a publicação de toda informação por mim transmitida. Além disso, declaro que quando necessário, fiz perguntas e recebi esclarecimentos.

_____
Assinatura do Participante

CPF: _____

Assinatura das Pesquisadoras

_____   _____
Tatiana Koerich Rondon   Lêda Maria Braga Tomitch
Pesquisadora   Orientadora/Responsável

Florianópolis, _____ de _____ de 2019

APPENDIX Q3 - Consent forms (Parents or legal representative)[54]

UNIVERSIDADE FEDERAL DE SANTA CATARINA

PROGRAMA DE PÓS-GRADUAÇÃO EM INGLÊS: ESTUDOS LINGUÍSTICOS E LITERÁRIOS
Termo de Consentimento Livre e Esclarecido (TCLE) - Pais e Responsáveis Legais

Prezado Sr.(Sra.):

Sou **Tatiana Koerich Rondon**, estudante de **Mestrado da Universidade Federal de Santa Catarina**. Faço pesquisa na área de leitura e cognição e sou orientada pela professora **Lêda Maria Braga Tomitch**. Sou professora de inglês no Sesc - Unidade Estreito Florianópolis desde 2013.

Convidamos seu filho(a), ou menor pelo qual o Sr.(Sra.) é responsável para ser participante da pesquisa: **"Ativação de Esquemas e Memória de Trabalho: O Efeito de Diferentes Atividades de Pré-Leitura na Compreensão Leitora de Estudantes de Inglês como Língua Estrangeira nos Níveis Pré-Intermediário e Avançado"**. Explicaremos os detalhes abaixo.

Por que esta pesquisa está sendo realizada?
Ao trabalhar com compreensão de textos, o professor pode facilitar a leitura utilizando atividades de pré-leitura e assim contribuir para que fatores como diferenças na capacidade de memória de trabalho e conhecimento prévio tenham um impacto menor no desempenho dos alunos.
Temos como objetivo investigar como diferentes atividades de pré-leitura influenciam a compreensão leitora de alunos de inglês como língua estrangeira nos níveis pré-intermediário e avançado.

Que atividades serão realizadas?
As atividades serão divididas em **seis etapas** (descritas abaixo) e realizadas nas próprias dependências do Sesc, em dois encontros realizados durante as aulas, sem prejuízo para o andamento do curso do seu filho(a). As atividades serão aplicadas pela própria pesquisadora. Informamos que a realização das atividades foi devidamente autorizada pelo Sesc e que, caso o(a) Sr./Sra. e/ou seu(sua) filho(a) decida(m) não participar da pesquisa, os dados obtidos nas atividades não serão utilizados pelas pesquisadoras, sem prejuízo para seu filho(a).

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[54] The TCLEs used in this study were based on Roscioli (2017).

Na etapa 1 seu(sua) filho(a) responderá a um questionário sobre seu perfil como leitor(a); **na etapa 2** será realizado um teste para verificar a proficiência em Língua Inglesa dos participantes que responderão a questões de múltipla escolha que envolvem a habilidade de leitura; **na etapa 3** seu(sua) filho(a) realizará um teste de memória, envolvendo a leitura de frases em língua portuguesa e, logo após ele/ela descreverá por escrito suas impressões a respeito do teste; **na etapa 4** os participantes lerão um texto, tentarão lembrar de suas ideias principais, responderão seis perguntas de compreensão sobre ele e, logo após, os participantes descreverão por escrito suas impressões ao realizar as atividades desta etapa; **na etapa 5** seu(sua) filho(a) participará de uma atividade de pré-leitura, lerá um texto relacionado a esta atividade, tentará lembrar de suas ideias principais, responderá seis perguntas de compreensão e, logo após, ele/ela descreverá por escrito suas impressões ao realizar as atividades desta etapa; por fim, **na etapa 6**, seu(sua) filho(a) realizará as mesmas atividades descritas na quinta parte, porém, com uma atividade de pré-leitura diferente. No primeiro encontro serão realizadas as etapas 1, 2 e 3 enquanto que no segundo encontro serão realizadas as etapas 4, 5 e 6.

Haverá algum risco envolvido na realização dessas atividades?
Na verdade, estas atividades são muito parecidas com aquelas que seu/sua filho(a) já realiza nas aulas de inglês, por isso, os riscos são mínimos. O que pode acontecer é ele/ela ficar um pouco ansioso(a) ou talvez se sentir constrangido(a), pois essa geralmente é a reação que as pessoas têm quando pensam que podem ter suas limitações expostas.
Com relação ao teste de memória, para evitar que ele/ela se sinta ansioso e/ou constrangido(a), ele/ela receberá instruções bem detalhadas e realizará sessões de treino antes do teste propriamente dito.
Quanto aos testes de leitura, das etapas 4, 5 e 6, salientamos que, apesar de envolverem textos escritos em inglês, as perguntas de compreensão estarão escritas em português e devem ser respondidas nessa língua, o que pode ajudar seu filho(a) a ficar menos ansioso(a).
Já com relação aos questionários, ele/ela também poderá se sentir cansado(a) ou aborrecido(a) ao respondê-los. Para evitar que isso aconteça, as perguntas que compõem os questionários foram testadas e apenas aquelas consideradas importantes foram mantidas, tornando assim o seu preenchimento mais rápido.
E, finalmente, quanto à quebra de sigilo, para prevenir a exposição dos participantes, informamos que todos os dados serão confidenciais. Ressaltamos que sempre existe a possibilidade da quebra do sigilo, mesmo que remota e não intencional, cujas consequências serão tratadas nos termos da lei. Informamos ainda que os resultados dessa pesquisa poderão ser utilizados em apresentações de trabalho e artigos científicos, sem revelar os nomes dos participantes e da instituição de forma a proteger a sua privacidade.

E haverá algum benefício?
Sim. As atividades de leitura que você realizará podem ajudá-lo a conhecer o seu perfil leitor, a saber como está o seu conhecimento de inglês na habilidade de leitura e a desenvolver essa habilidade, auxiliando-o(a) no processo de ativação e construção de conhecimento necessário para compreender textos nesse idioma. Quanto ao teste de memória, destacamos que não há nenhum benefício decorrente desta atividade.

A identidade dos participantes será revelada?
Não. Como mencionamos anteriormente, todos os dados serão confidenciais, ou seja, os nomes não serão divulgados. Os participantes serão identificados como 'Participante 1, Participante 2, 3, 4…'.

Haverá acompanhamento de alguém em caso de necessidade?
Sim. Em todas as etapas os participantes terão o meu acompanhamento. Quaisquer dúvidas ou dificuldades serão atendidas prontamente.

Os participantes, seus pais, ou responsáveis terão acesso aos resultados da pesquisa?
Sim. após a coleta e a análise dos dados informaremos quais foram as conclusões obtidas com o estudo através de um relatório impresso que será entregue a cada participantes, que em particular poderá tirar dúvidas sobre seu desempenho.

A participação nessa coleta de dados é obrigatória?
Não. A participação é totalmente voluntária. Este documento se trata de um convite. Se o aluno(a) não desejar participar, sua decisão será respeitada e isso não afetará a sua relação com o Sesc, nem tampouco as suas notas.

Haverá alguma despesa para quem decide participar?
Não. A coleta de dados ocorrerá no Sesc mesmo e em horário de aula, portanto, não haverá despesas extras com transporte ou alimentação. Mesmo assim, as pesquisadoras se comprometem a ressarcir quaisquer despesas eventuais que possam vir a ocorrer e que sejam decorrentes da participação na pesquisa. No caso de alguma eventualidade em que a coleta de dados ocorra em horário em que o(a) aluno(a) não precisaria estar no Sesc, as despesas com transporte e alimentação serão devidamente ressarcidas.

Haverá compensação financeira para os participantes?
Não. Esclarecemos que não haverá compensação financeira em função da participação na pesquisa, mas as pesquisadoras se comprometem a garantir indenização diante de eventuais danos comprovadamente decorrentes da pesquisa.

É possível desistir de participar depois de ter aceitado?
Sim. Mesmo que o(a) aluno(a) tenha aceitado participar da pesquisa, e por qualquer razão queira desistir, você poderá fazê-lo a qualquer momento.
Os senhores também poderão cancelar essa autorização a qualquer momento. Caso isso ocorra, não haverá prejuízo para o(a) aluno(a) em termos de notas, e nem mesmo problemas de relação com a escola. Basta que me comuniquem através do telefone (48) 99145-9634, ou pessoalmente no Sesc.

Em caso de outras dúvidas, com quem se deve entrar em contato?
Em caso de dúvidas ou sugestões, o contato pode ser feito através do endereço: Rua Maria Vieira dos Santos, n 818, casa 2 | São Sebastião | CEP: 88136-220 | Palhoça/SC, e de meu e-mail (tati.koerich@gmail.com) ou do e-mail de minha orientadora (leda@cce.ufsc.br).

Se você precisar entrar em contato com o Comitê de Ética em Pesquisa com Seres Humanos - CEPSH-UFSC, que é o departamento que aprova a realização deste tipo de pesquisa, você pode escolher uma das seguintes formas de contato:
Comitê de Ética em Pesquisas com Seres Humanos - CEPSH - UFSC
Rua Desembargador Vitor Lima, n 222, sala 401, Trindade, Florianópolis/SC
CEP 88.040-400
Contato: (48) 3721-6094
cep.propesq@contato.ufsc.br

Esta pesquisa cumpre todas as exigências legais necessárias?
Sim. Declaramos para os devidos fins e efeitos legais que cumpriremos os termos das Resoluções CNS 466/12, CNS 510/16 e complementares, que são os documentos que normatizam a realização deste tipo de pesquisa no Brasil.

Este documento deverá ser assinado em duas vias, todas as páginas rubricadas, ficando uma via com você e outra com a pesquisadora. Assinando a Declaração de Consentimento Pós-Informação abaixo, você estará permitindo o uso dos dados coletados do(da) menor pelo qual o Sr./Sra. é responsável para a pesquisa. Guarde cuidadosamente a sua via, pois é um documento que traz importantes informações de contato e garante os seus direitos como participante da pesquisa. Muito obrigada!

Declaração de Consentimento Pós-Informação:

Eu, _____ (nome completo), responsável legal do(a) menor _____
_____ declaro que li as informações do presente Formulário de Consentimento Livre e Esclarecido, referente à pesquisa intitulada **Ativação de Esquemas e Memória de Trabalho: O Efeito de Diferentes Atividades de Pré-Leitura na Compreensão Leitora de Estudantes de Inglês como Língua Estrangeira nos Níveis Pré-Intermediário e Avançado** e, por livre e espontânea vontade, concordo que meu/minha filho(a) participe da presente pesquisa, bem como autorizo a divulgação e a publicação de toda informação por ele(a) transmitida. Além disso, declaro que quando necessário, fiz perguntas e recebi esclarecimentos.

_____
Assinatura do responsável

CPF: _____

Assinatura das Pesquisadoras

_____   _____
Tatiana Koerich Rondon   Lêda Maria Braga Tomitch
Pesquisadora   Orientadora/Responsável

Florianópolis, _____ de _____ de 2019

APPENDIX R1 – Histograms for participants' age

Pre-intermediate - Age

Advanced - Age
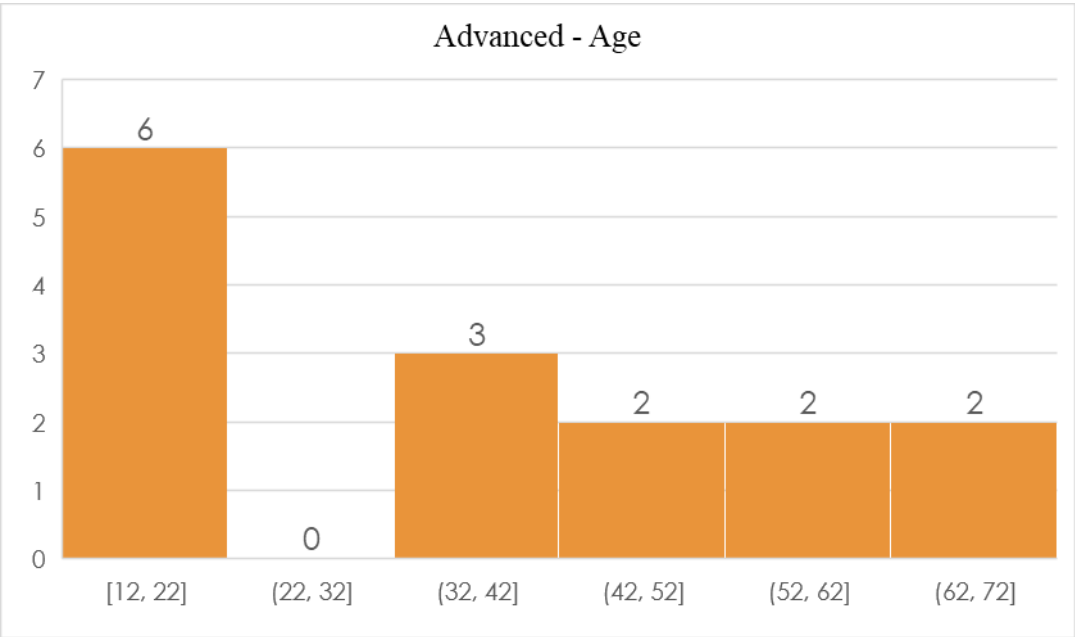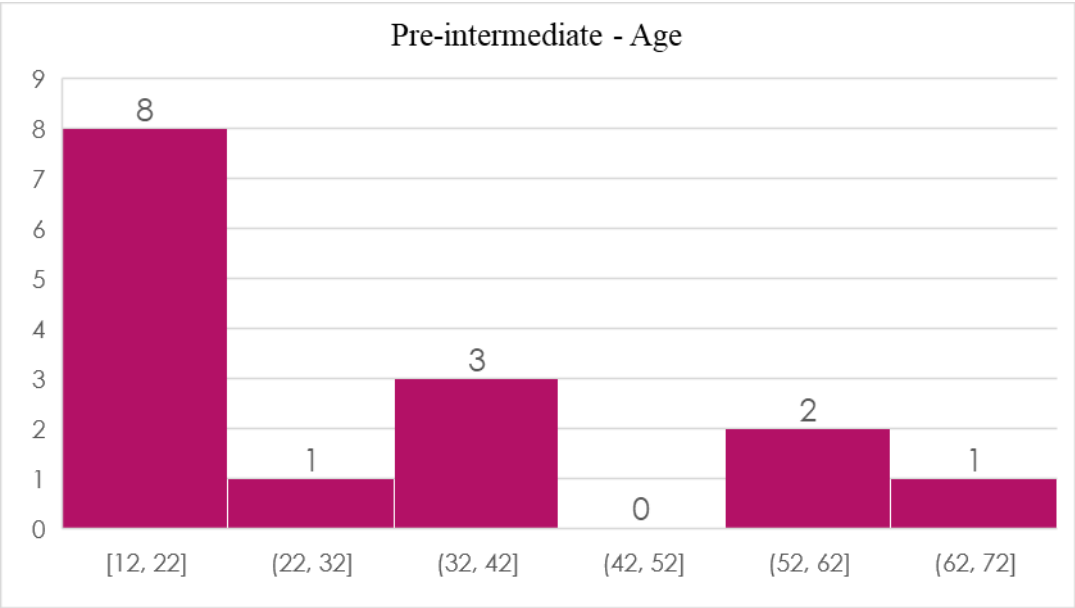
APPENDIX R2 – Histograms for participants' proficiency

Pre-intermediate - Proficiency

Advanced - Proficiency
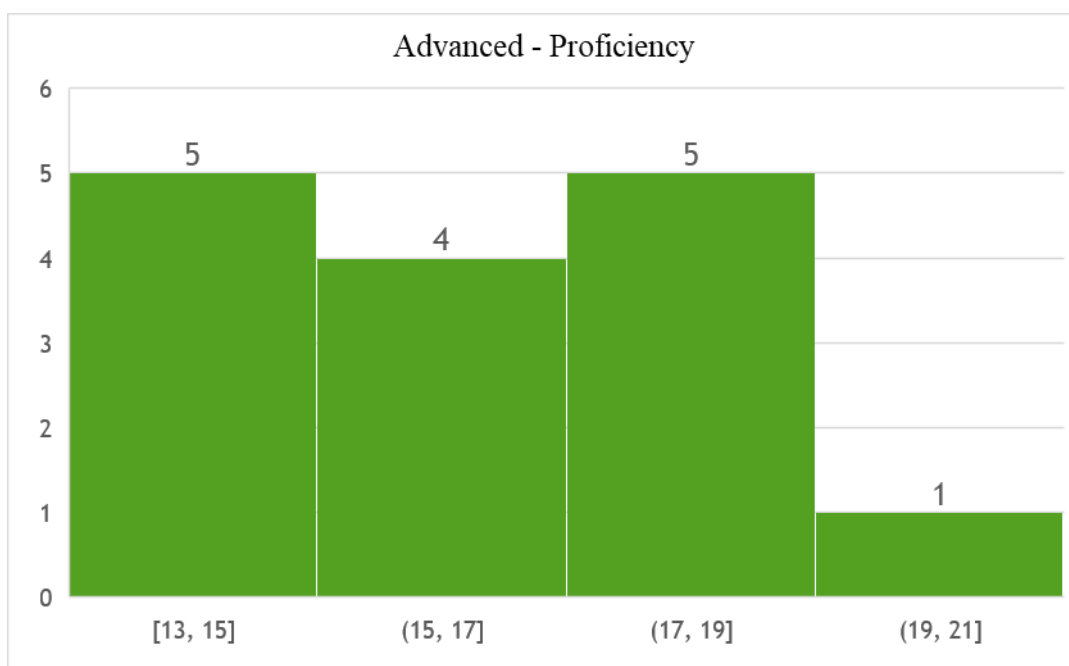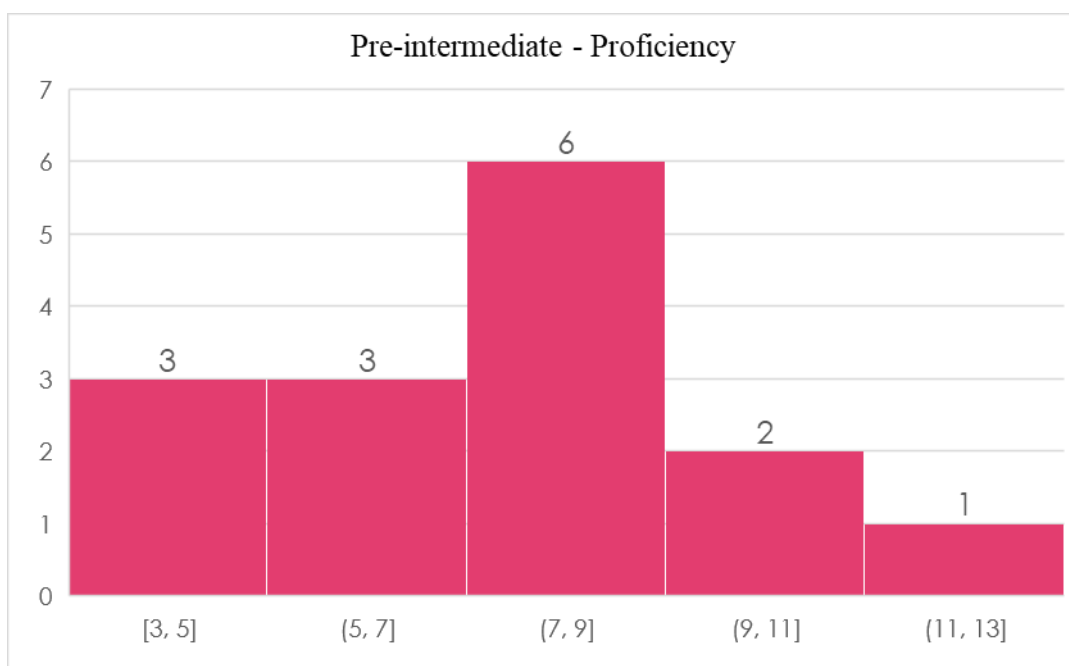
APPENDIX R3 – Histograms for participants' working memory strict scores

Pre-intermediate - Working Memory Strict Scores

Advanced - Working Memory Strict Scores
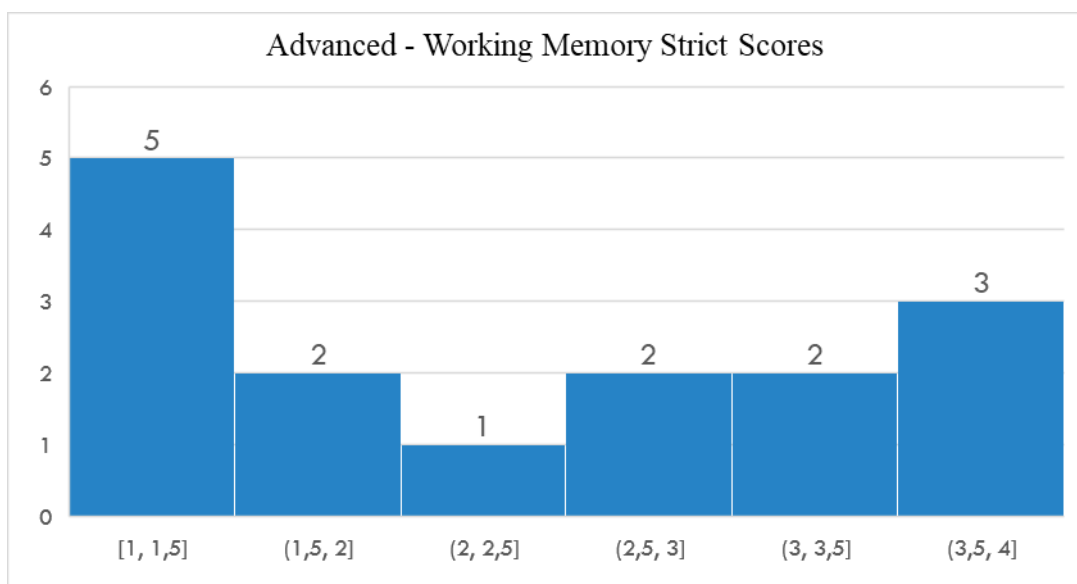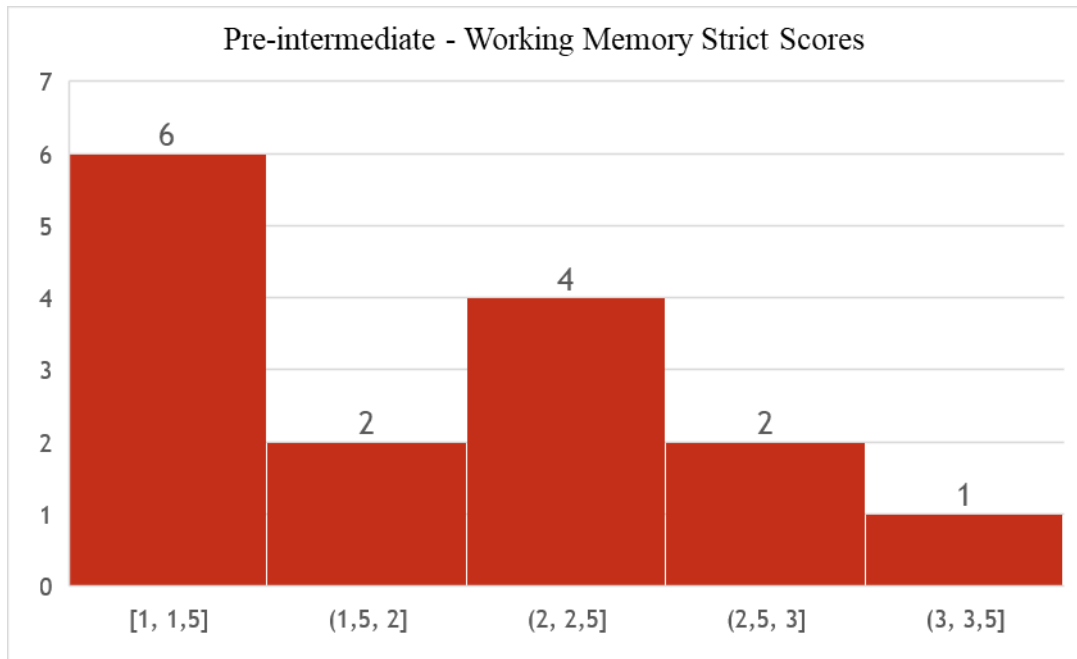
APPENDIX R4 – Histogram for participants' working memory lenient scores

Pre-intermediate - Working Memory Lenient Scores

Advanced - Working Memory Lenient Scores
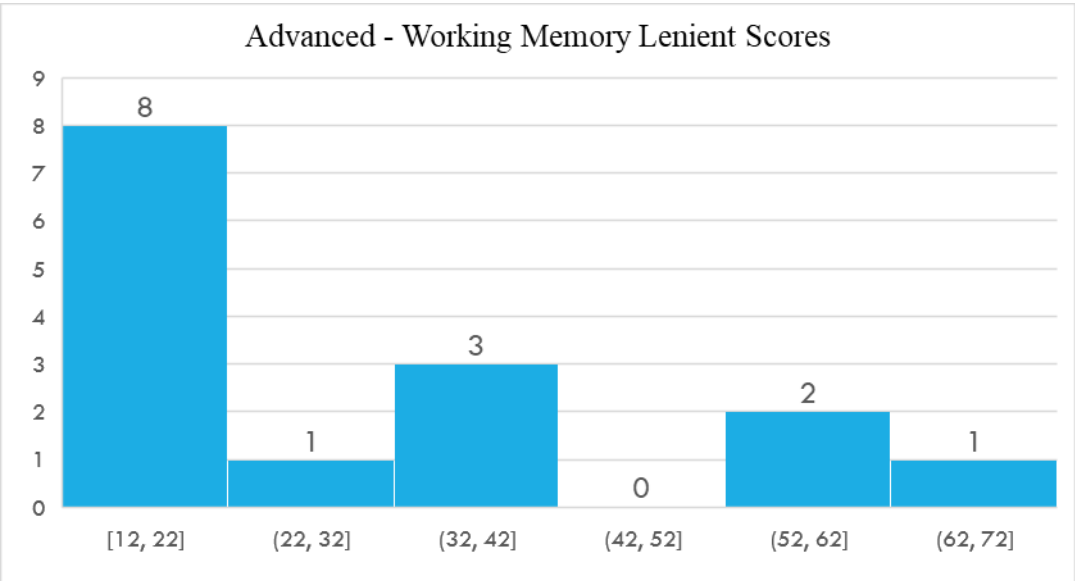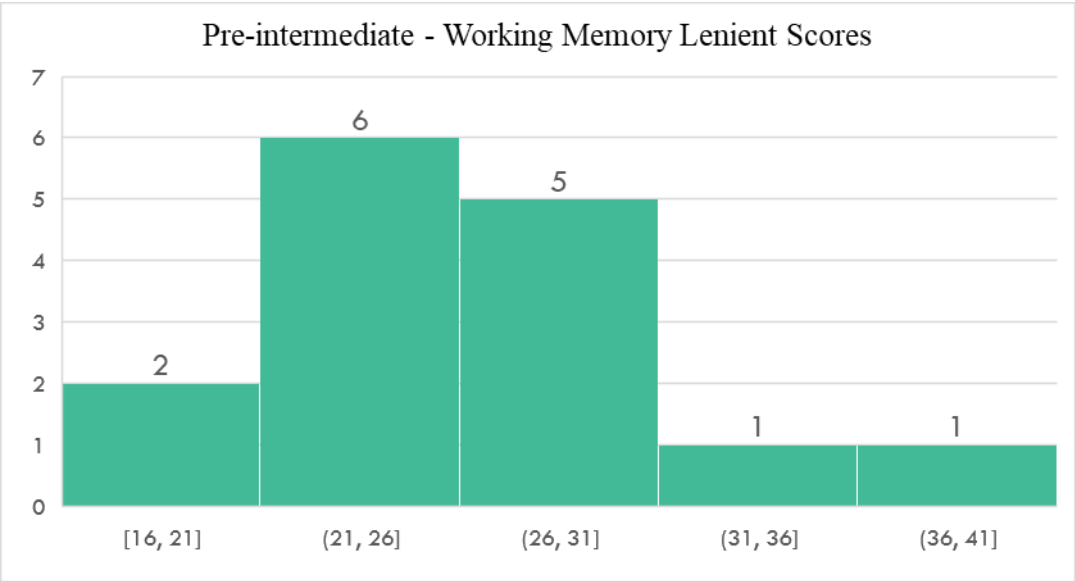
APPENDIX R5 – Histograms for participants' free recall (Control condition)

Pre-intermediate - Free recall (Control condition)

Advanced - Free recall (Control condition)
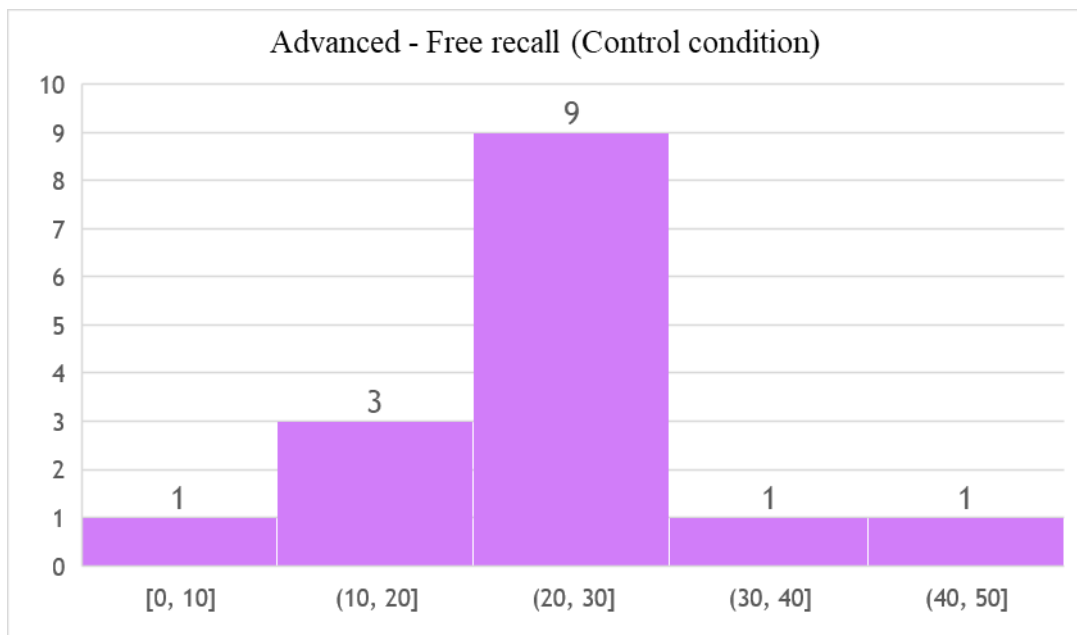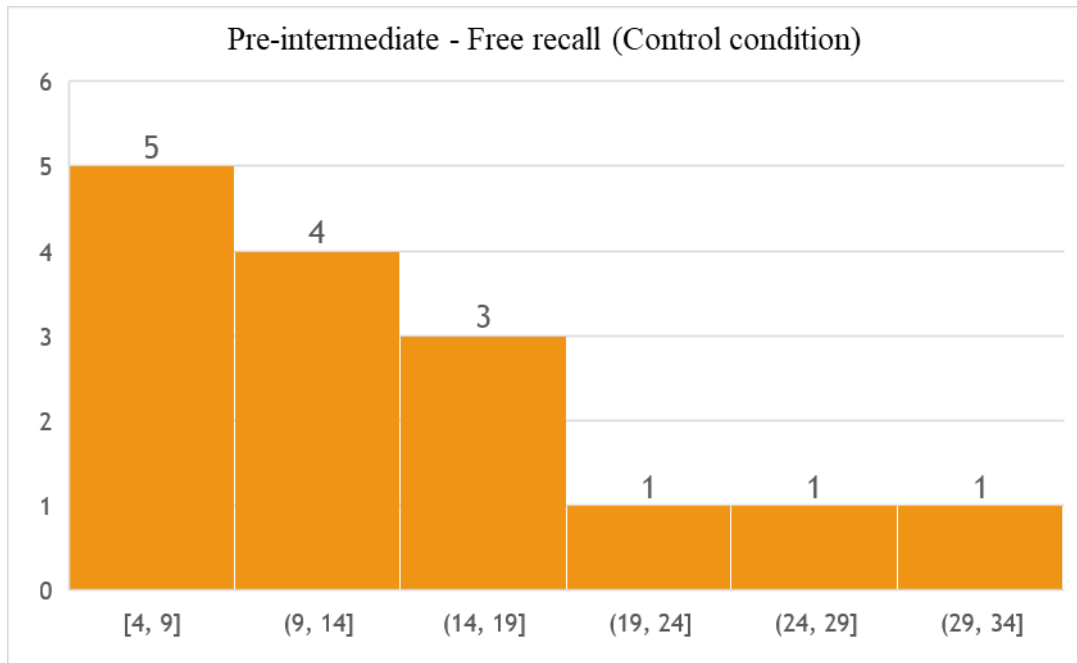
APPENDIX R6 – Histograms for participants' free recall (Treatment 1 condition)

Pre-intermediate - Free recall (prereading activity Contextual Redefinition)

Advanced - Free recall (prereading activity Contextual Redefinition)
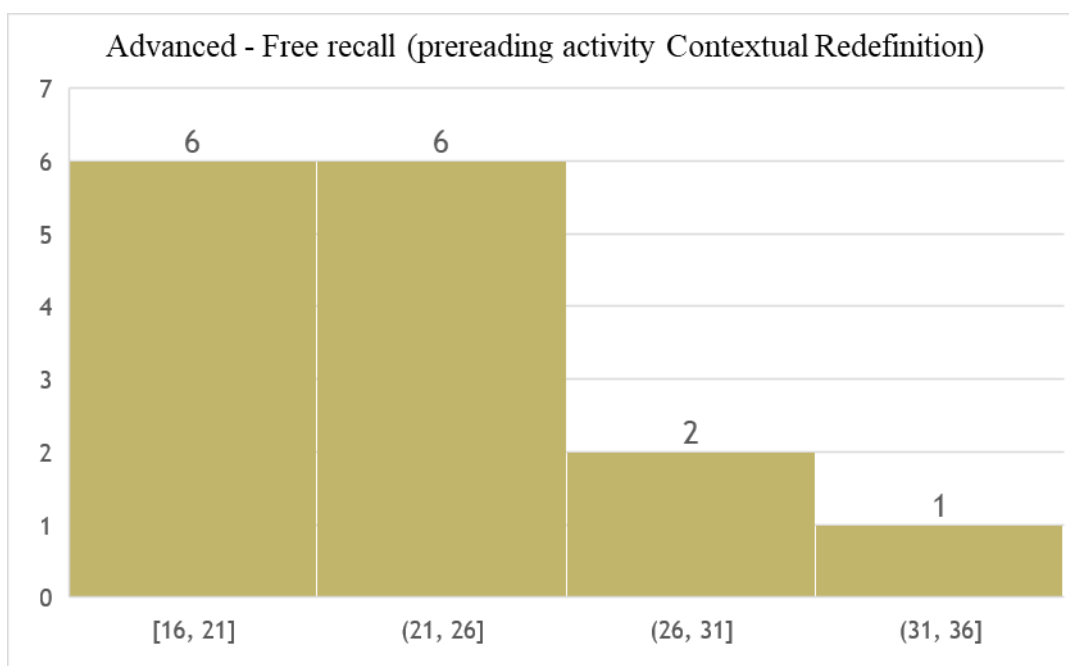
APPENDIX R7 – Histograms for participants' free recall (Treatment 2 condition)

Pre-intermediate - Free recall (prereading activity Graphic Organizer)

Advanced - Free recall (prereading activity Graphic Organizer)
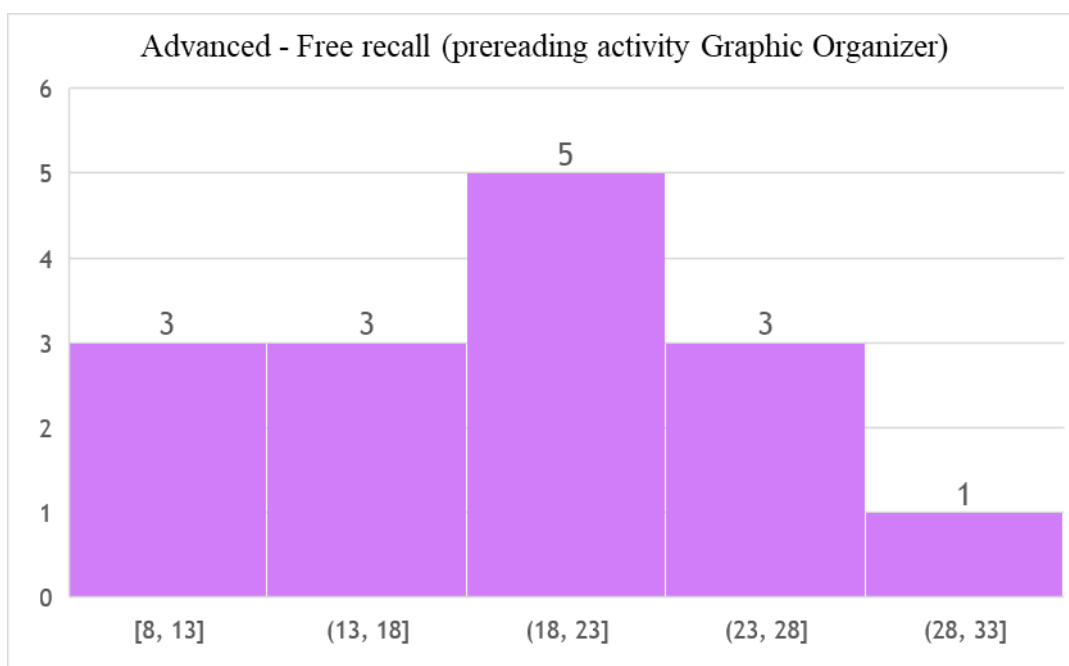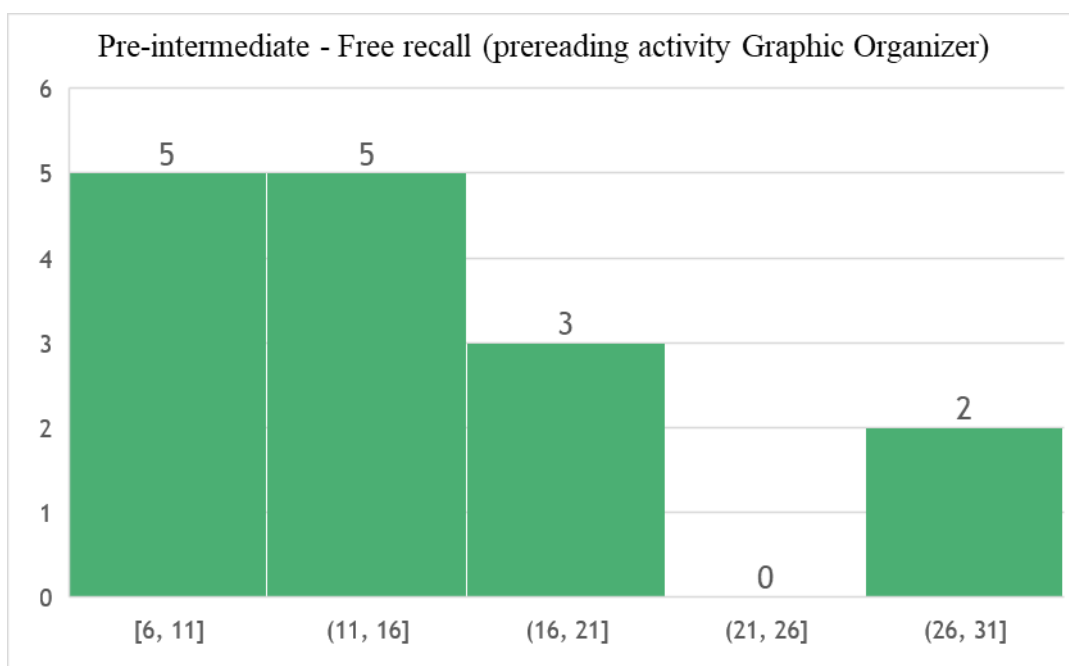
APPENDIX R8 – Histograms for participants' reading comprehension questions (Control condition)
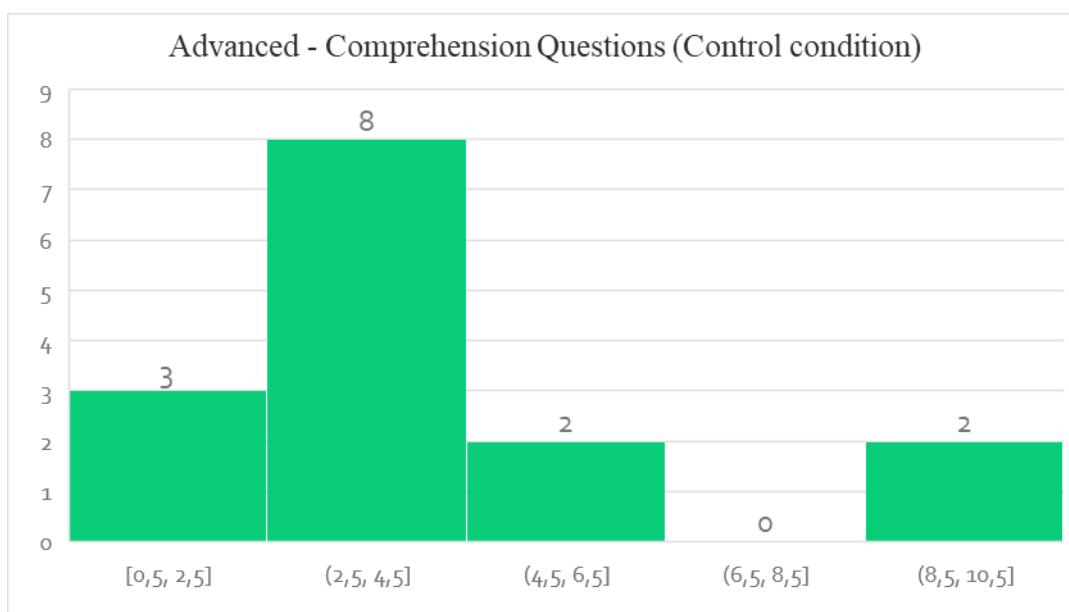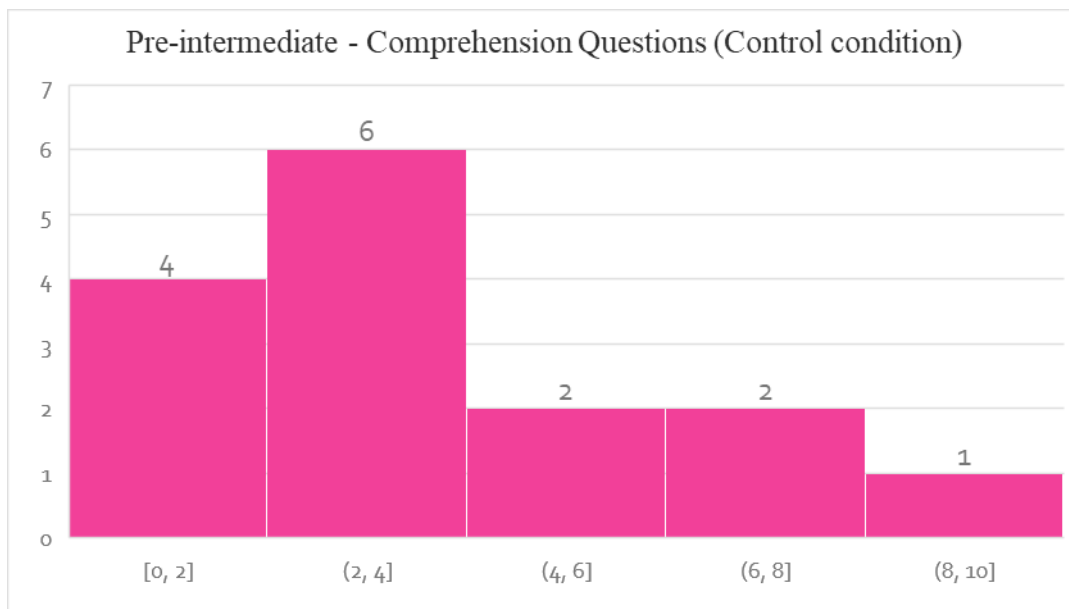
APPENDIX R9 – Histograms for participants' reading comprehension questions (Treatment 1 condition)
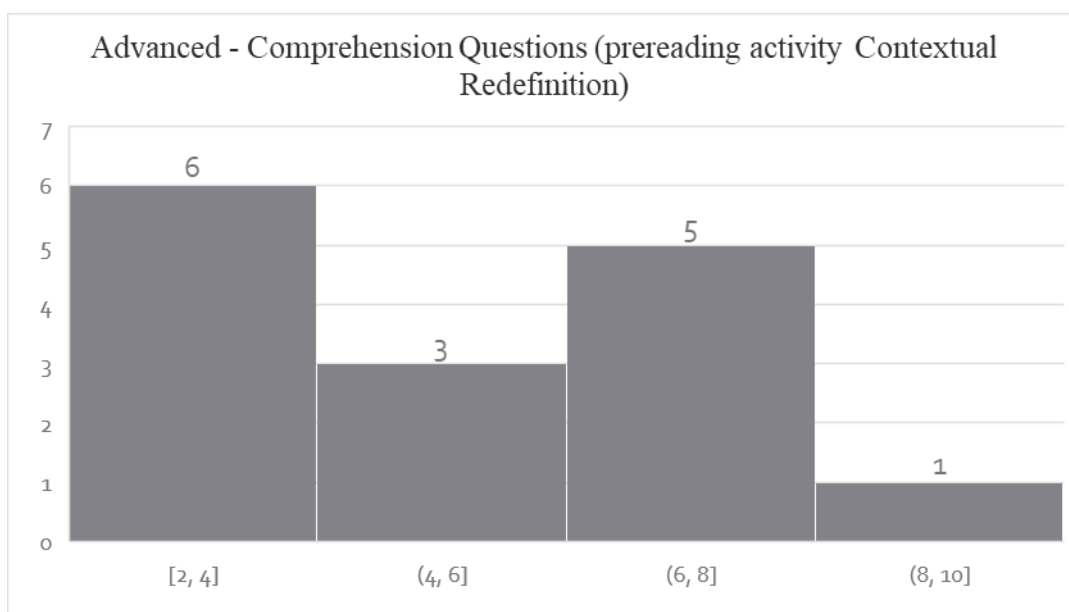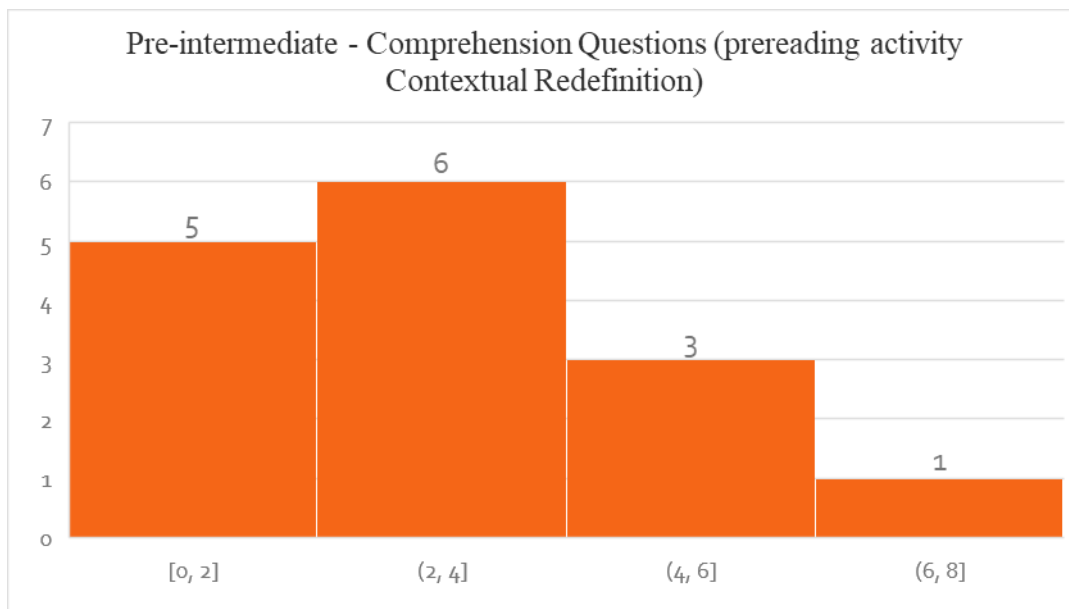
APPENDIX R10 – Histograms for participants' reading comprehension questions (Treatment 2 condition)

Pre-intermediate - Comprehension Questions (prereading activity Graphic Organizer)

Pre-intermediate - Comprehension Questions (prereading activity Graphic Organizer)
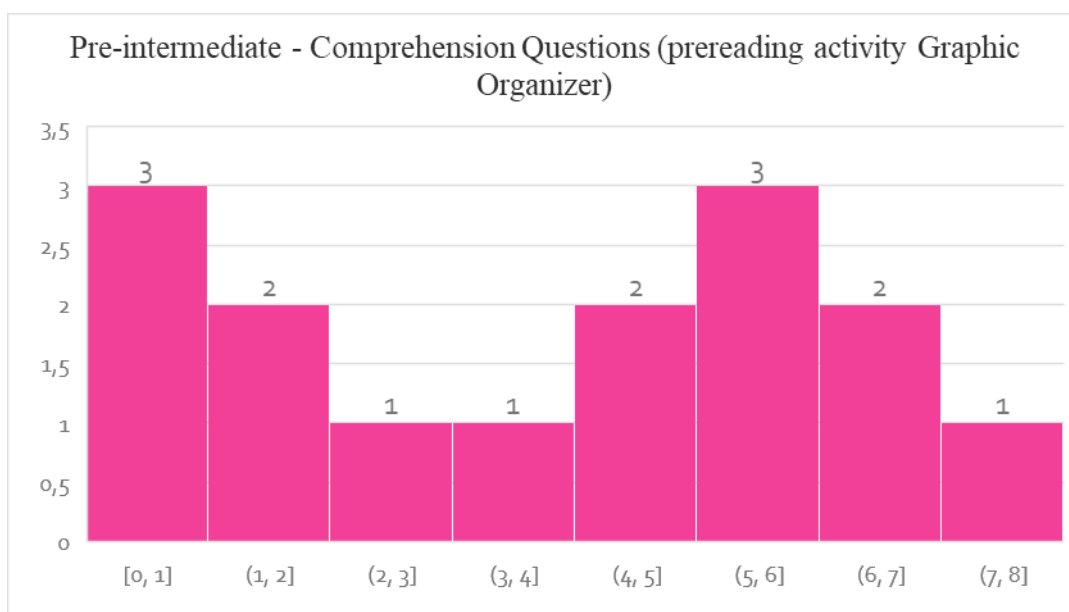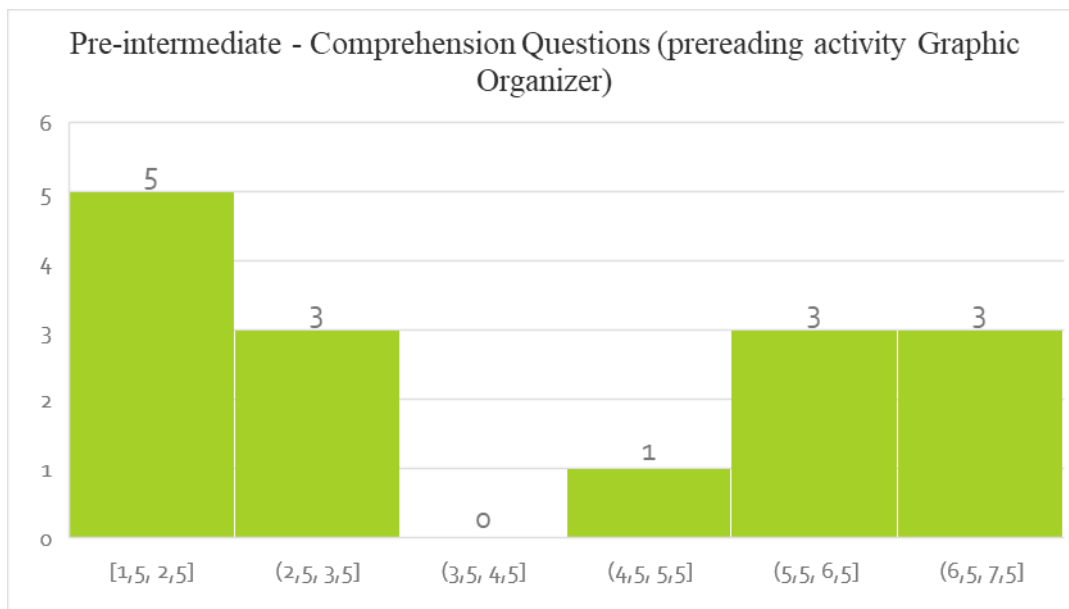
APPENDIX S1 – Box plots for participants' age and proficiency

Age - Pre-intermediate x Advanced

Proficiency - Pre-intermediate x Advanced
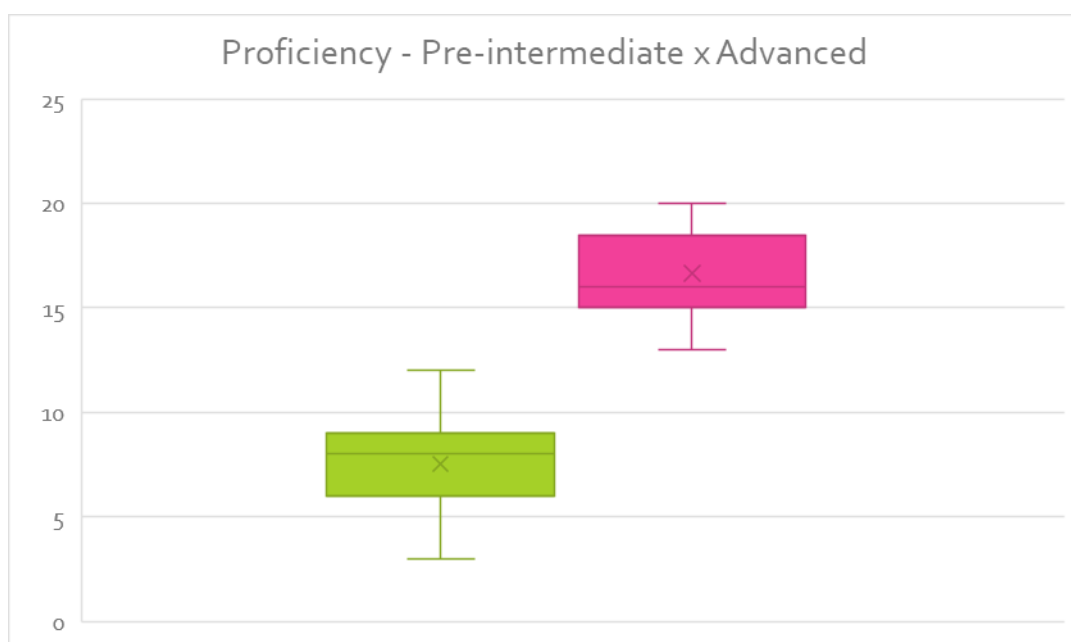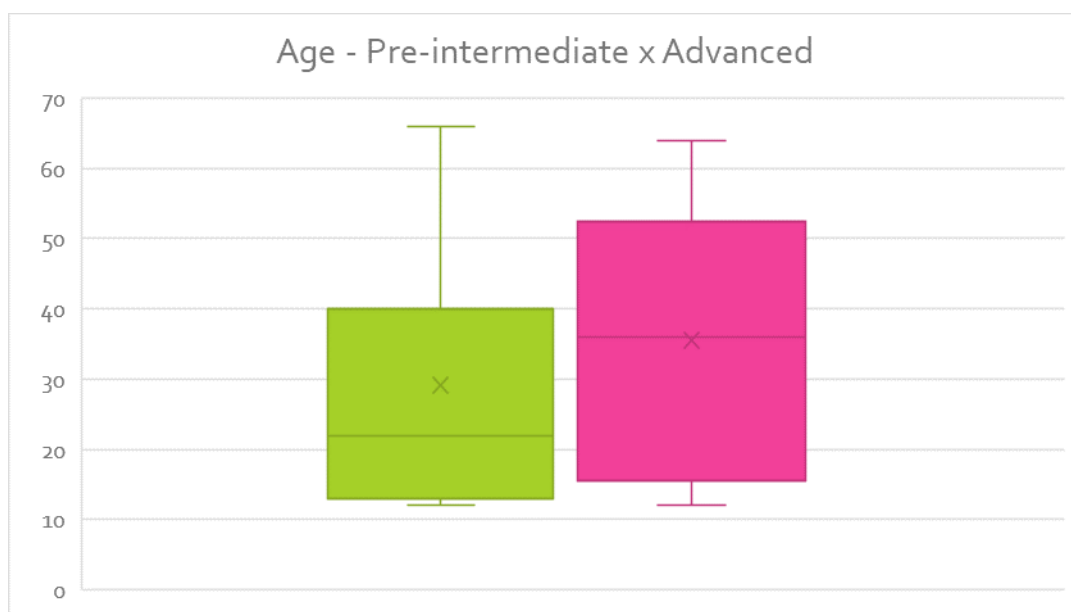
APPENDIX S2 – Box plots for participants' working memory

Working Memory Strict Scores - Pre-intermediate x Advanced

Working Memory Lenient Scores - Pre-intermediate x Advanced
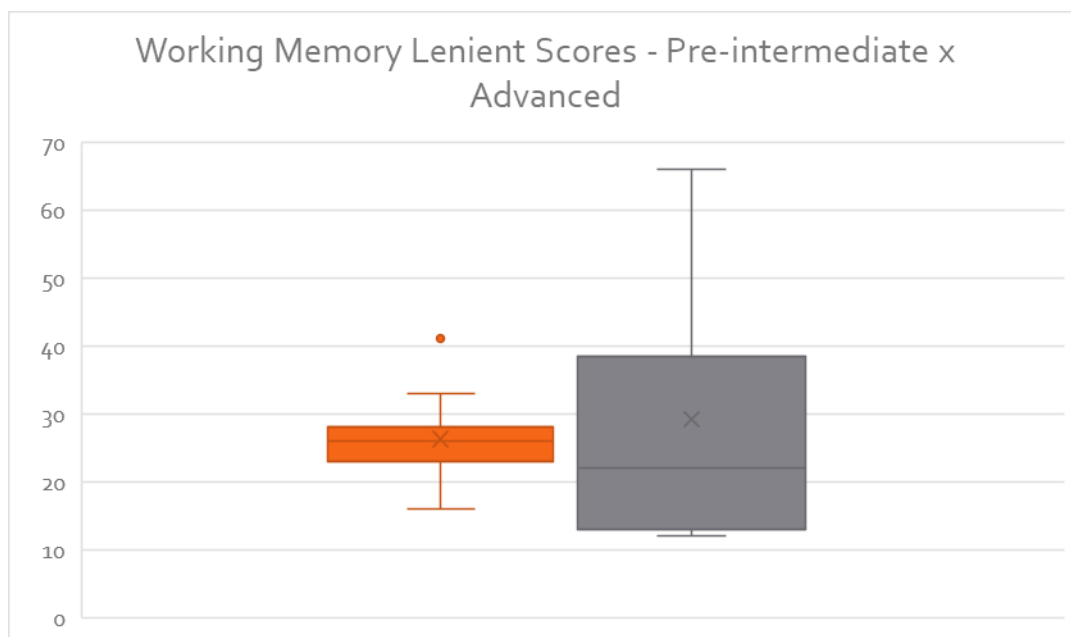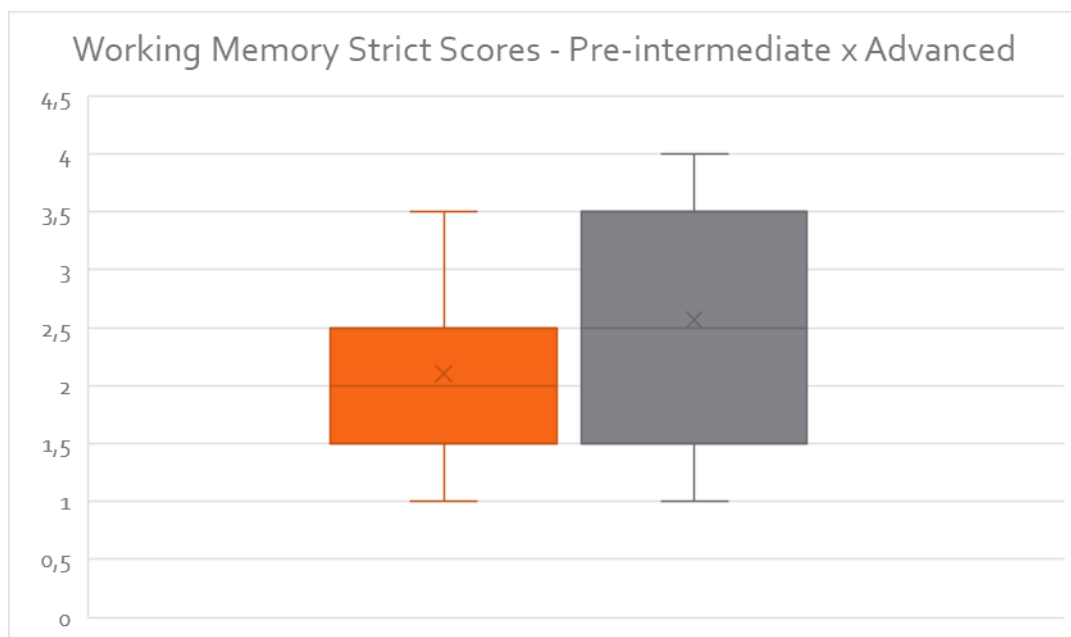
APPENDIX S3 – Box plots for participants' free recall scores

Pre-intermediate Free Recall - Control x Treatment 1 x Treatment 2

Advanced Free Recall - Control x Treatment 1 x Treatment 2
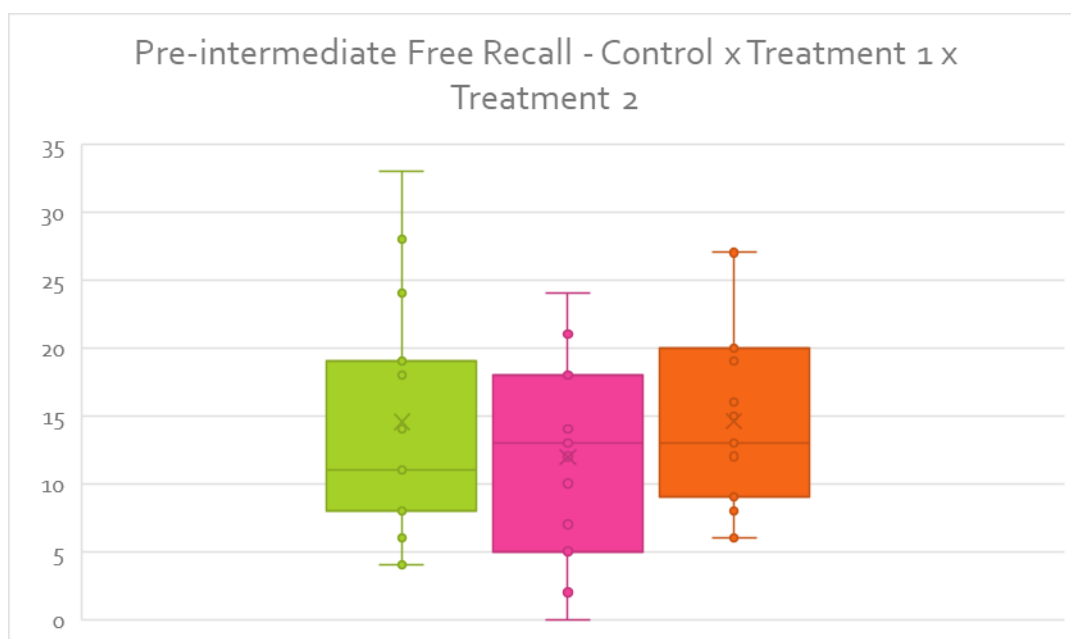
APPENDIX S4 – Box plots for participants' comprehension questions scores

Pre-intermediate Comprehension Questions - Control x Treatment 1 x Treatment 2

Advanced Comprehension Questions - Control x Treatment 1 x Treatment 2
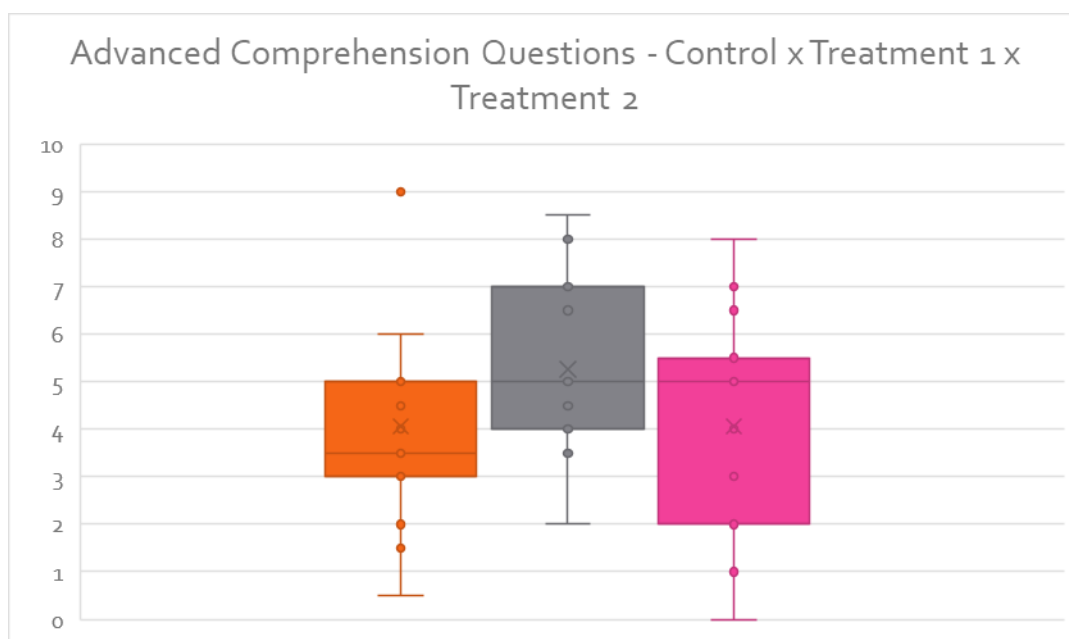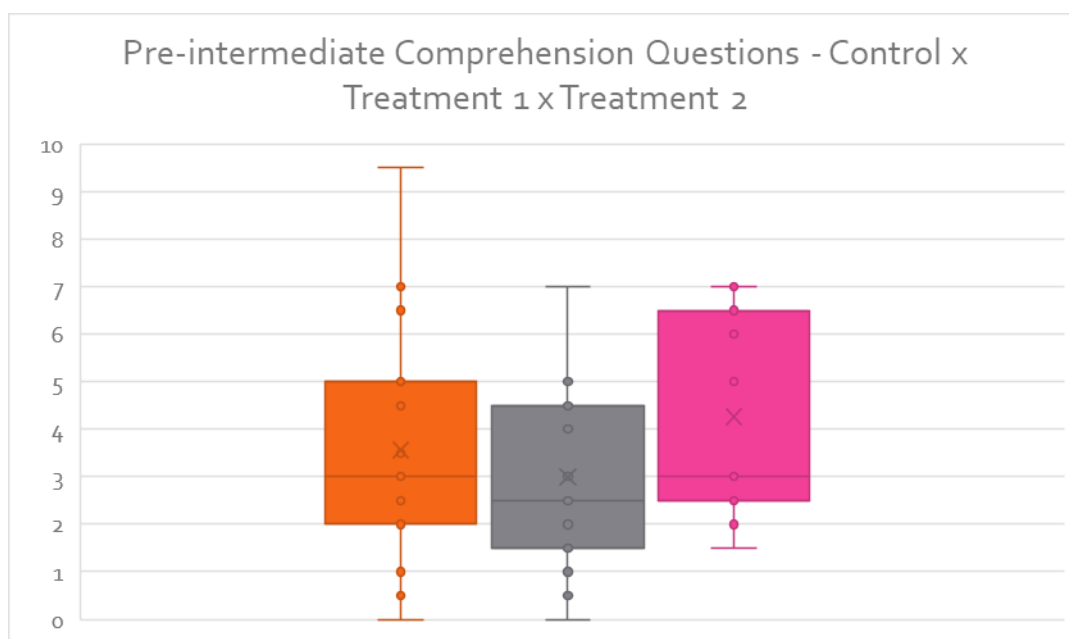
APPENDIX T1 – Normal and detrended Q Q Plots for pre-intermediate age

Normal Q-Q Plot of PI AGE

GROUP= PreIntermediate. for GROUP= PreIntermediate

Detrended Normal Q-Q Plot of PI AGE

GROUP= PreIntermediate. for GROUP= PreIntermediate
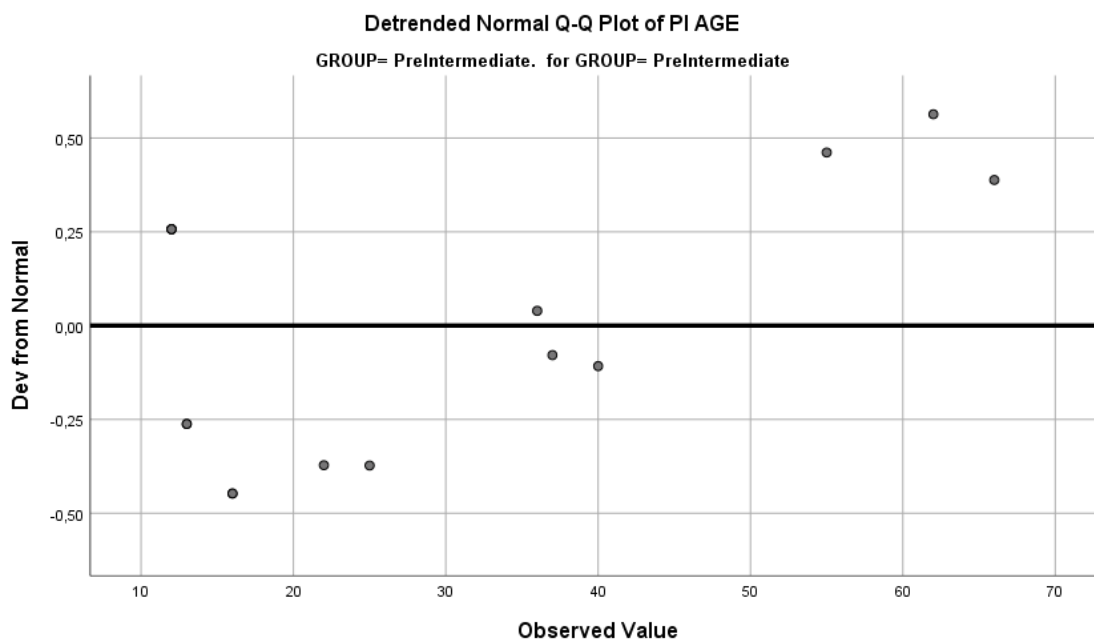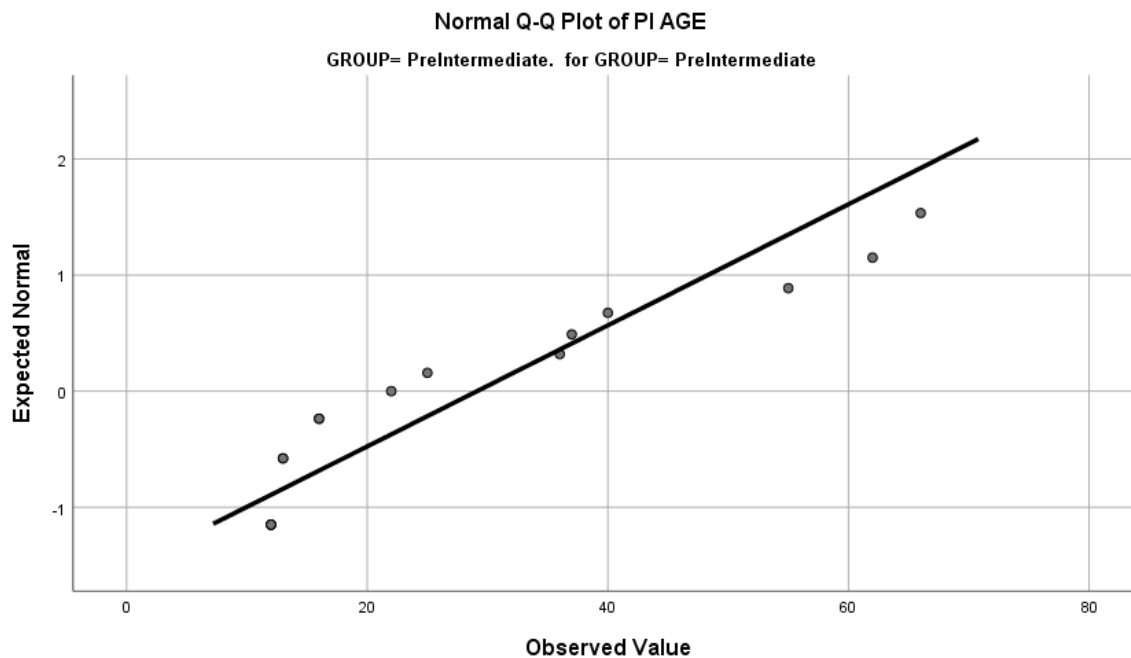
APPENDIX T2 – Normal and detrended Q Q Plots for pre-intermediate proficiency

Normal Q-Q Plot of PI Proficiency
GROUP= PreIntermediate. for GROUP= PreIntermediate

Detrended Normal Q-Q Plot of PI Proficiency
GROUP= PreIntermediate. for GROUP= PreIntermediate
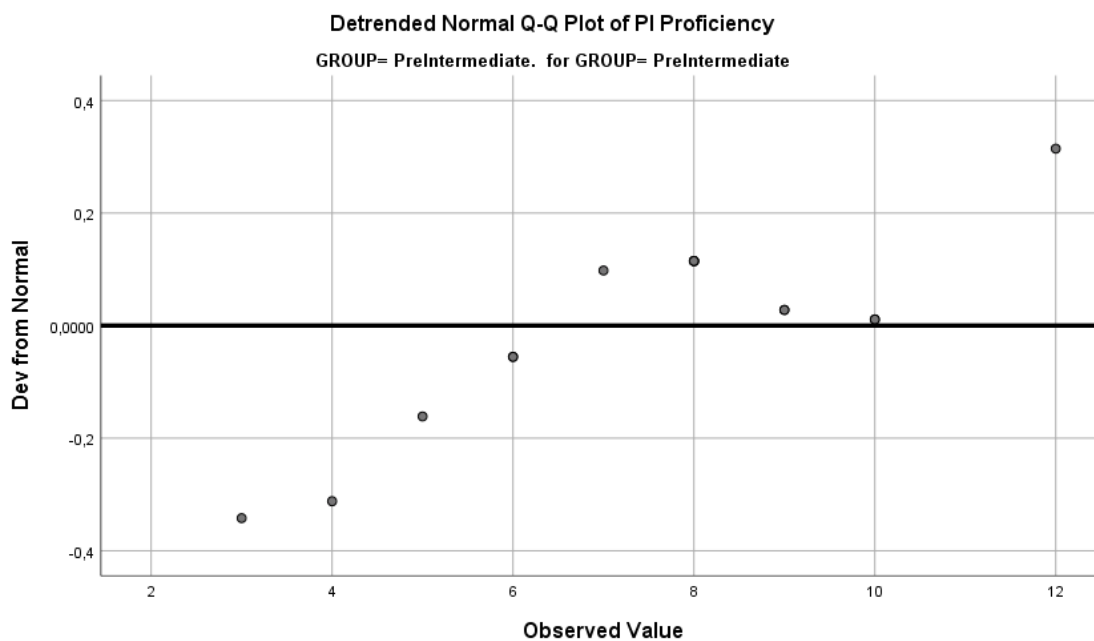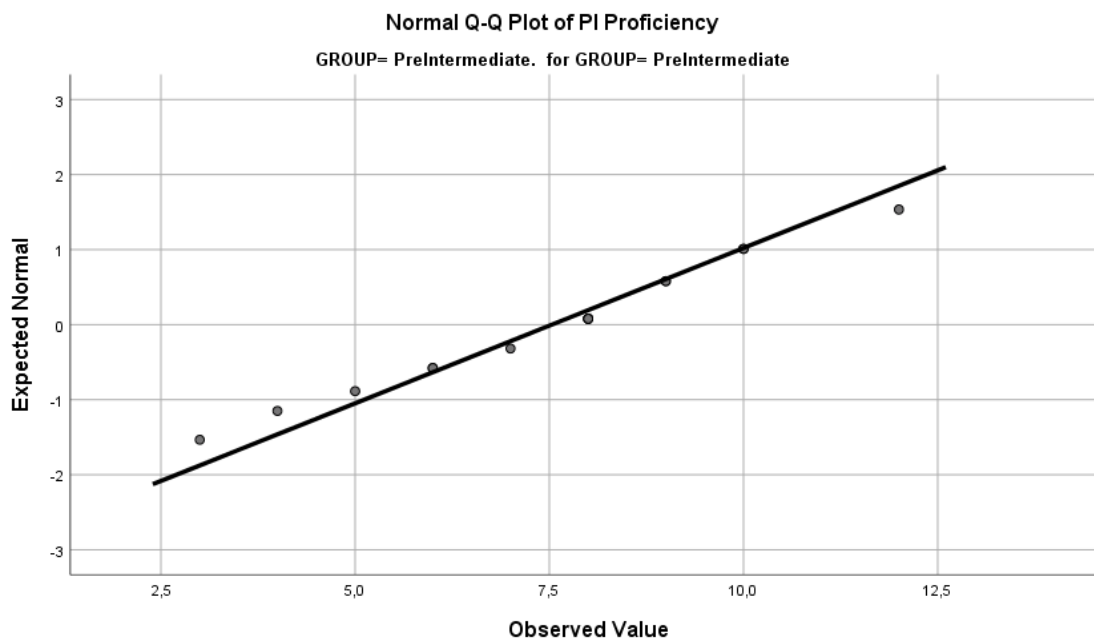
APPENDIX T3 – Normal and detrended Q Q Plots for pre-intermediate working memory strict scores
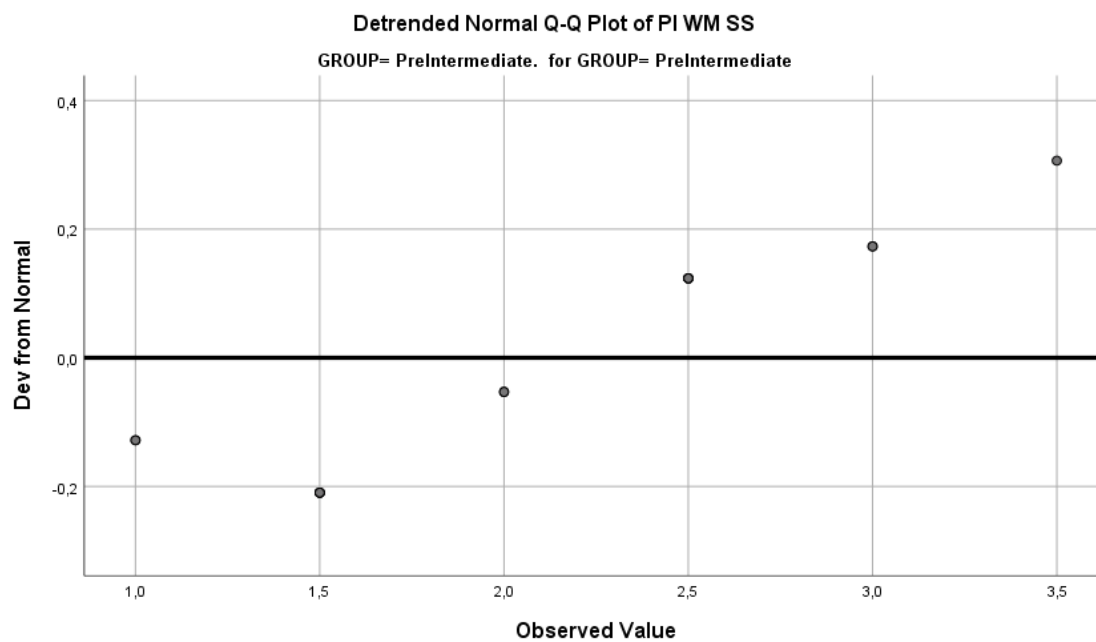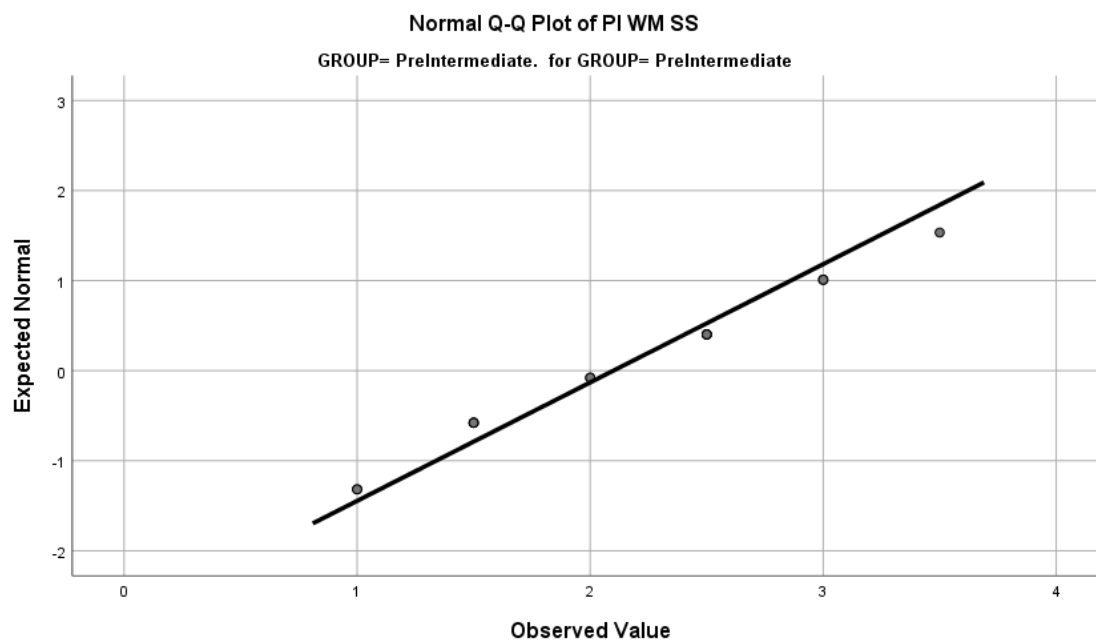
APPENDIX T4 – Normal and detrended Q Q Plots for pre-intermediate working memory lenient scores
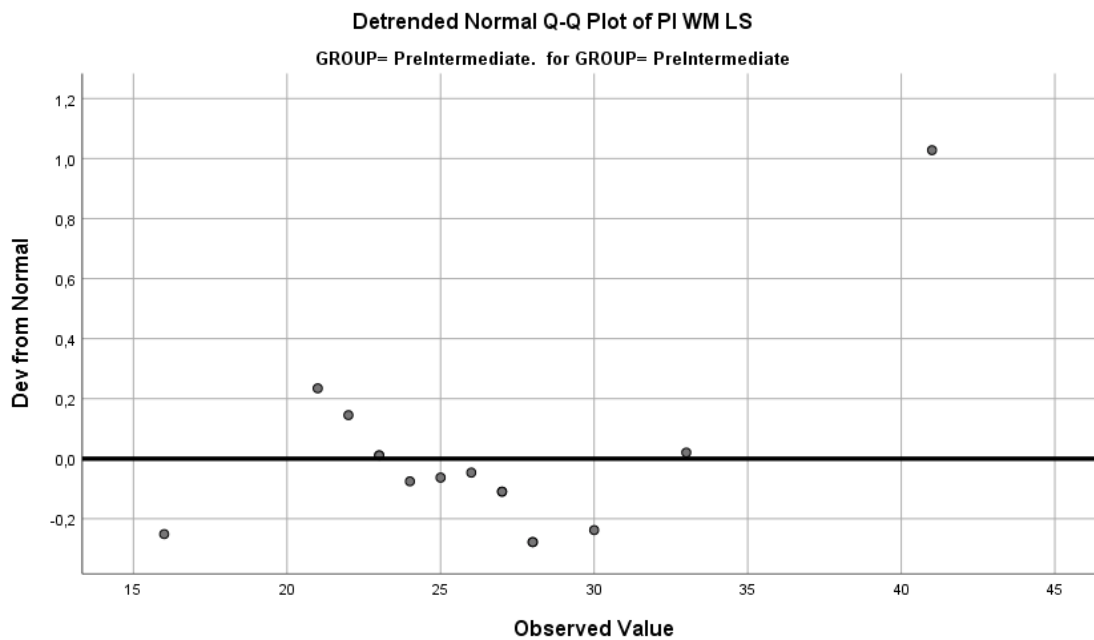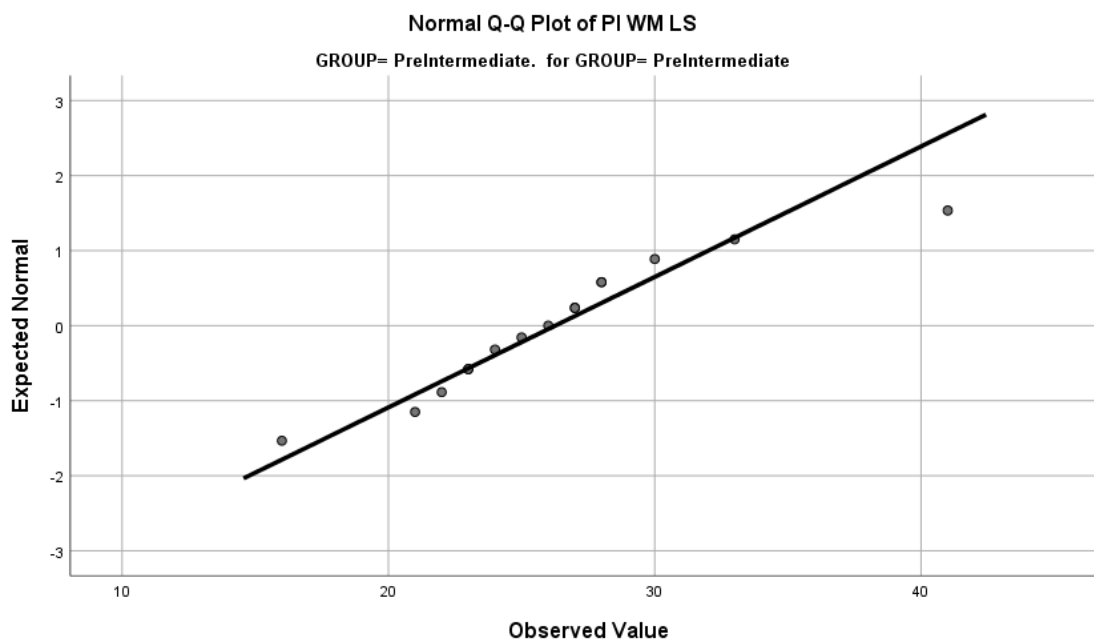
APPENDIX T5 – Normal and detrended Q Q Plots for pre-intermediate comprehension questions control

Normal Q-Q Plot of PI CQ Control

GROUP= PreIntermediate. for GROUP= PreIntermediate

Detrended Normal Q-Q Plot of PI CQ Control

GROUP= PreIntermediate. for GROUP= PreIntermediate
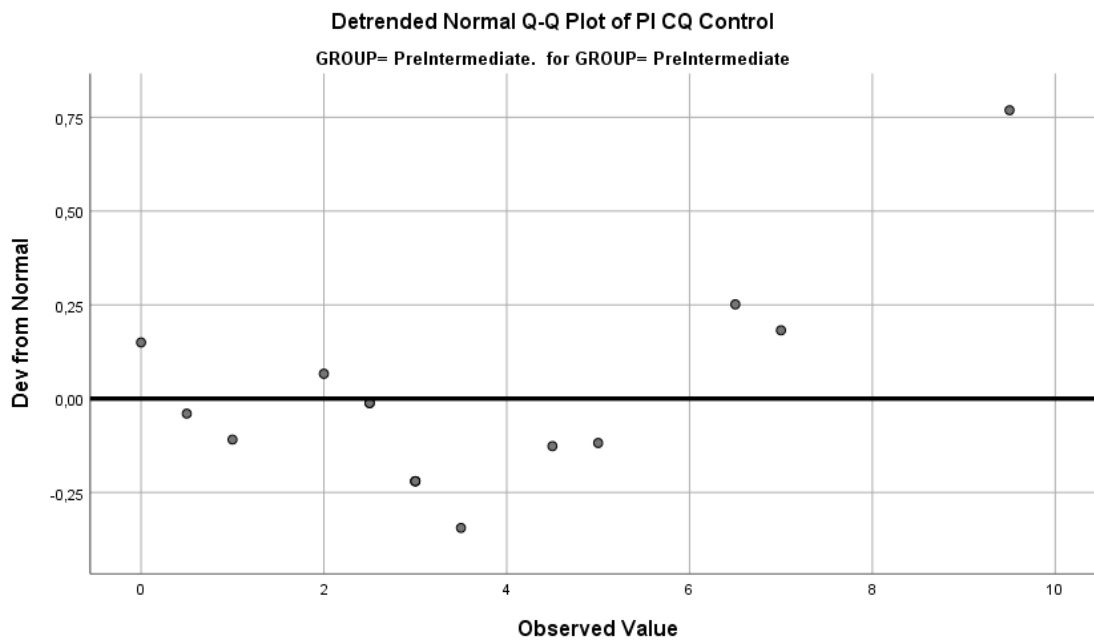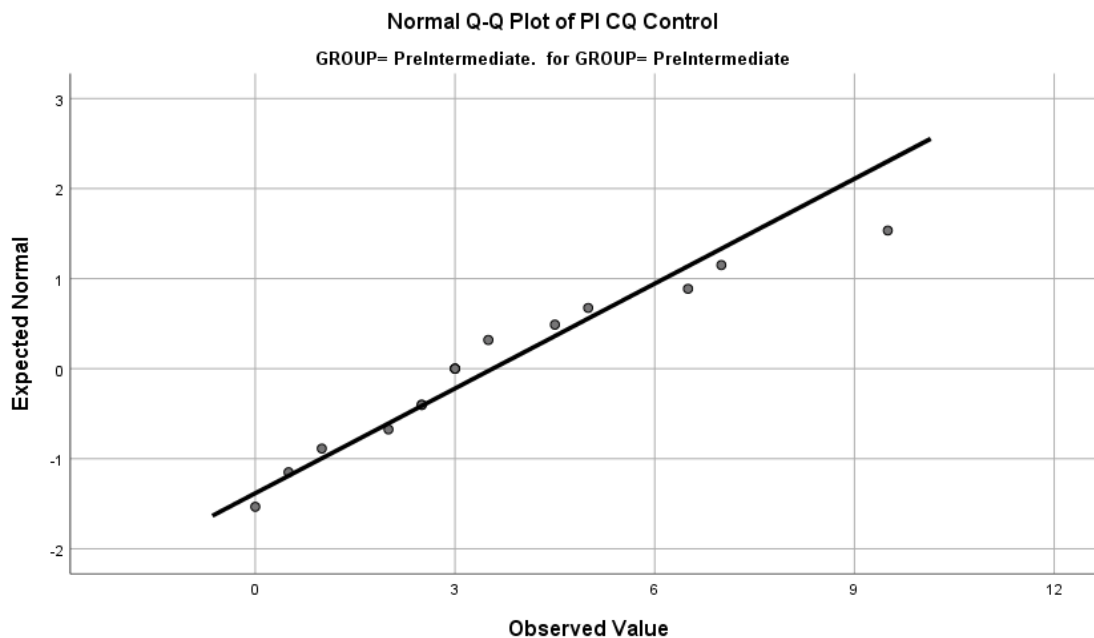
APPENDIX T6 – Normal and detrended Q Q Plots for pre-intermediate comprehension questions Contextual Redefinition

Normal Q-Q Plot of PI CQ CR

GROUP= PreIntermediate. for GROUP= PreIntermediate

Detrended Normal Q-Q Plot of PI CQ CR

GROUP= PreIntermediate. for GROUP= PreIntermediate
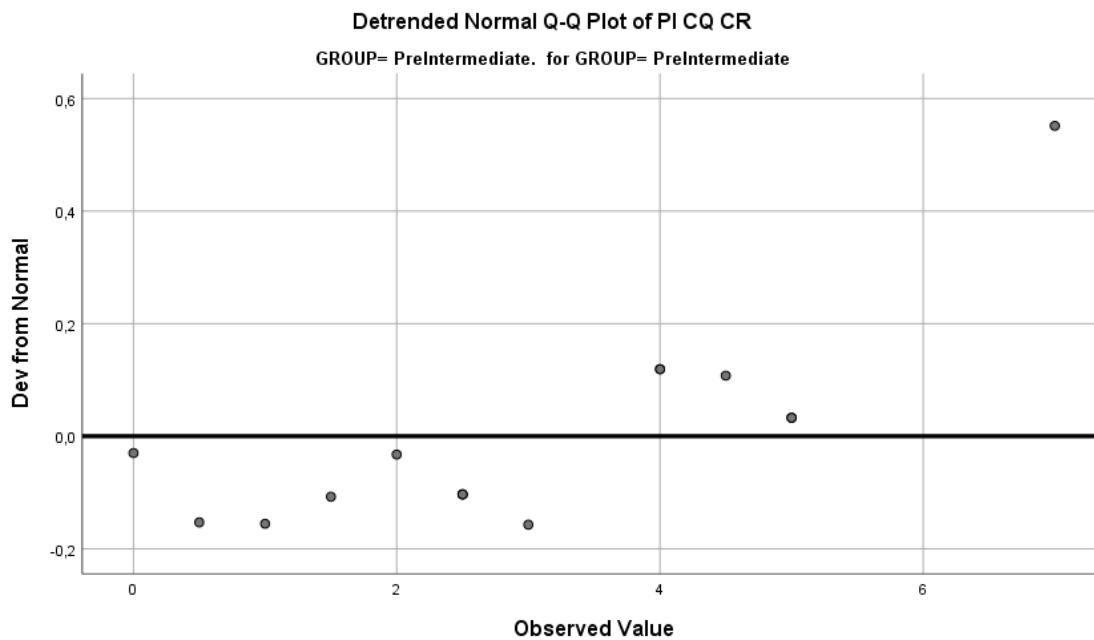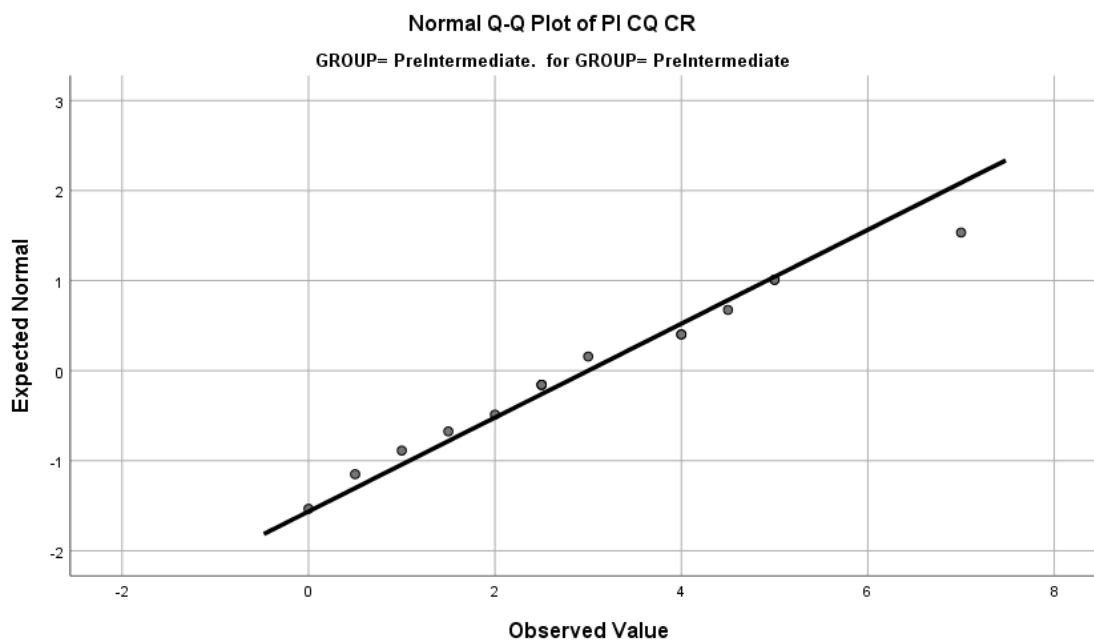
APPENDIX T7 – Normal and detrended Q Q Plots for pre-intermediate comprehension questions Graphic Organizer

Normal Q-Q Plot of PI CQ GO

Detrended Normal Q-Q Plot of PI CQ GO
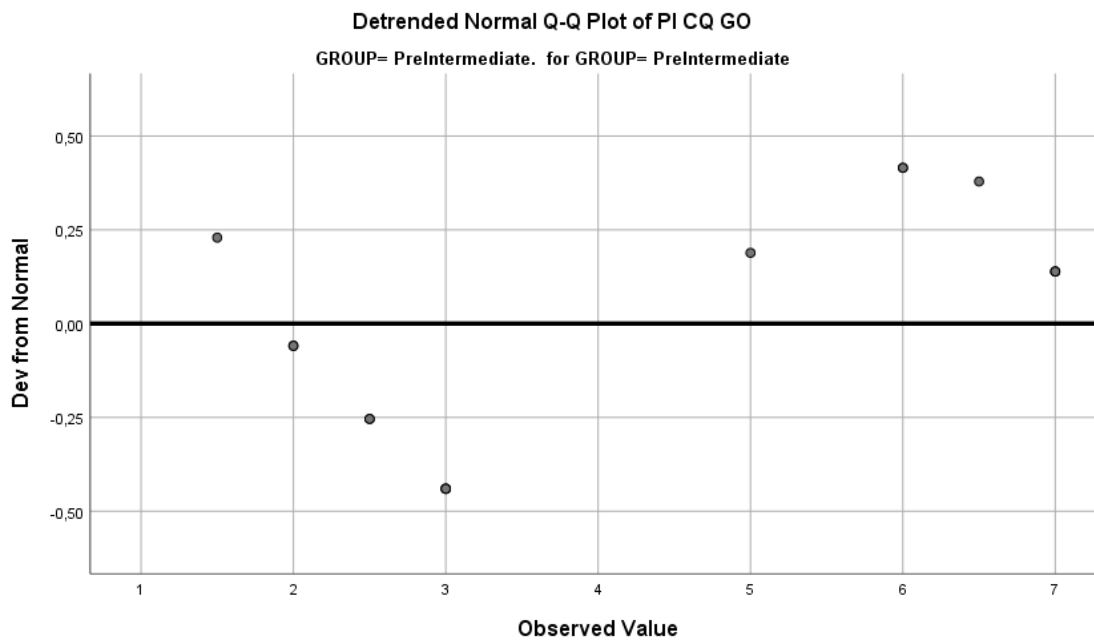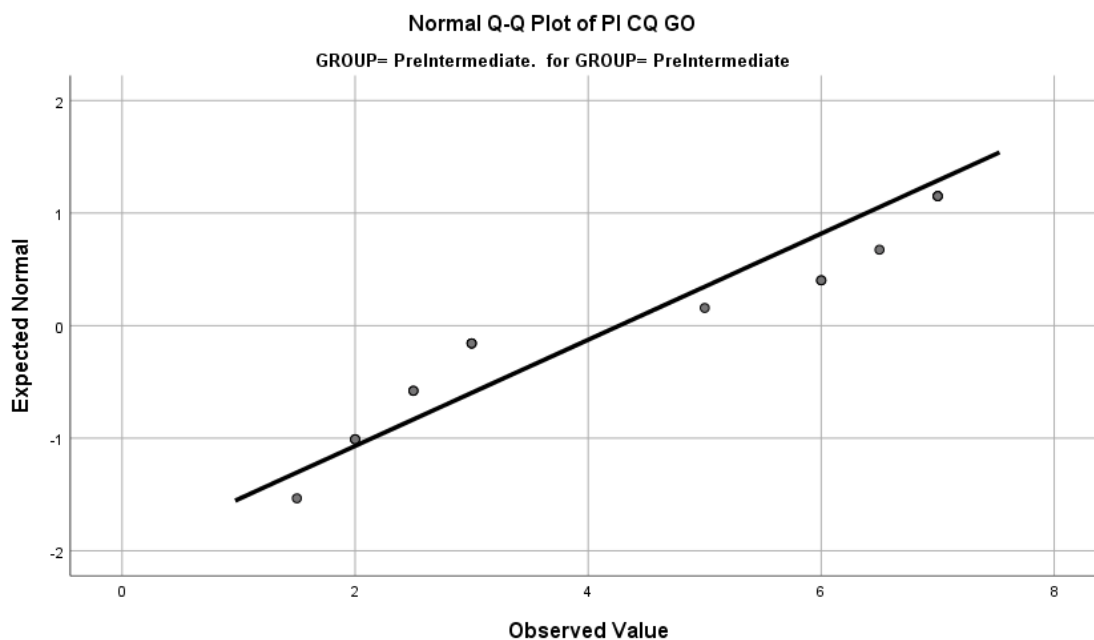
APPENDIX T8 – Normal and detrended Q Q Plots for pre-intermediate written free recall control
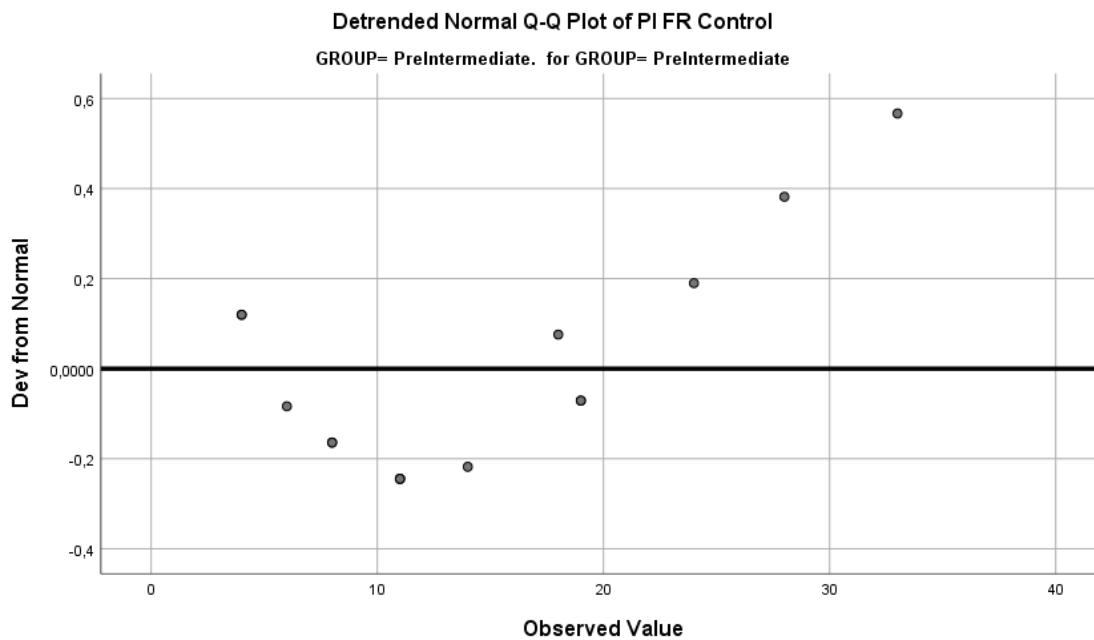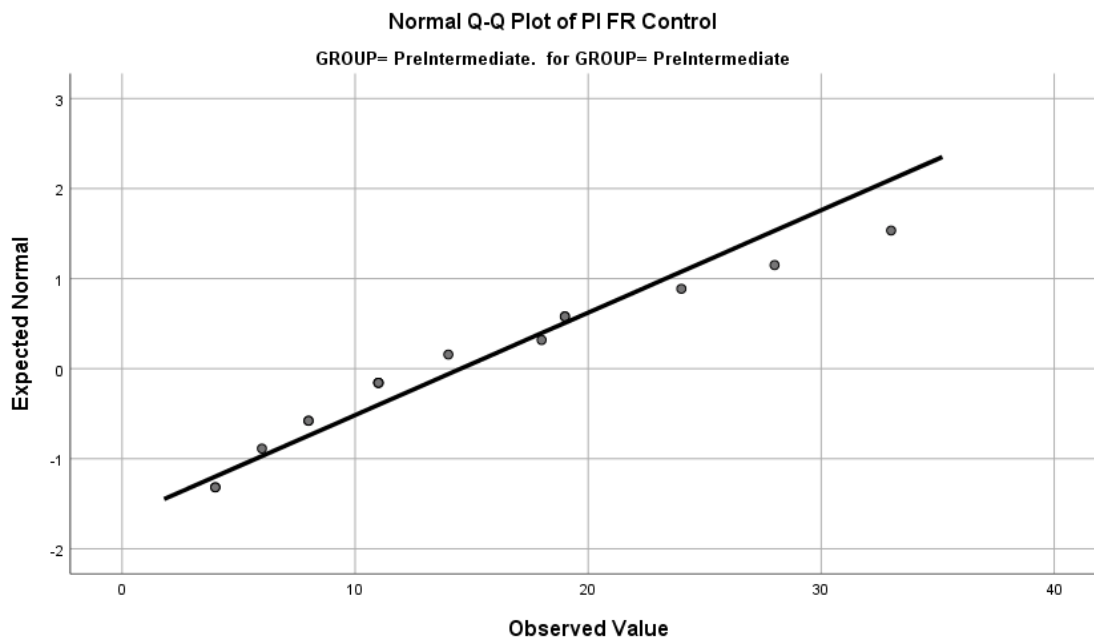
APPENDIX T9 – Normal and detrended Q Q Plots for pre-intermediate written free recall Contextual Redefinition

Normal Q-Q Plot of PI FR CR

Detrended Normal Q-Q Plot of PI FR CR
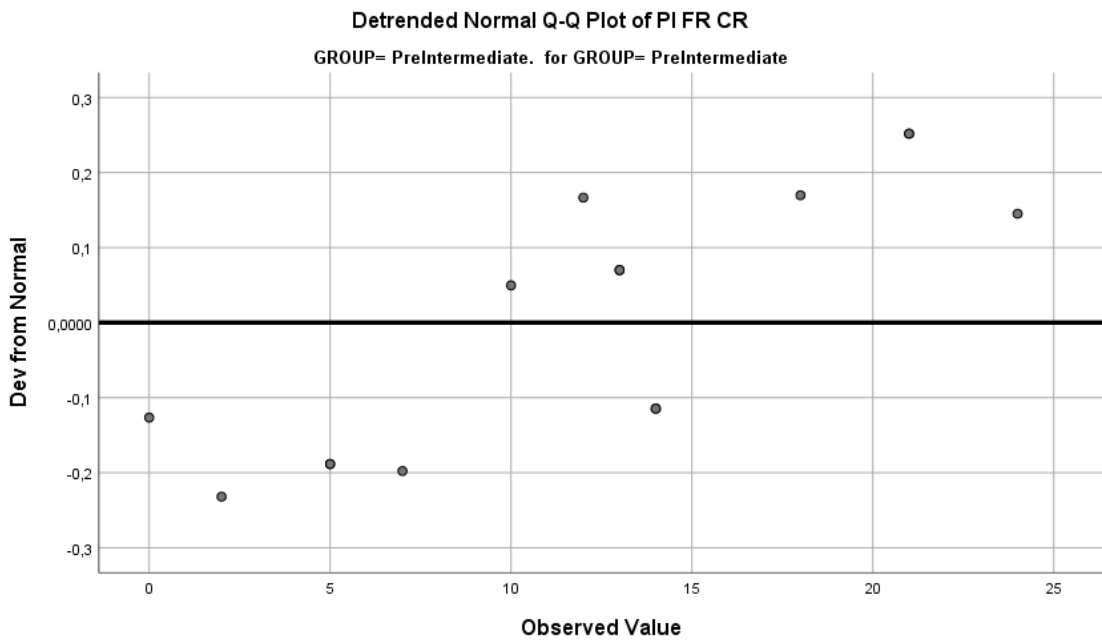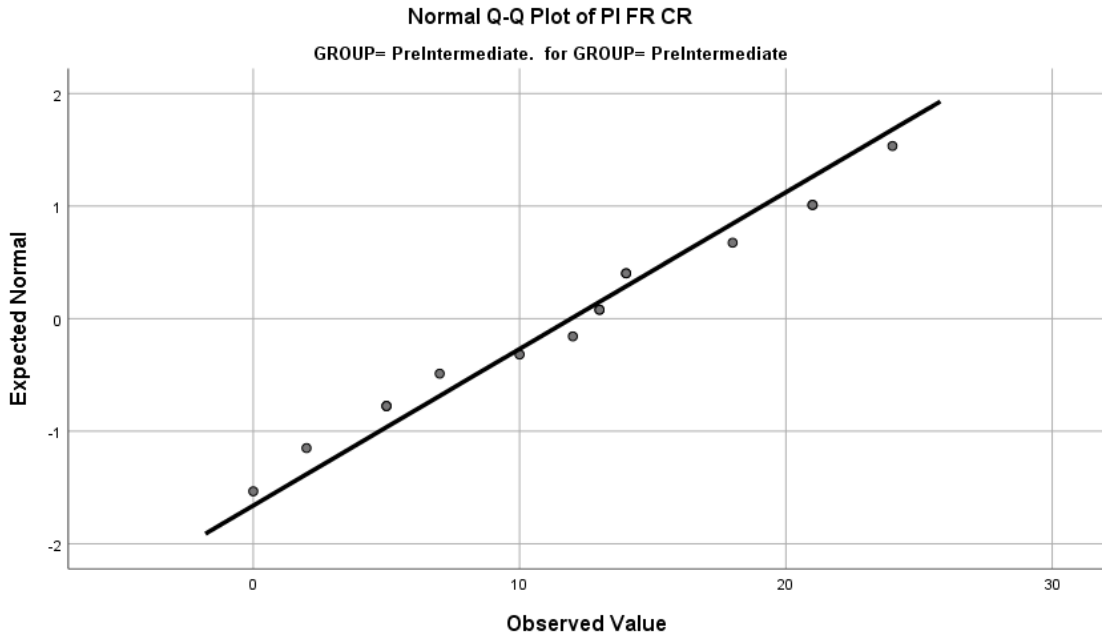
APPENDIX T10 – Normal and detrended Q Q Plots for pre-intermediate written free recall Graphic Organizer

Normal Q-Q Plot of PI FR GO

GROUP= PreIntermediate. for GROUP= PreIntermediate

Detrended Normal Q-Q Plot of PI FR GO

GROUP= PreIntermediate. for GROUP= PreIntermediate
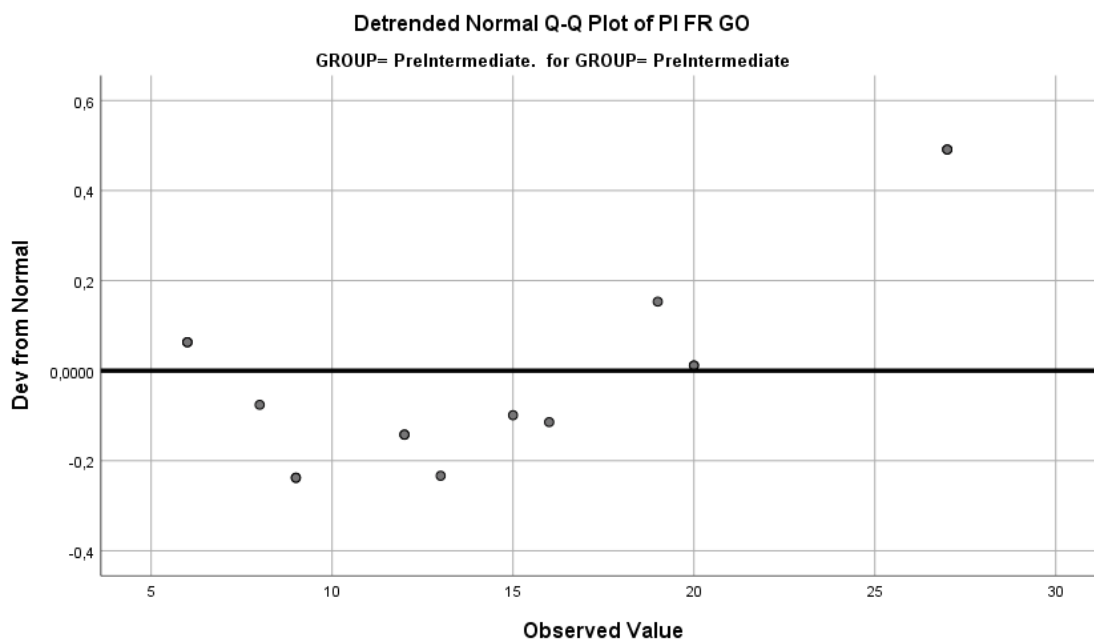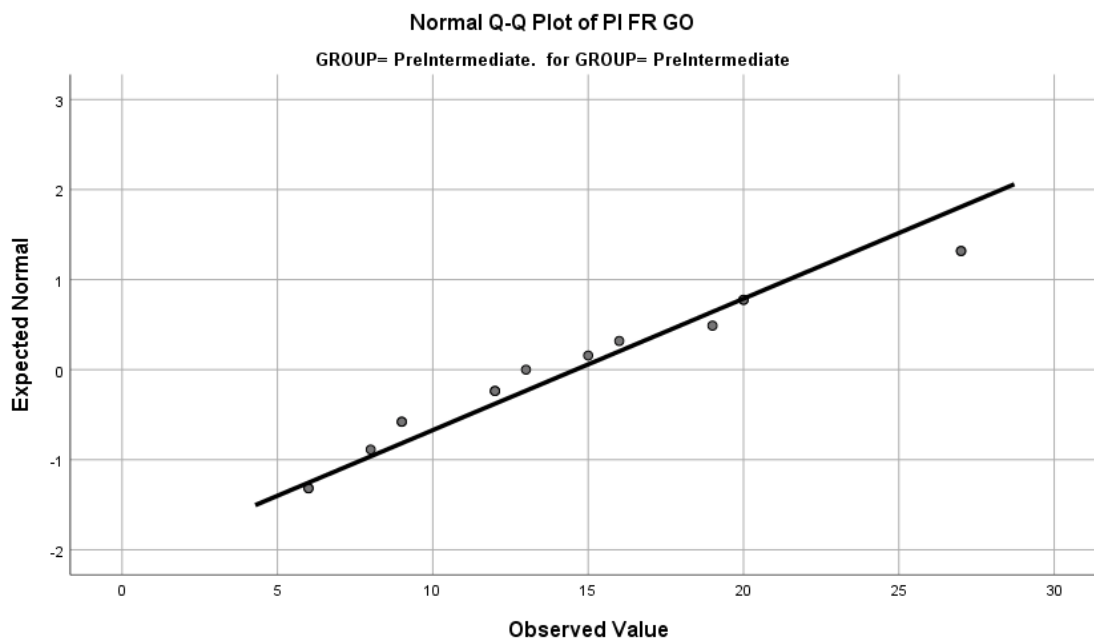
APPENDIX T11 – Normal and detrended Q Q Plots for advanced age

Normal Q-Q Plot of PI AGE

Detrended Normal Q-Q Plot of PI AGE
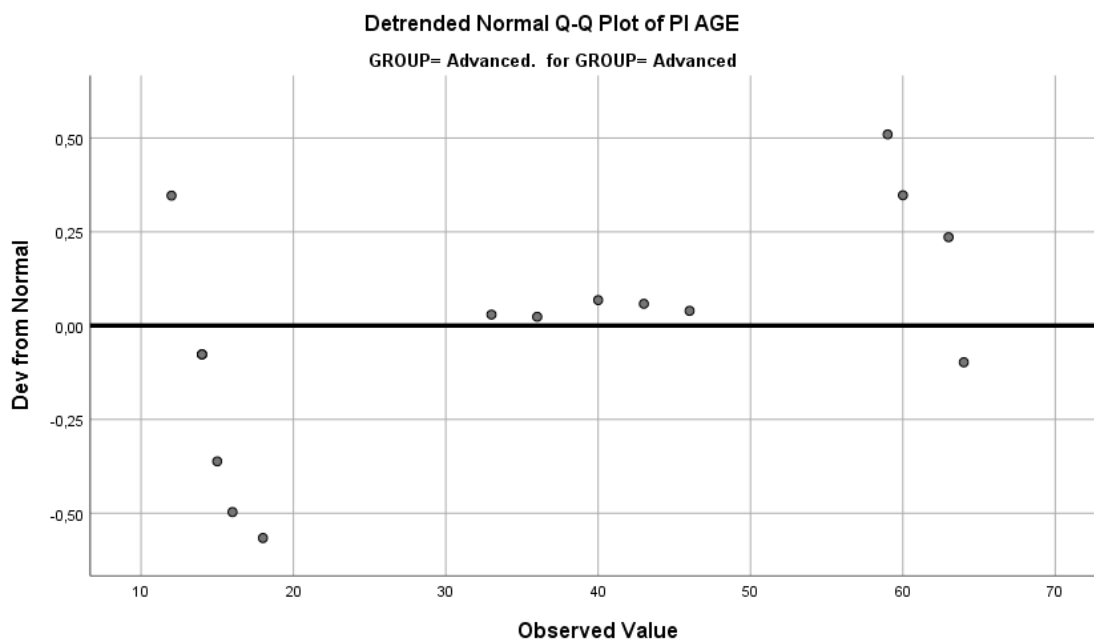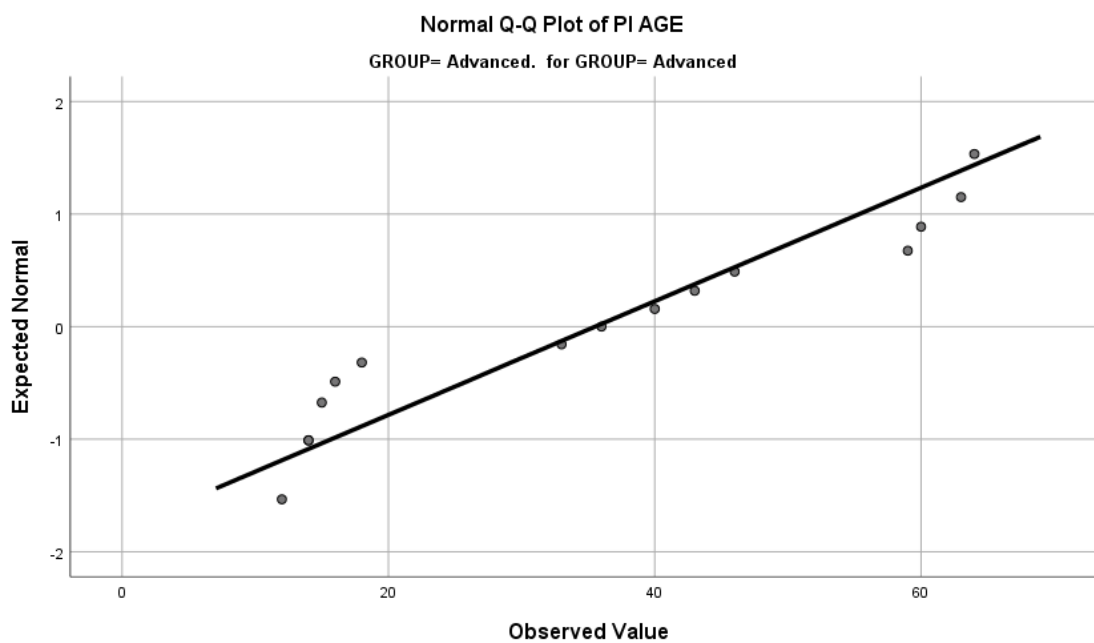
APPENDIX T12 – Normal and detrended Q Q Plots for advanced proficiency

Normal Q-Q Plot of PI Proficiency

GROUP= Advanced. for GROUP= Advanced

Detrended Normal Q-Q Plot of PI Proficiency

GROUP= Advanced. for GROUP= Advanced
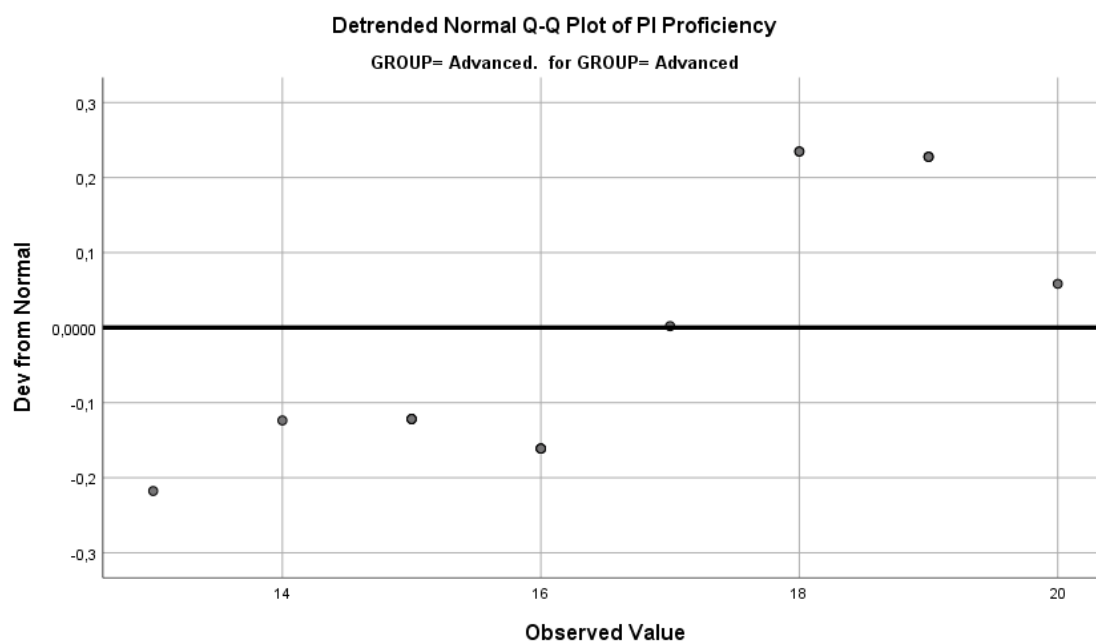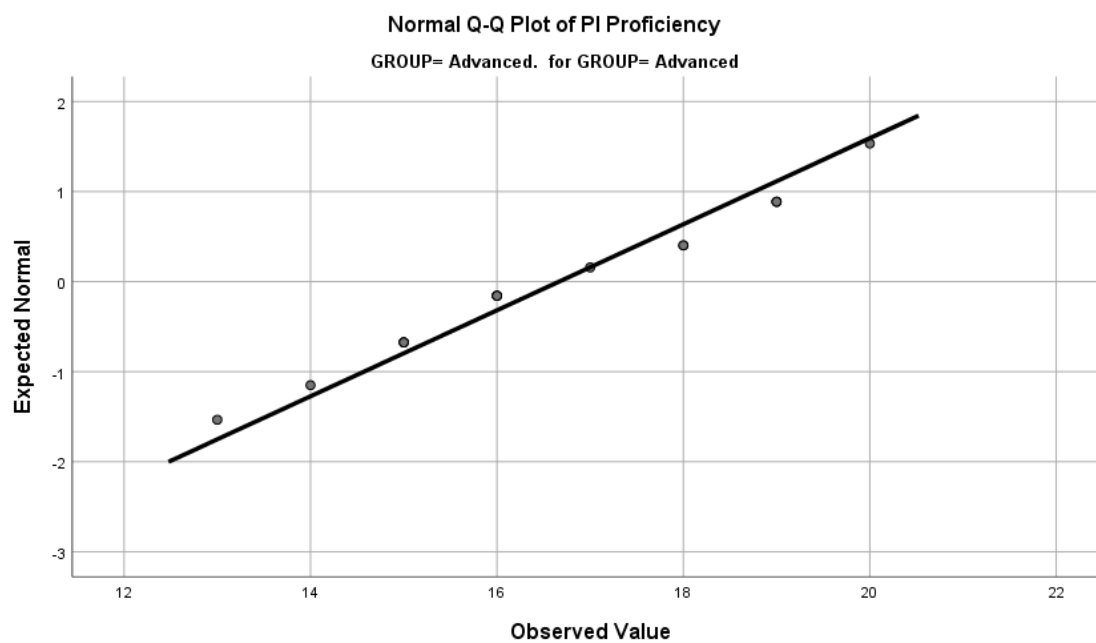
APPENDIX T13 – Normal and detrended Q Q Plots for advanced working memory strict scores

Normal Q-Q Plot of PI WM SS

GROUP= Advanced. for GROUP= Advanced

Detrended Normal Q-Q Plot of PI WM SS

GROUP= Advanced. for GROUP= Advanced
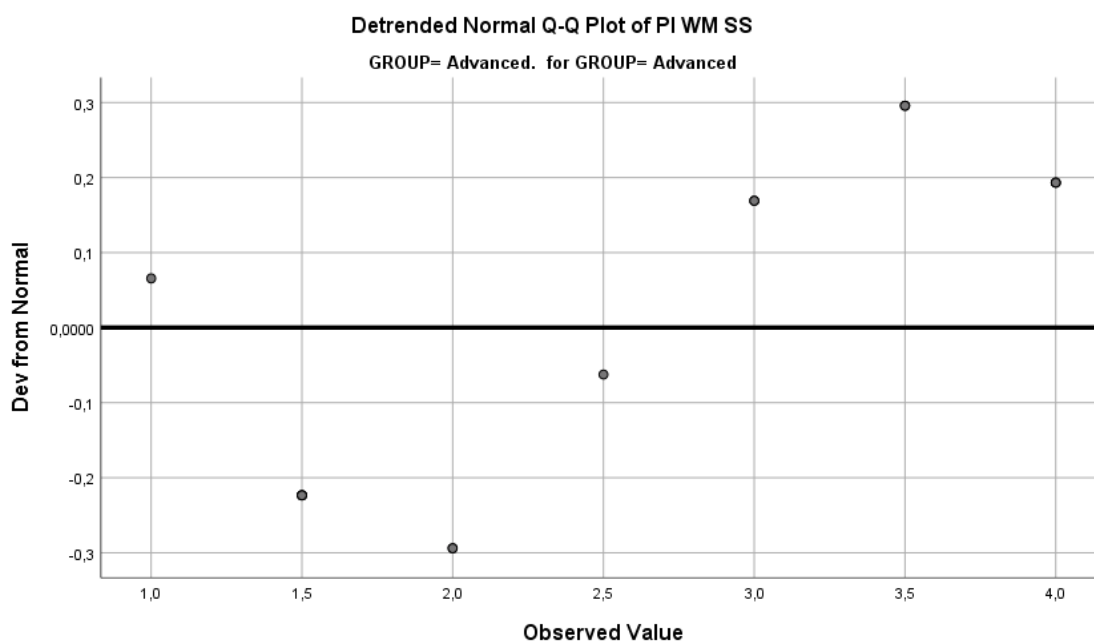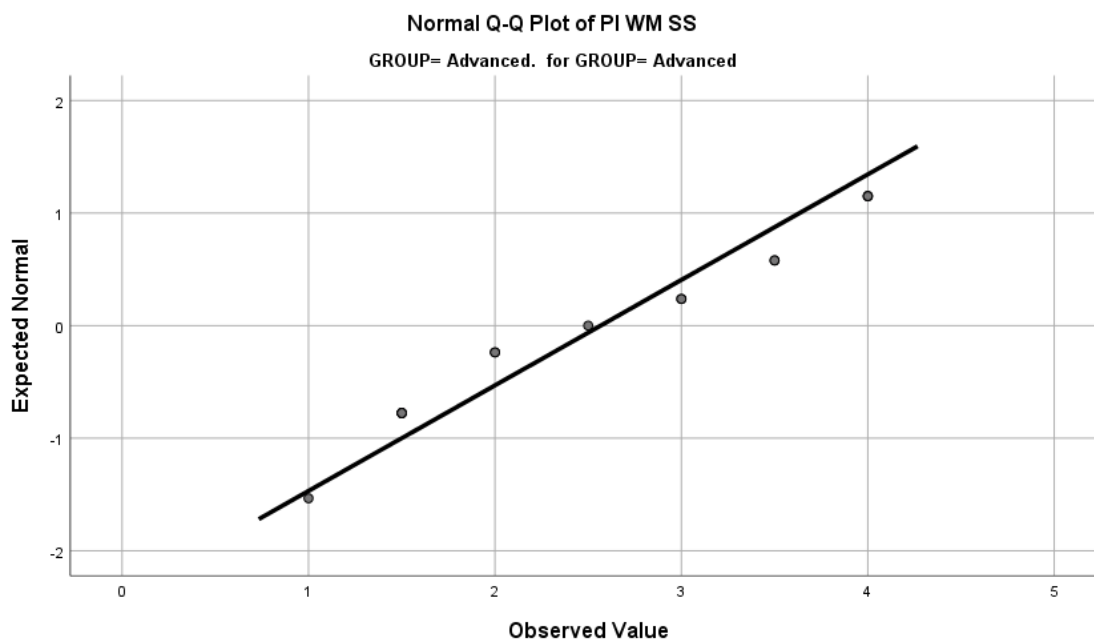
APPENDIX T14 – Normal and detrended Q Q Plots for advanced working memory lenient scores

Normal Q-Q Plot of PI WM LS

Detrended Normal Q-Q Plot of PI WM LS
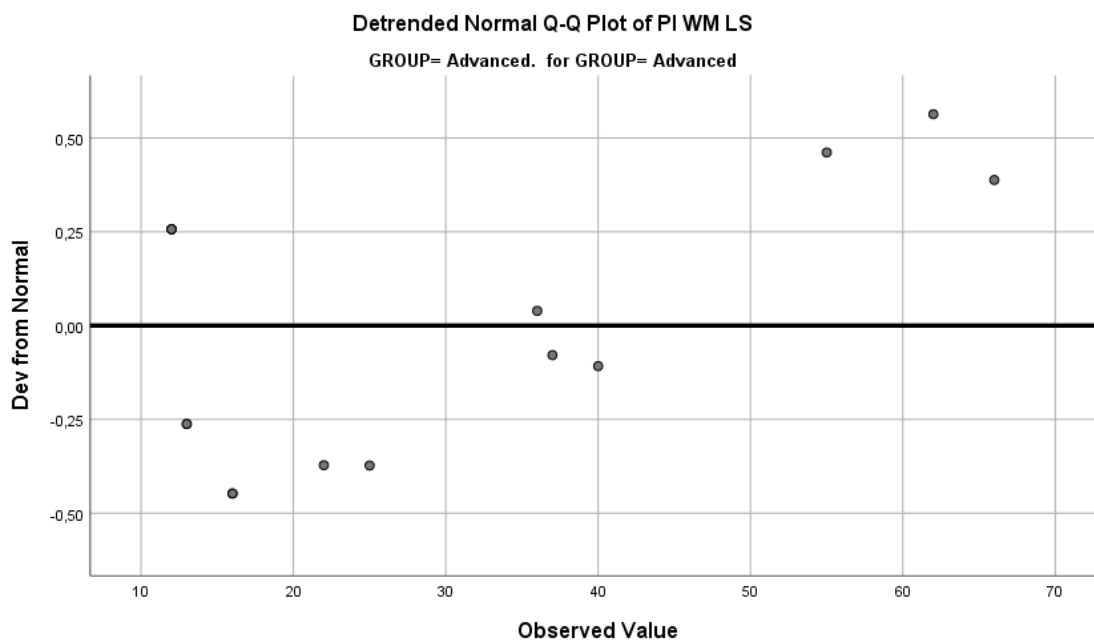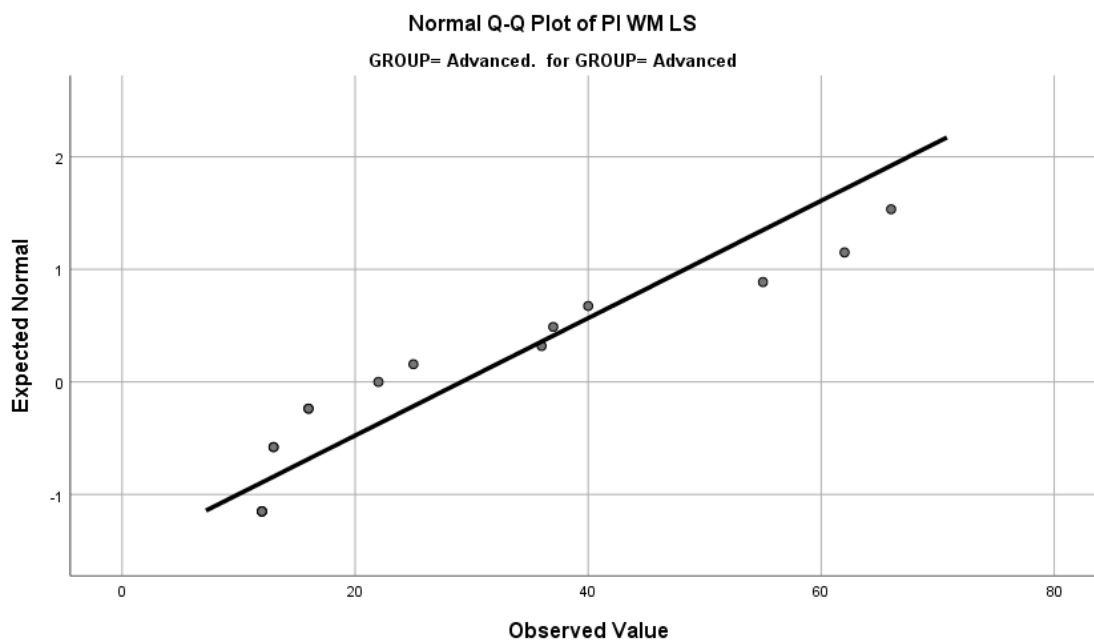
APPENDIX T15 – Normal and detrended Q Q Plots for advanced comprehension questions control
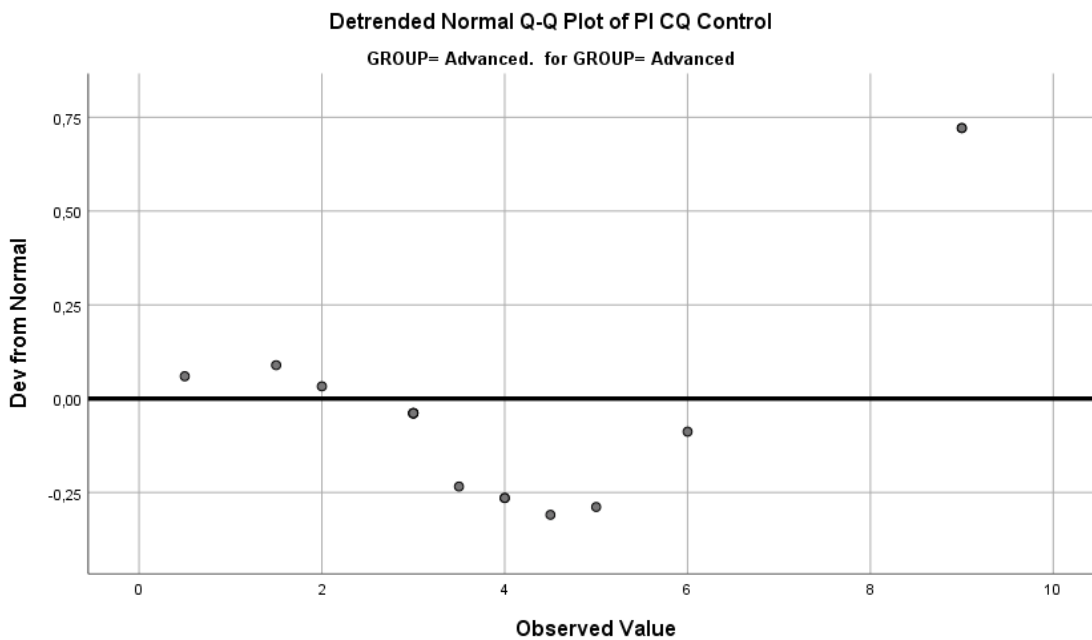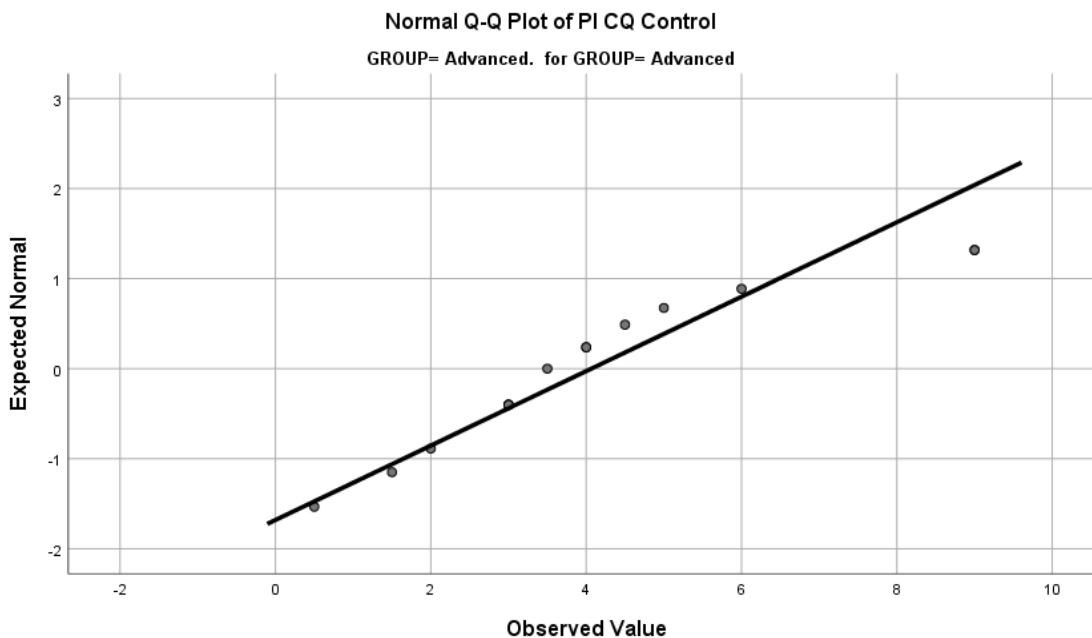
APPENDIX T16 – Normal and detrended Q Q Plots for advanced comprehension questions Contextual Redefinition

Normal Q-Q Plot of PI CQ CR

GROUP= Advanced. for GROUP= Advanced

Detrended Normal Q-Q Plot of PI CQ CR

GROUP= Advanced. for GROUP= Advanced
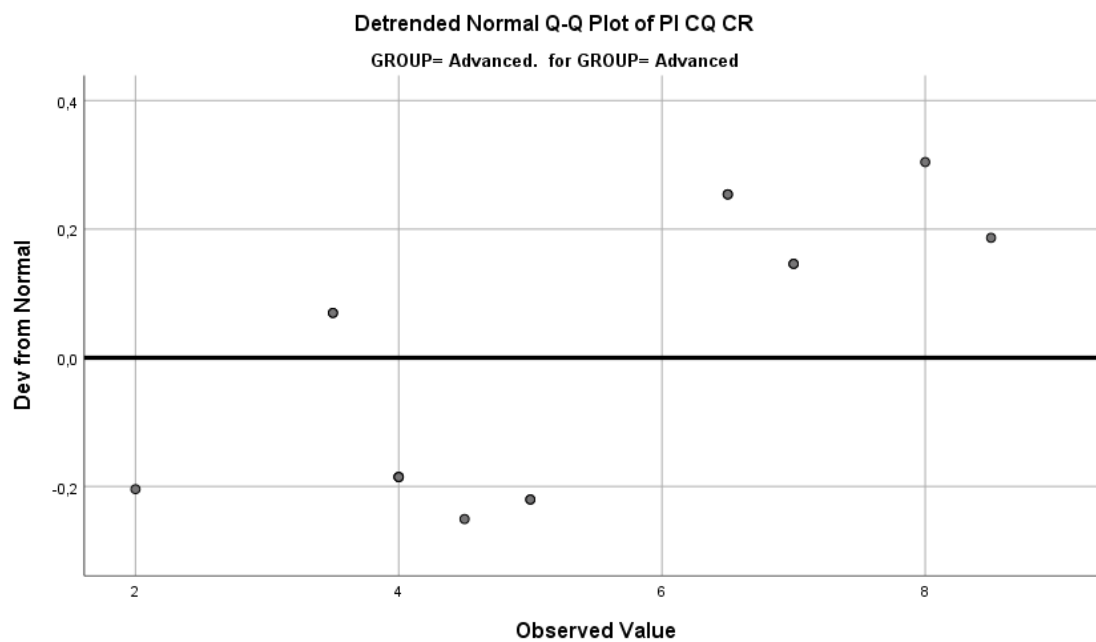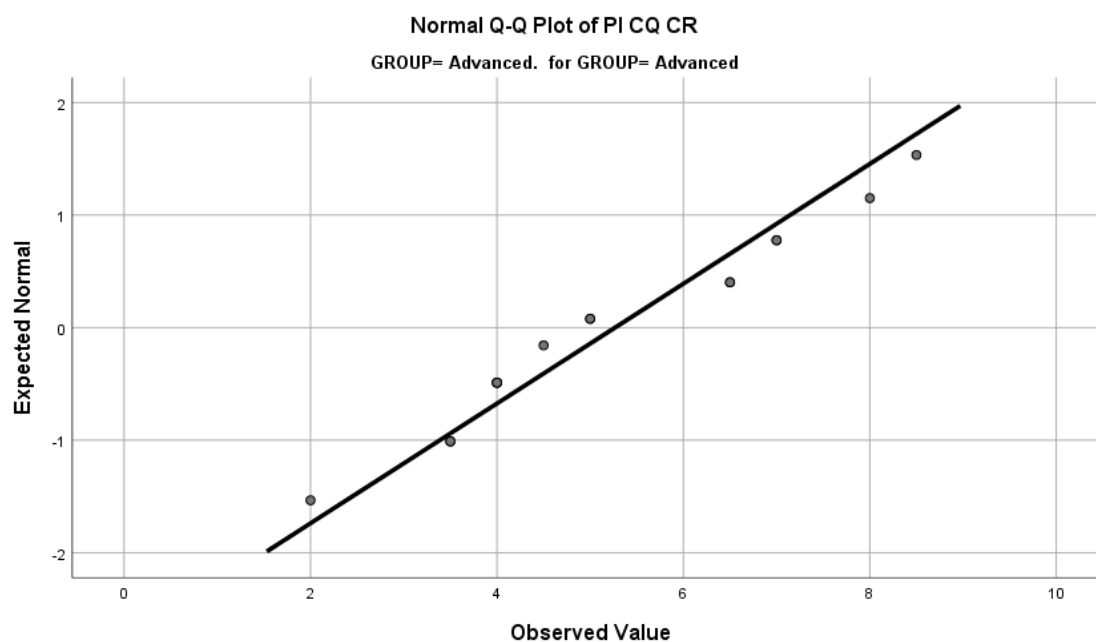
APPENDIX T17 – Normal and detrended Q Q Plots for advanced comprehension questions Graphic Organizer

Normal Q-Q Plot of PI CQ GO

Detrended Normal Q-Q Plot of PI CQ GO
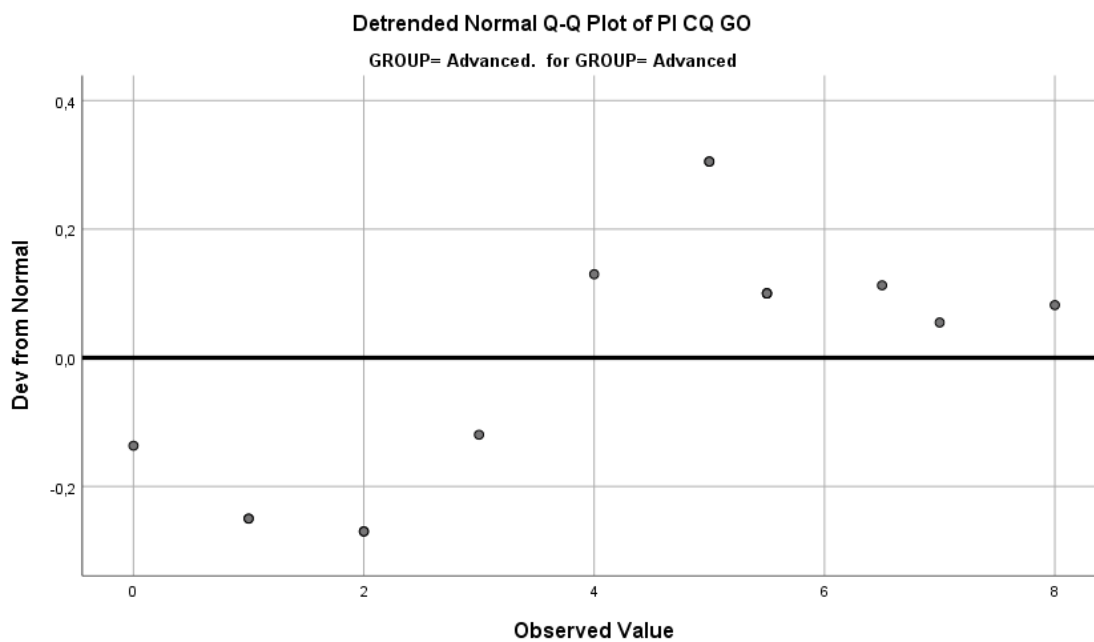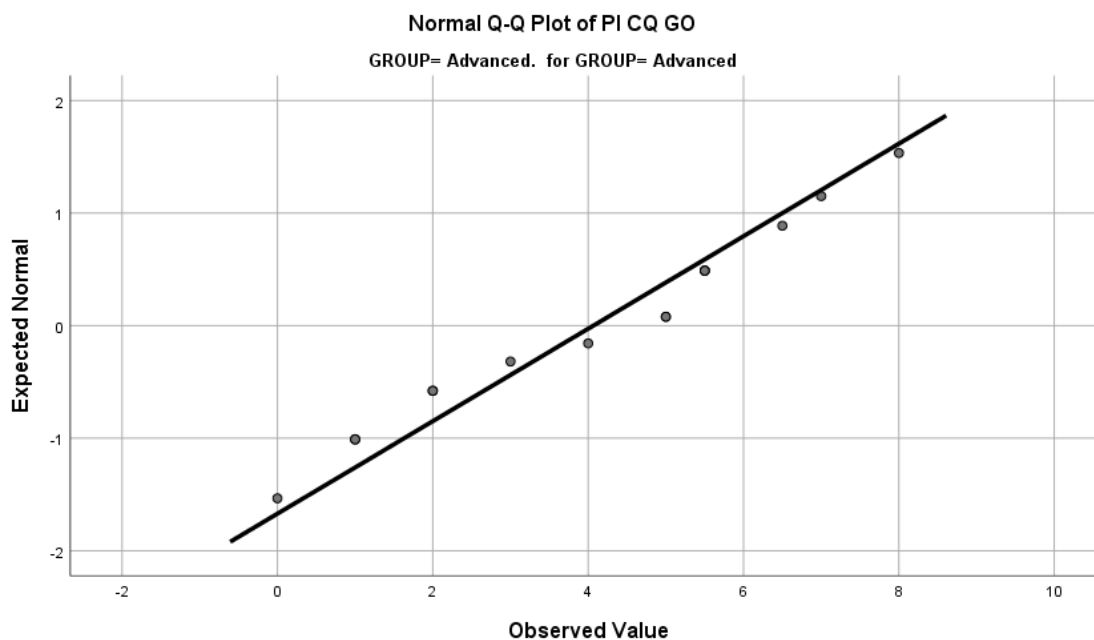
APPENDIX T18 – Normal and detrended Q Q Plots for advanced written free recall control

Normal Q-Q Plot of PI FR Control
GROUP= Advanced. for GROUP= Advanced

Detrended Normal Q-Q Plot of PI FR Control
GROUP= Advanced. for GROUP= Advanced
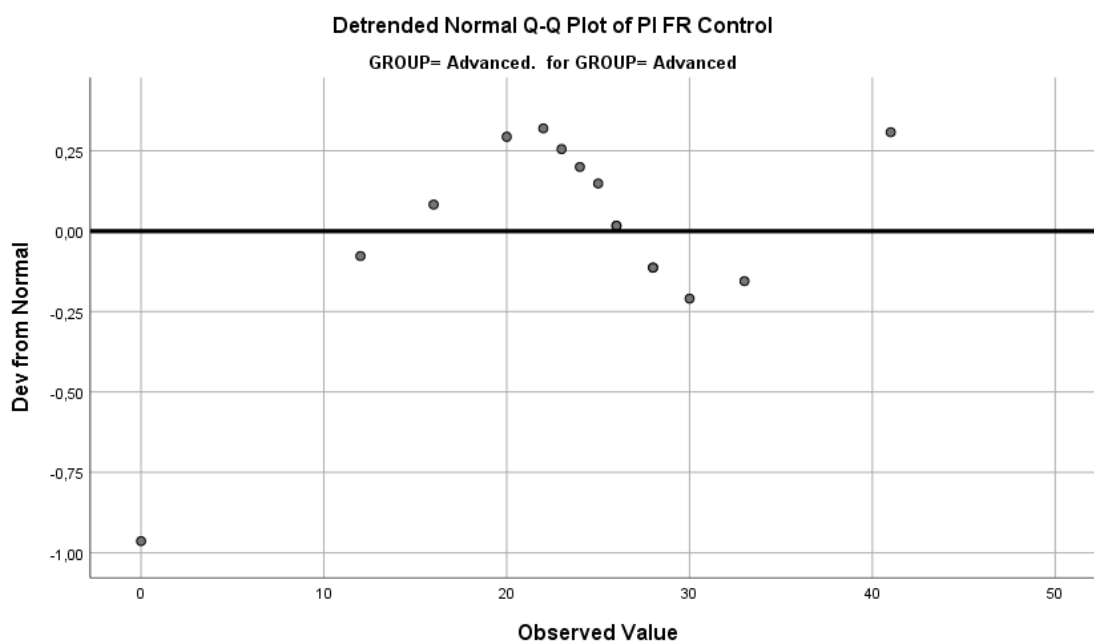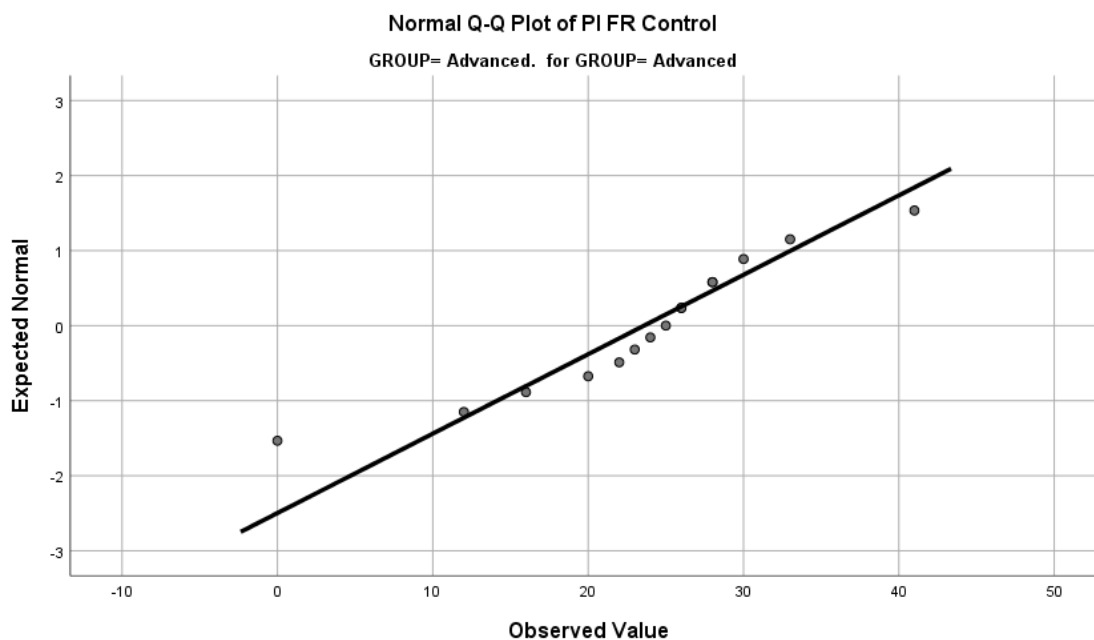
APPENDIX T19 – Normal and detrended Q Q Plots for advanced written free recall Contextual Redefinition

Normal Q-Q Plot of PI FR CR

GROUP= Advanced. for GROUP= Advanced

Detrended Normal Q-Q Plot of PI FR CR

GROUP= Advanced. for GROUP= Advanced
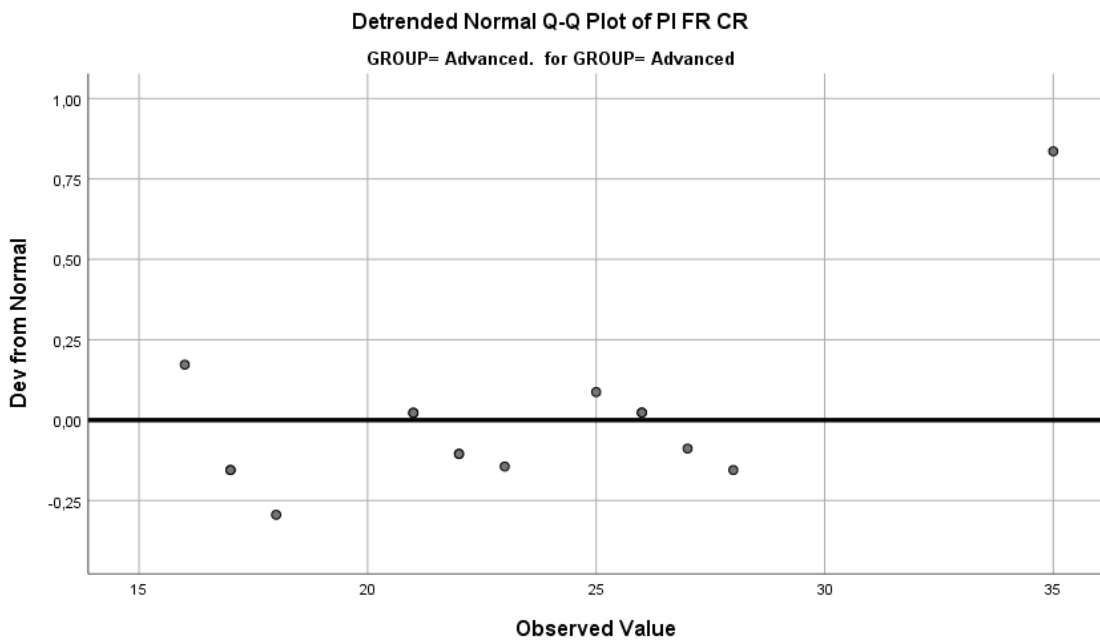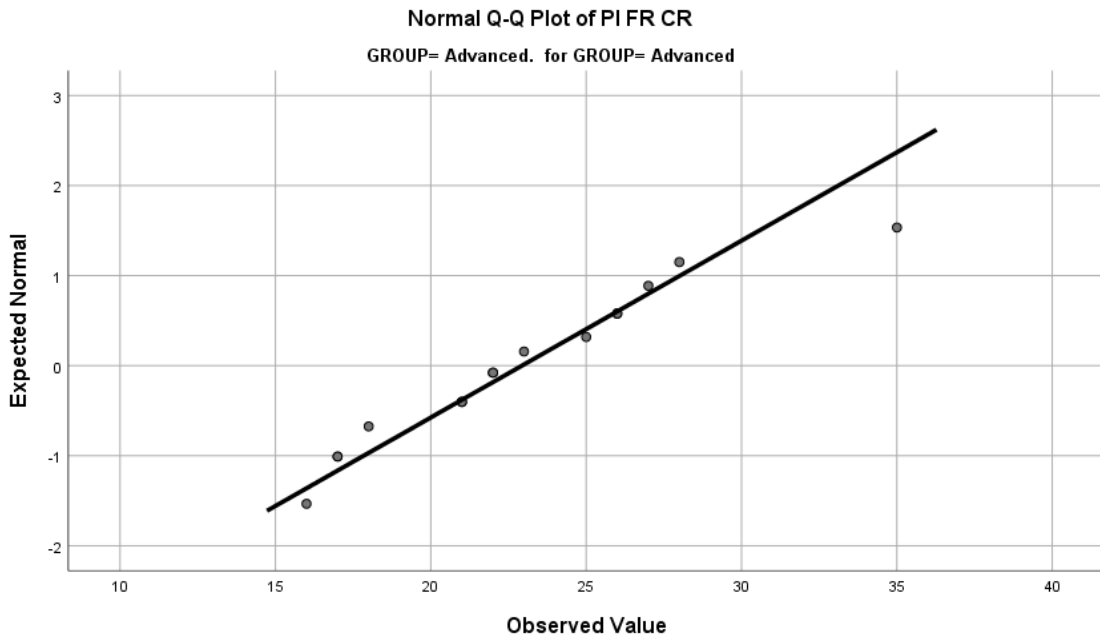
APPENDIX T20 – Normal and detrended Q Q Plots for advanced written free recall Graphic Organizer

Normal Q-Q Plot of PI FR GO

GROUP= Advanced. for GROUP= Advanced

Detrended Normal Q-Q Plot of PI FR GO

GROUP= Advanced. for GROUP= Advanced
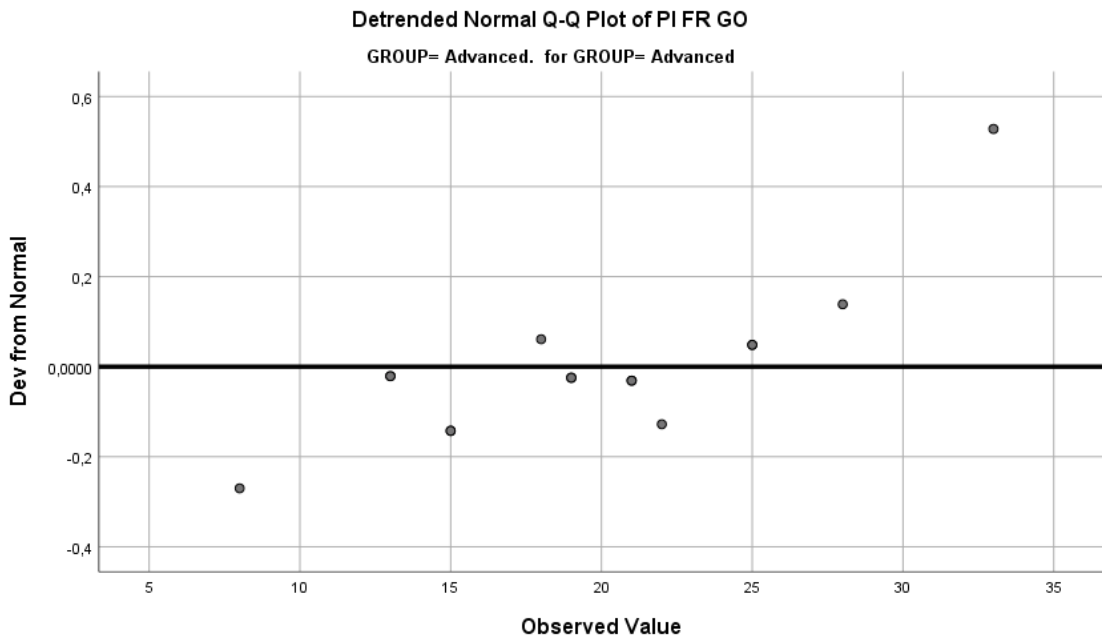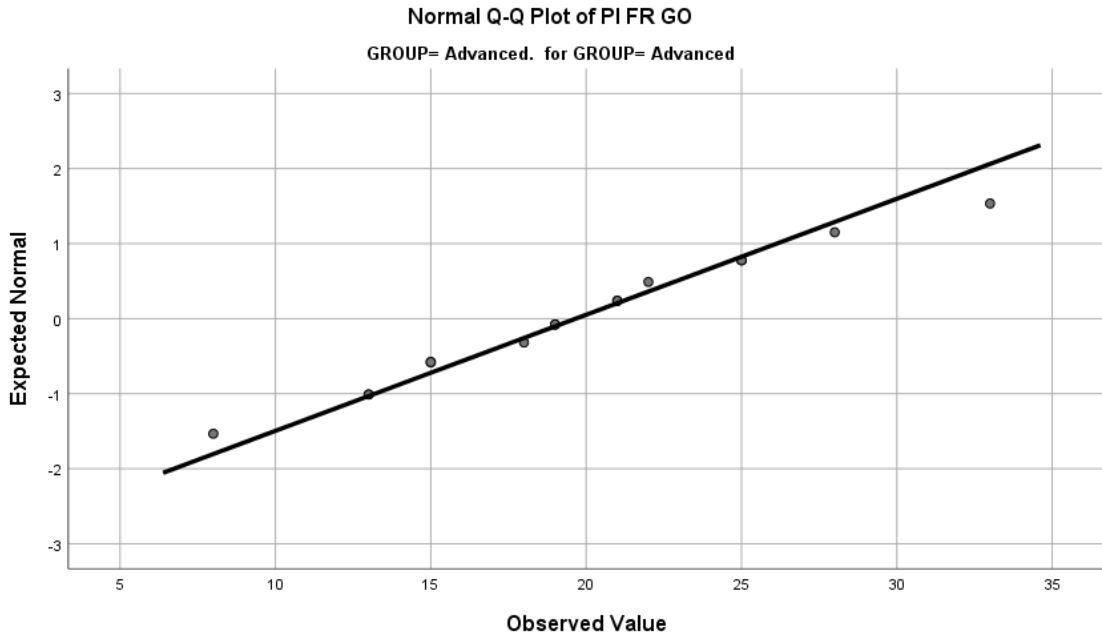
APPENDIX U1 – Scatterplots for pre-intermediate age x working memory scores
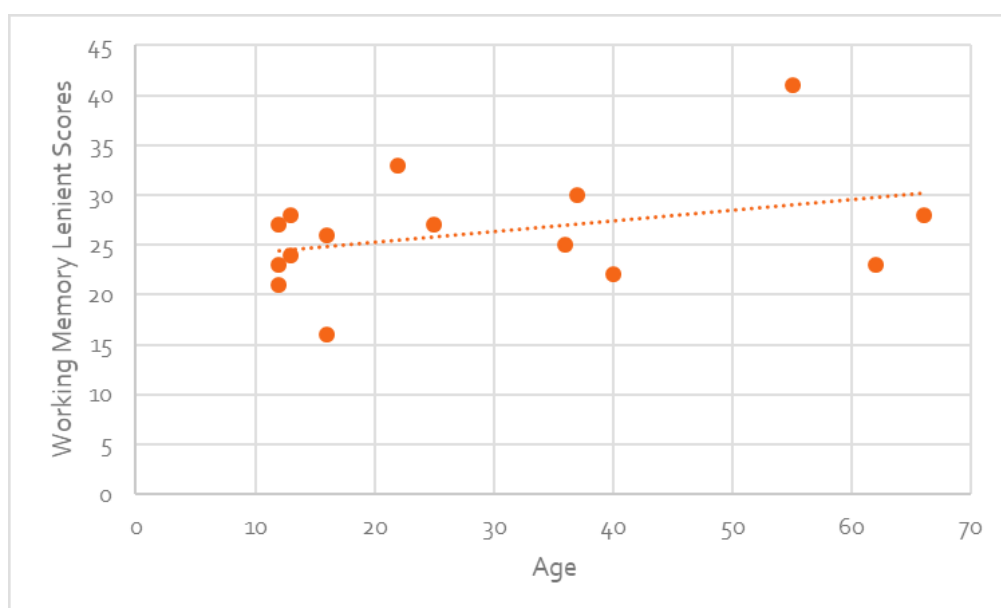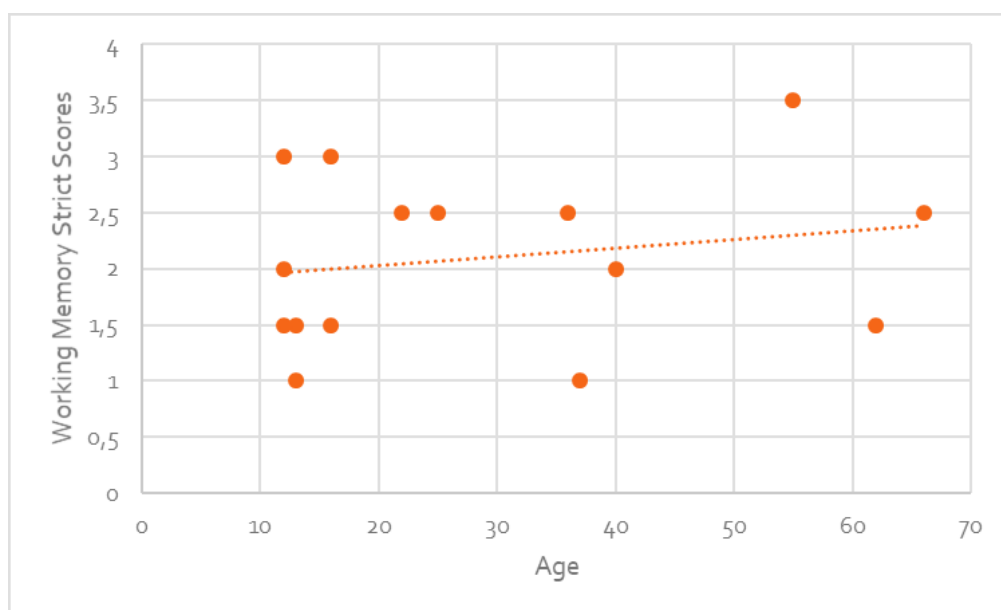
APPENDIX U2 – Scatterplots for pre-intermediate reading proficiency x working memory scores
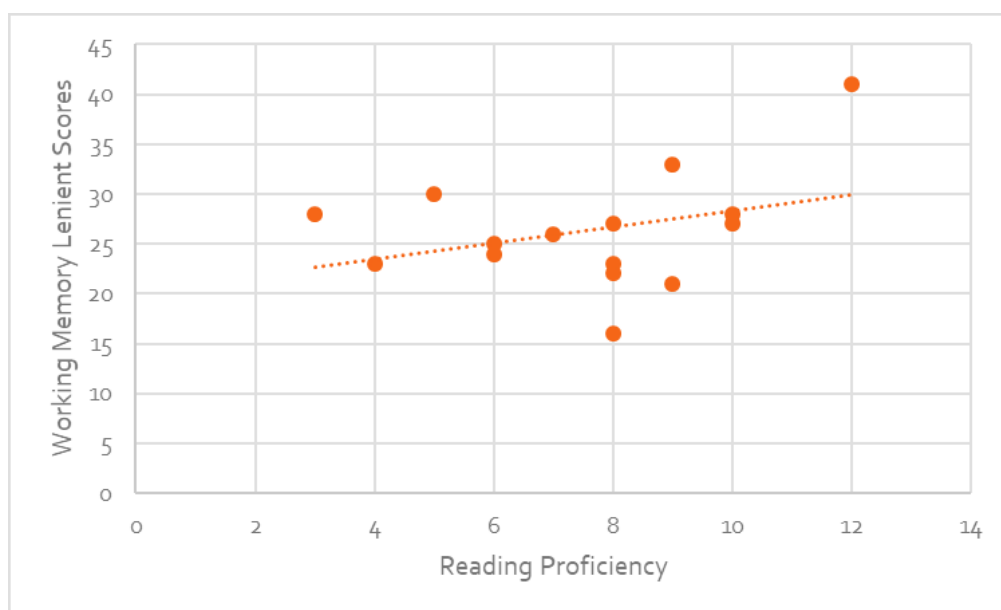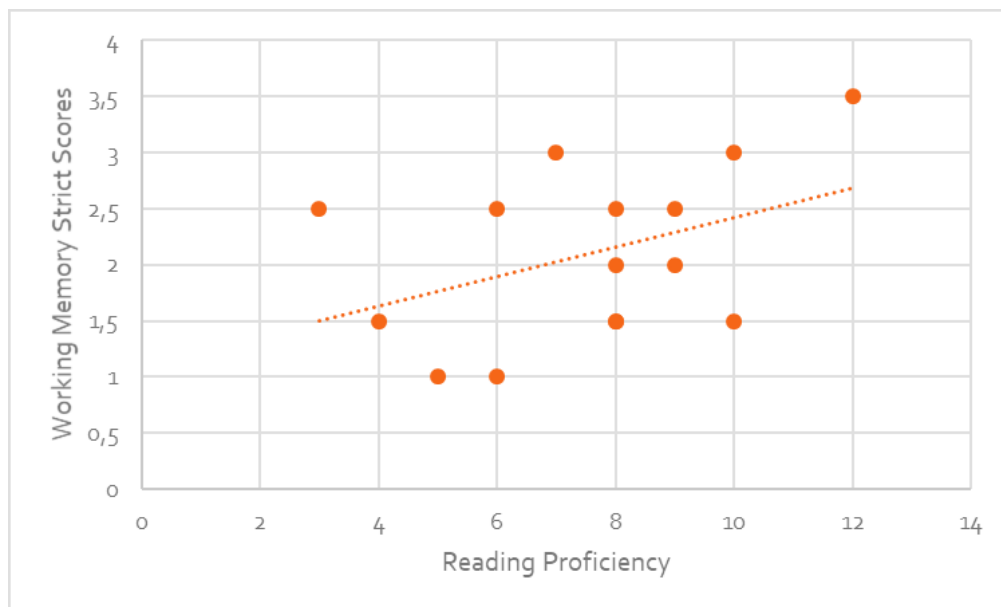
APPENDIX U3 – Scatterplots for pre-intermediate written free recall x comprehension questions
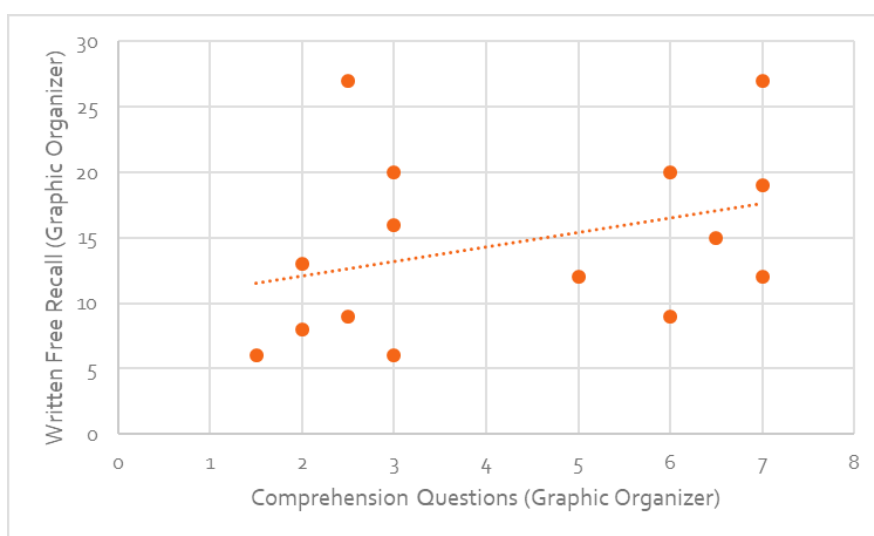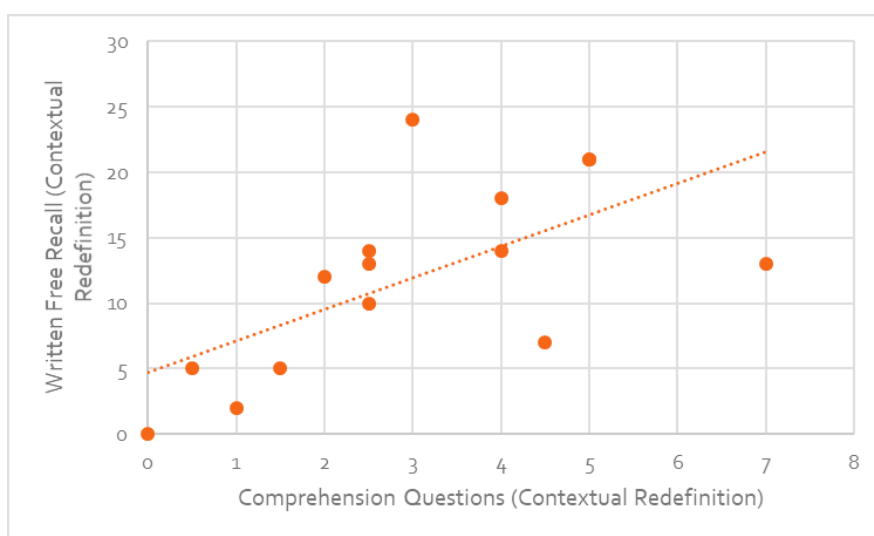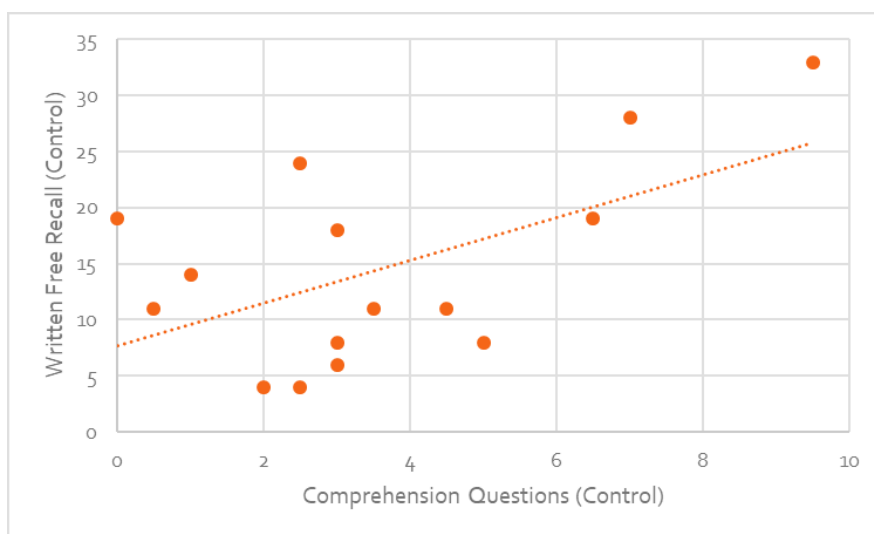
APPENDIX U4 – Scatterplots for pre-intermediate reading proficiency x comprehension questions
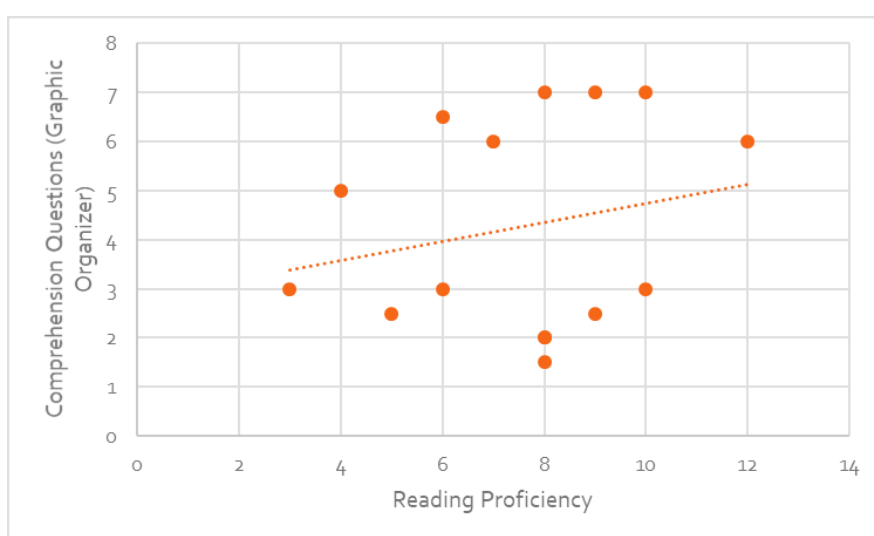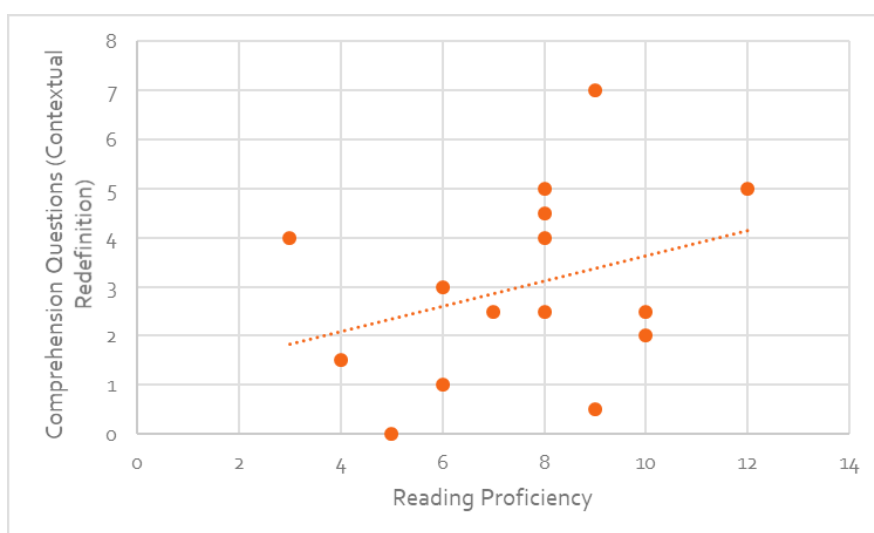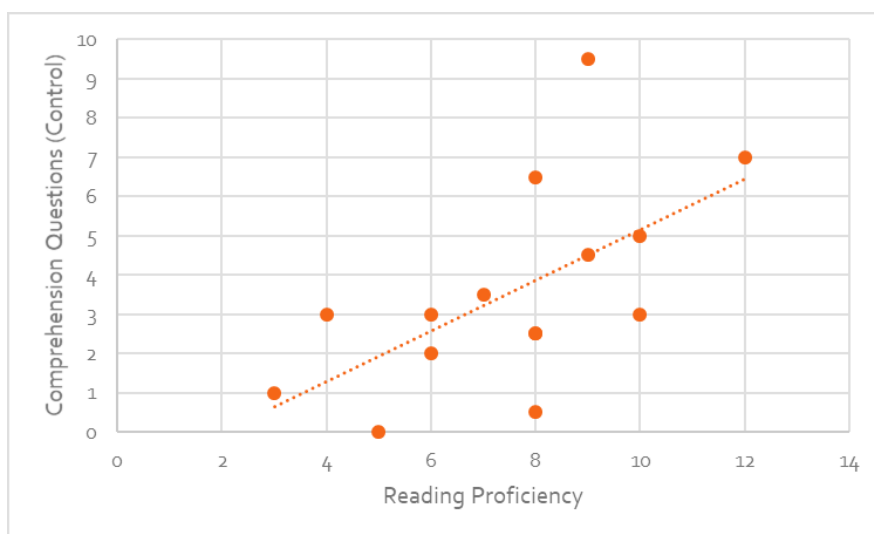
APPENDIX U5 – Scatterplots for pre-intermediate reading proficiency x written free recall
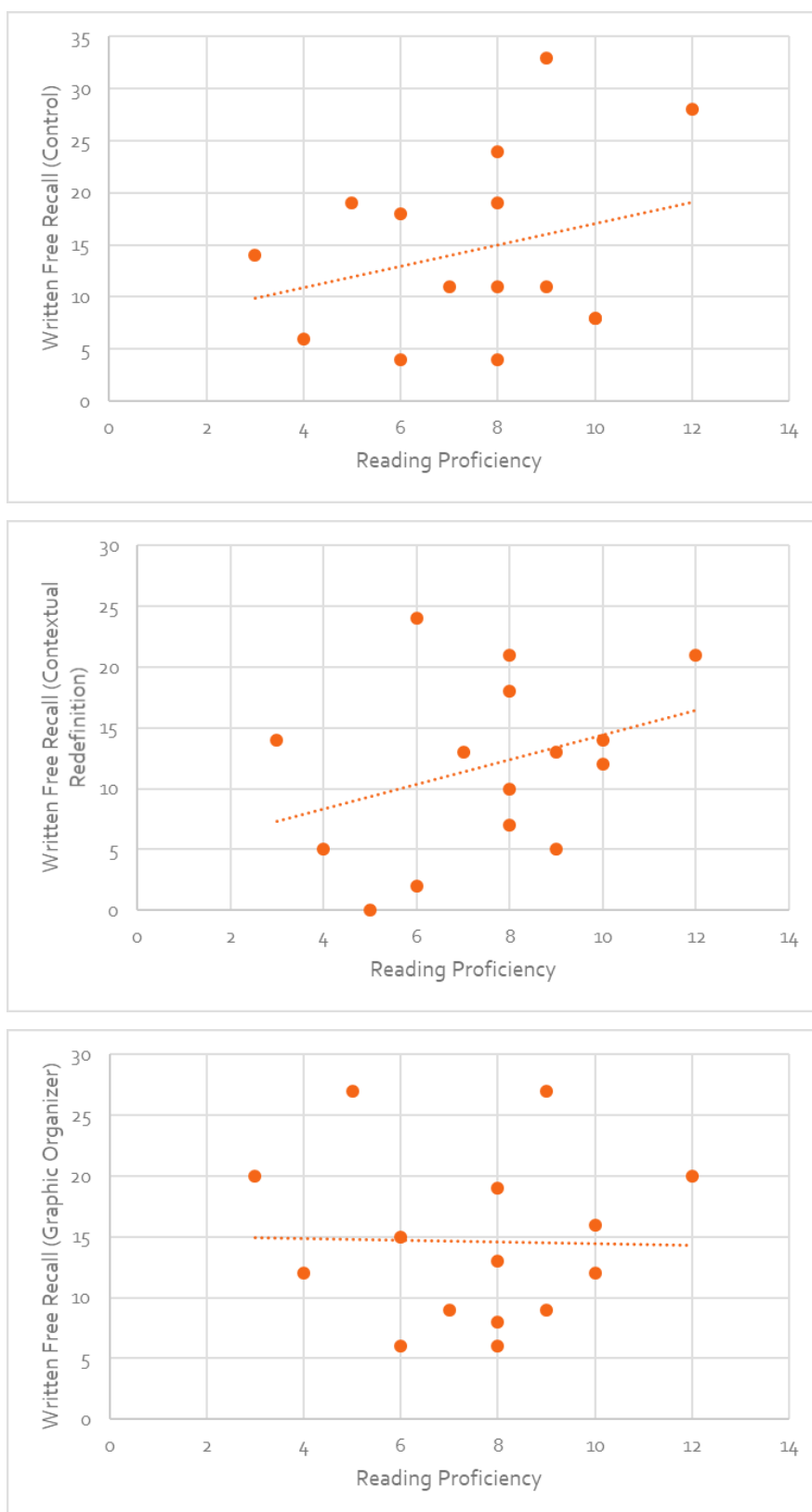
APPENDIX U6 – Scatterplots for pre-intermediate working memory strict scores x comprehension questions
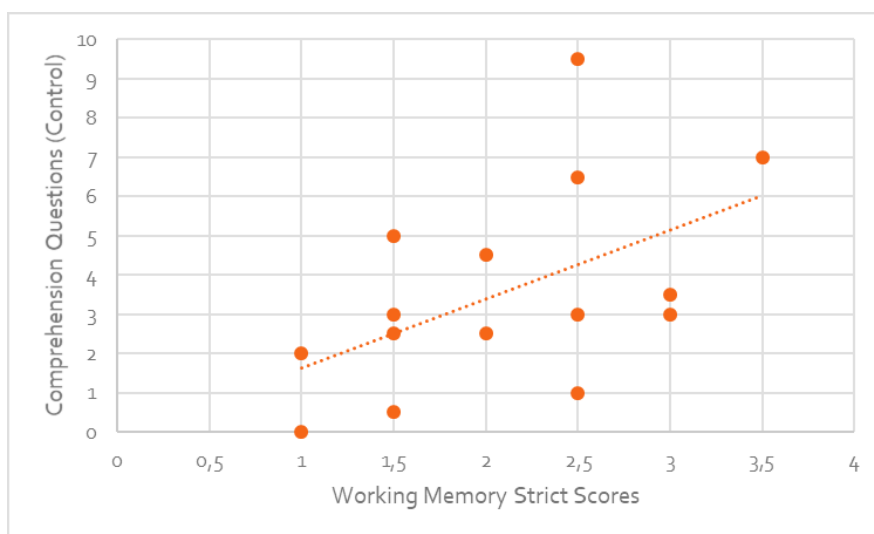
APPENDIX U7 – Scatterplots for pre-intermediate working memory lenient scores x comprehension questions
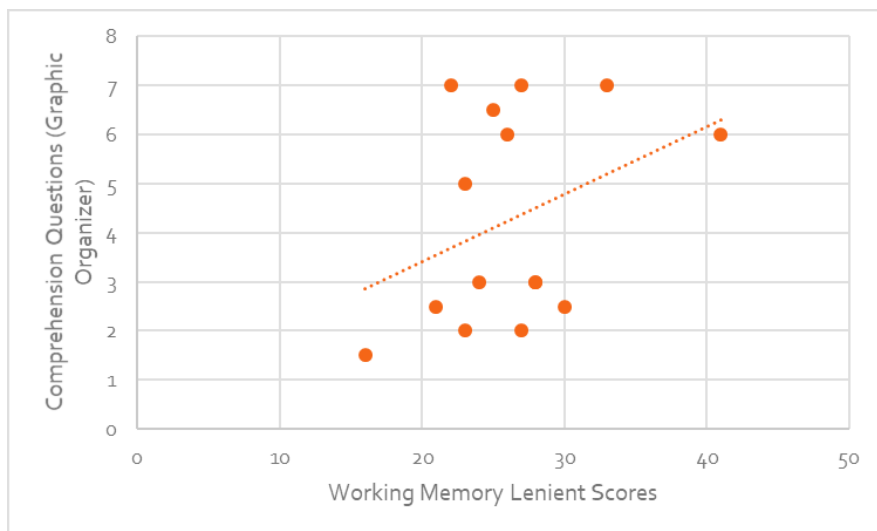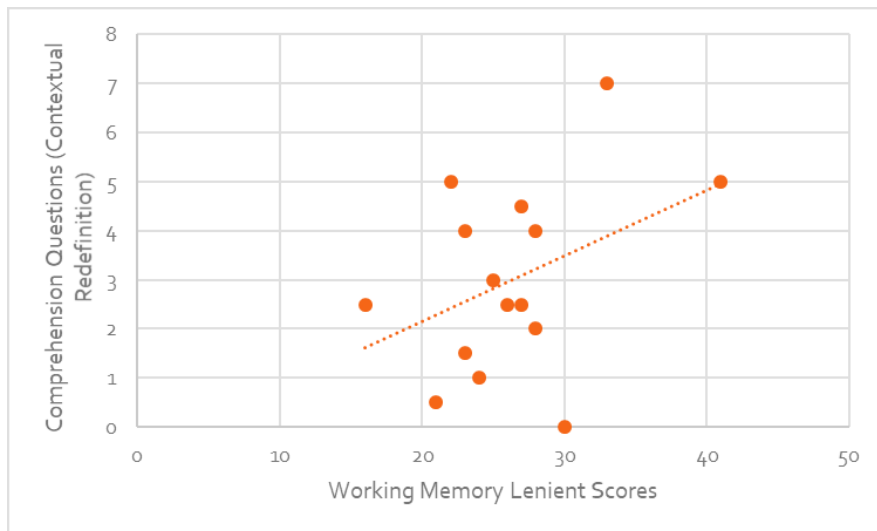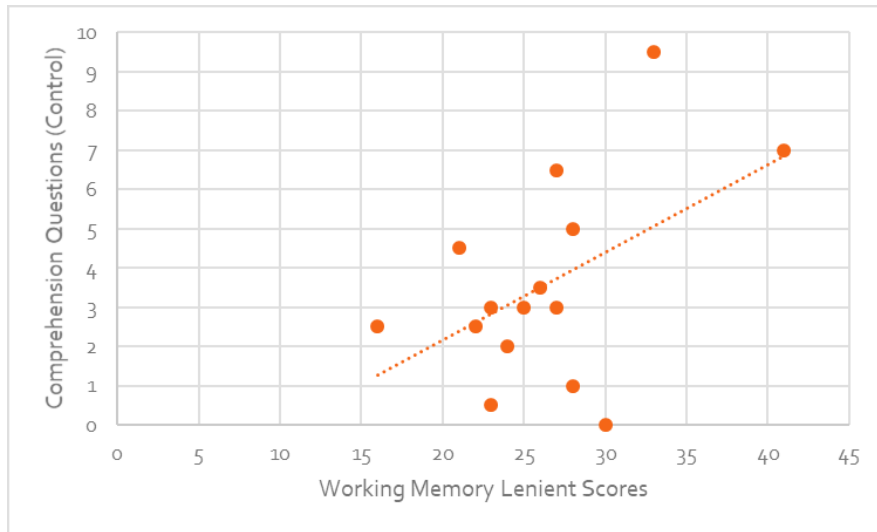
APPENDIX U8 – Scatterplots for pre-intermediate working memory strict scores x written free recall

APPENDIX U9 – Scatterplots for pre-intermediate working memory lenient scores x written free recall
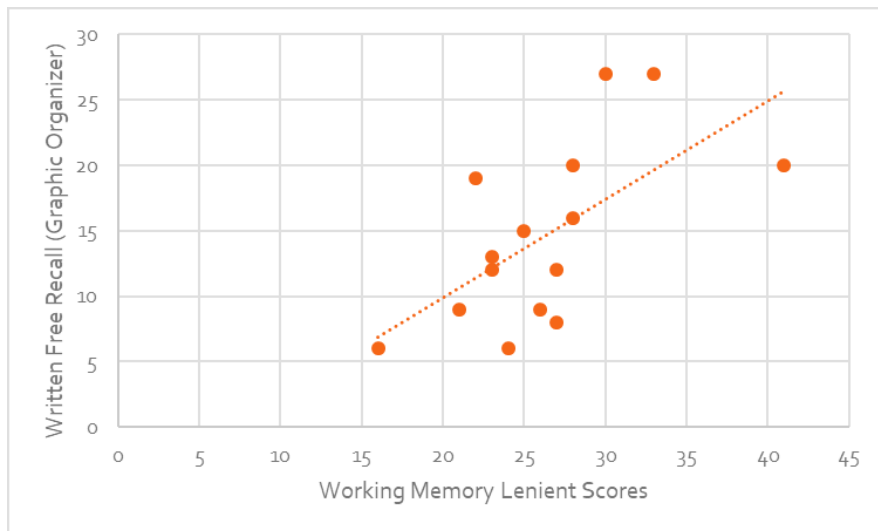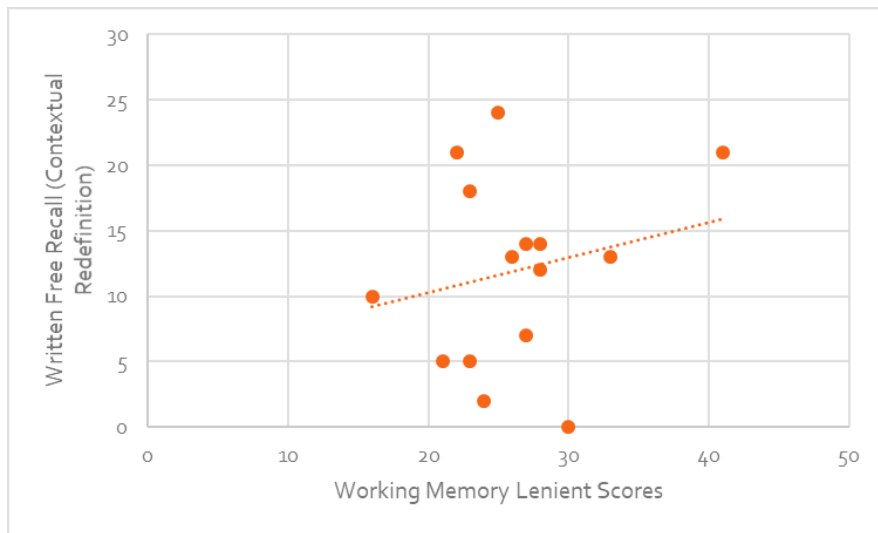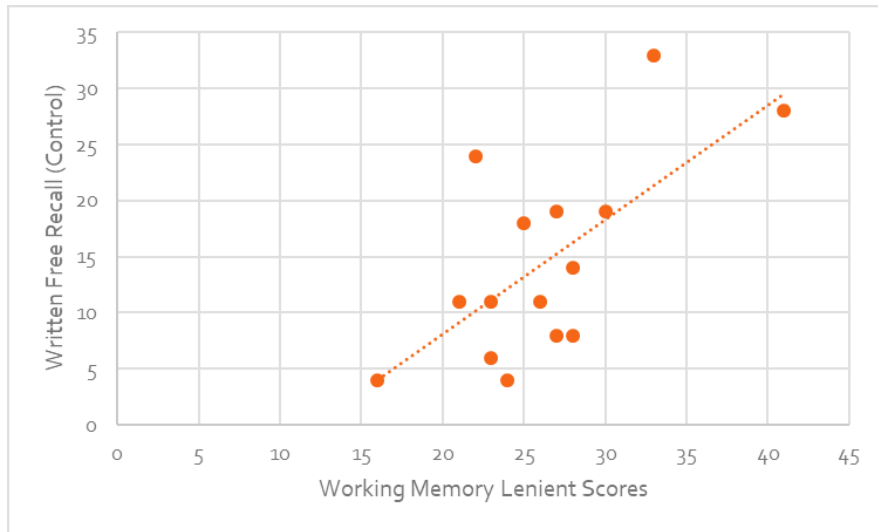
APPENDIX U10 – Scatterplots for advanced age x working memory scores
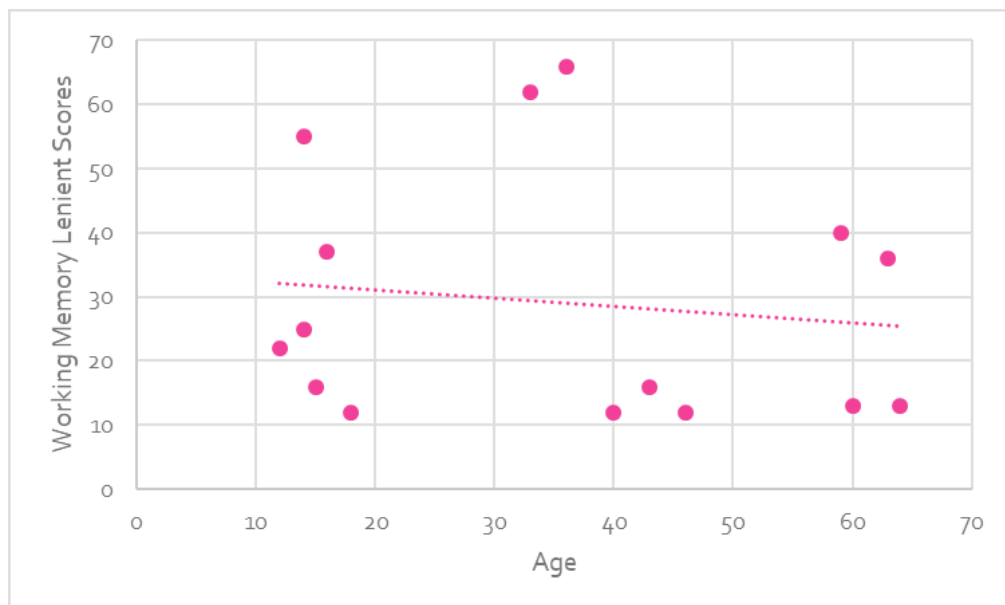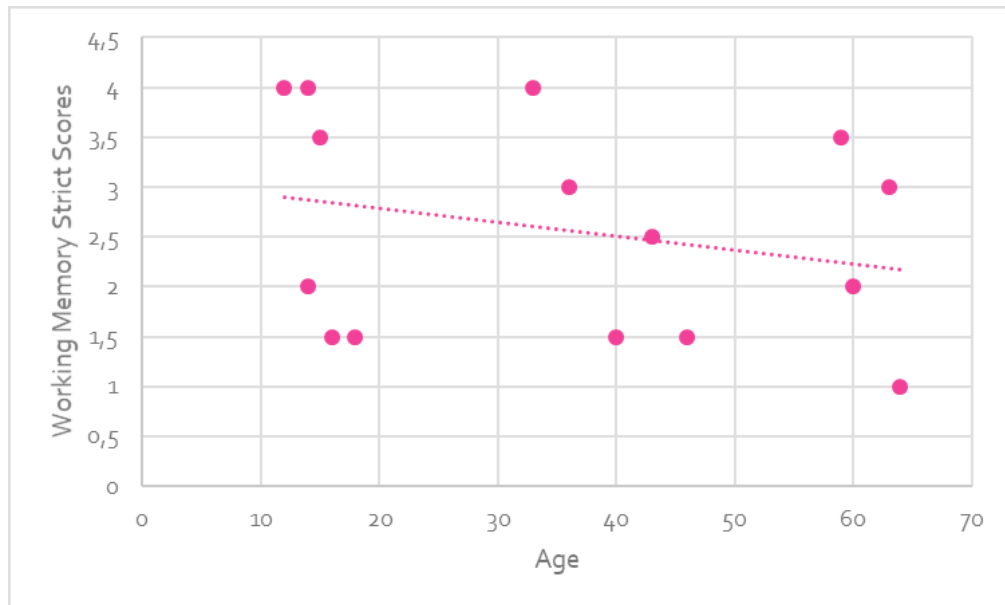
APPENDIX U11 – Scatterplots for advanced reading proficiency x working memory scores
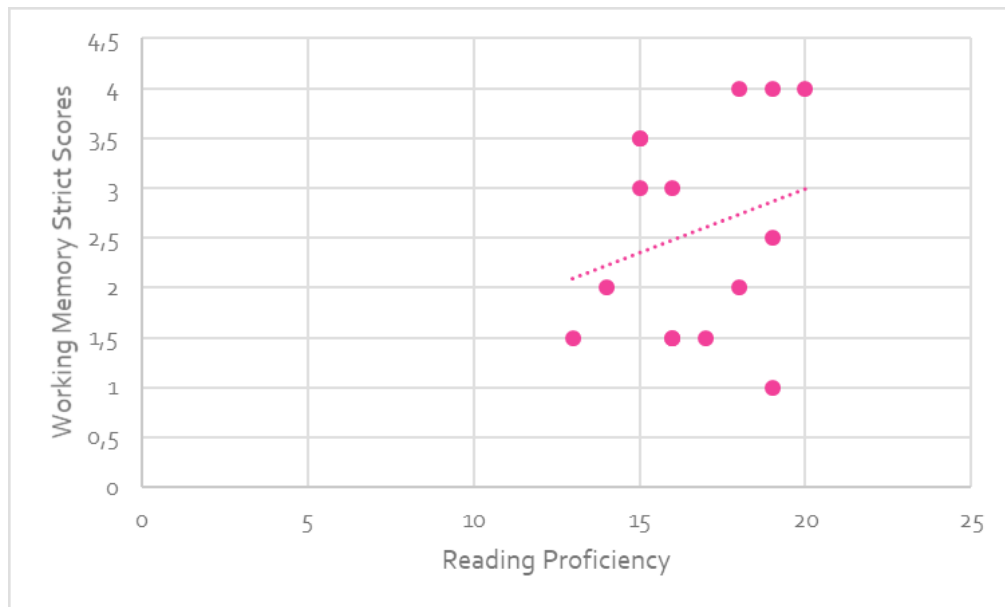
APPENDIX U12 – Scatterplots for advanced written free recall x comprehension questions
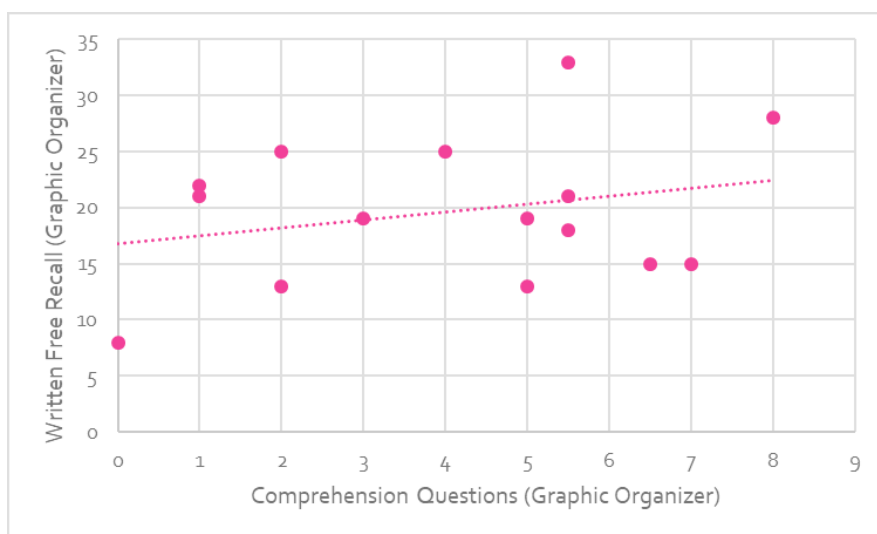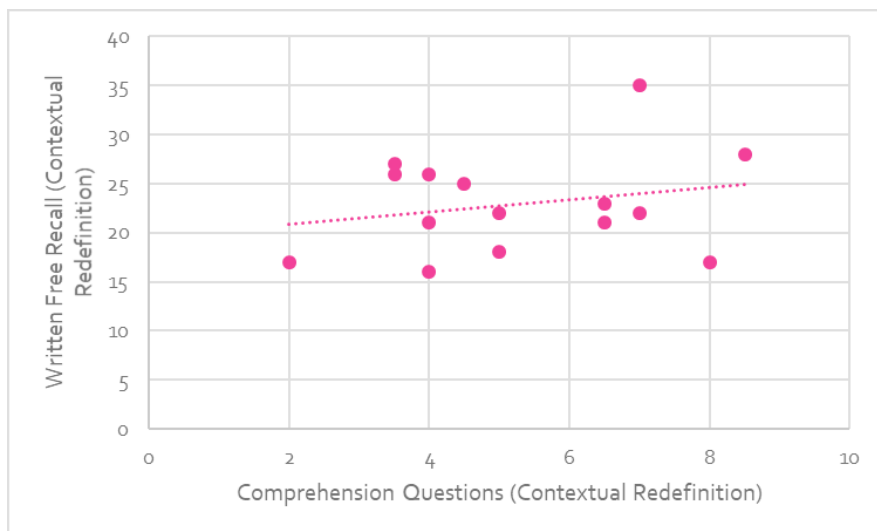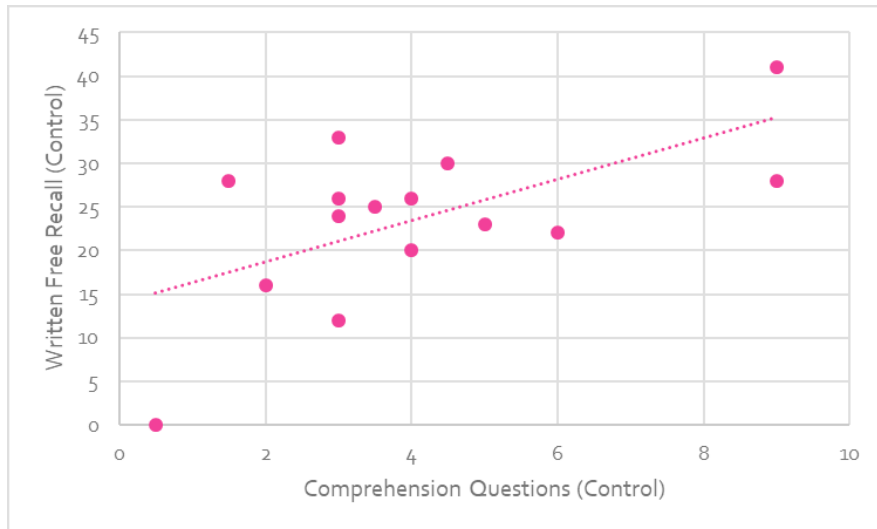
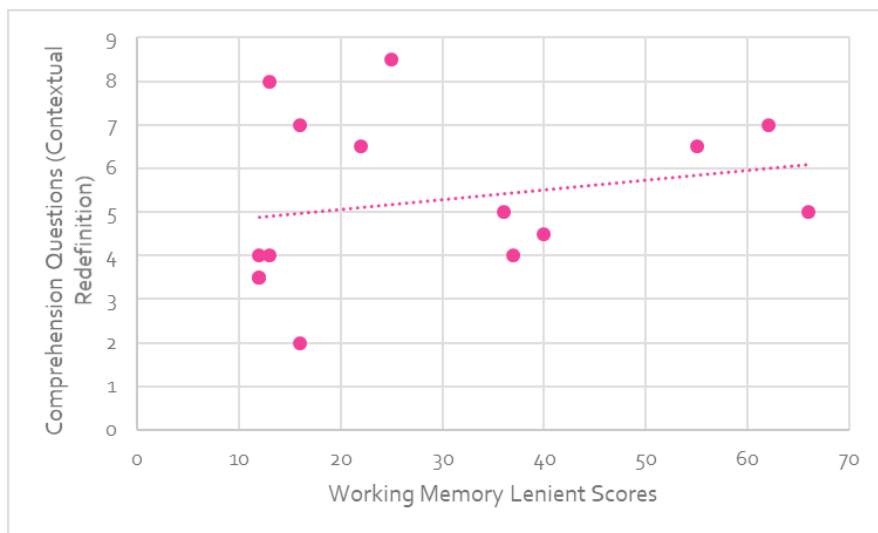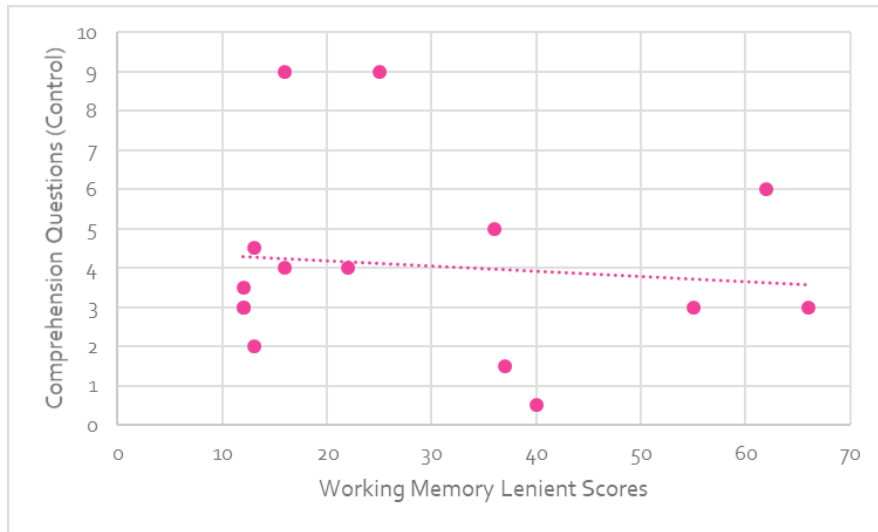**APPENDIX U13 – Scatterplots for advanced reading proficiency x comprehension questions**
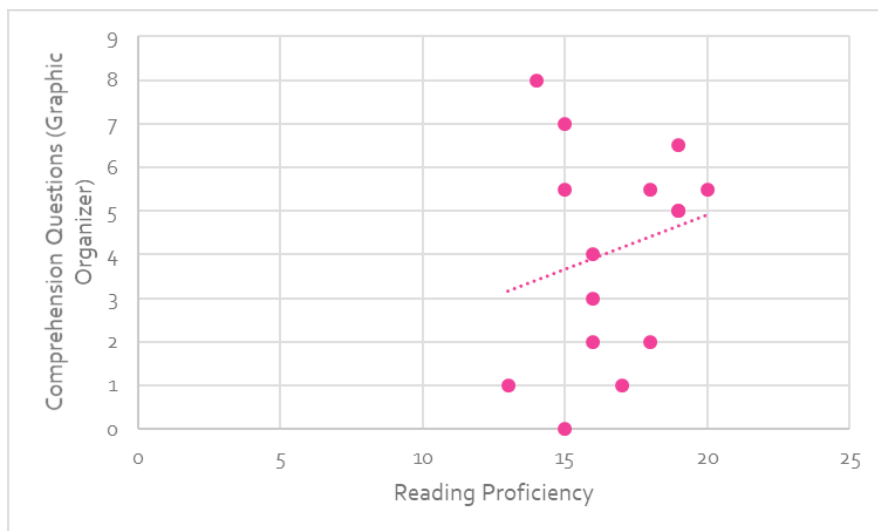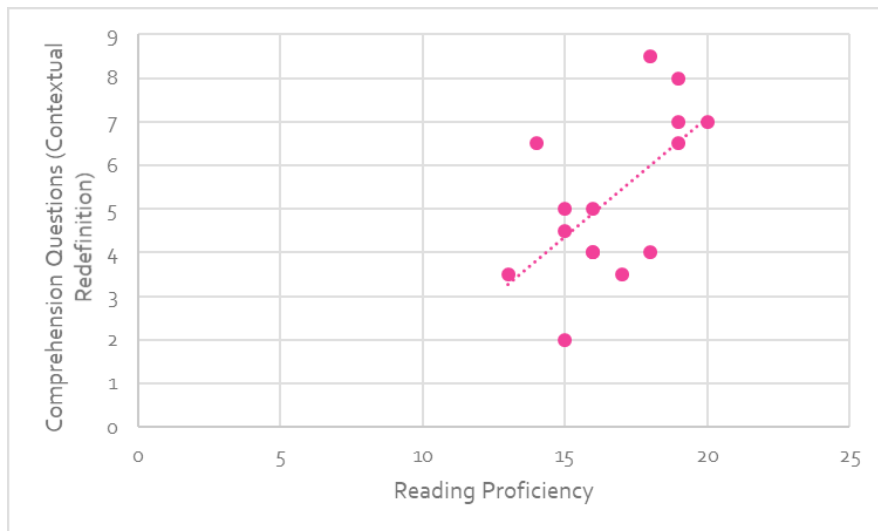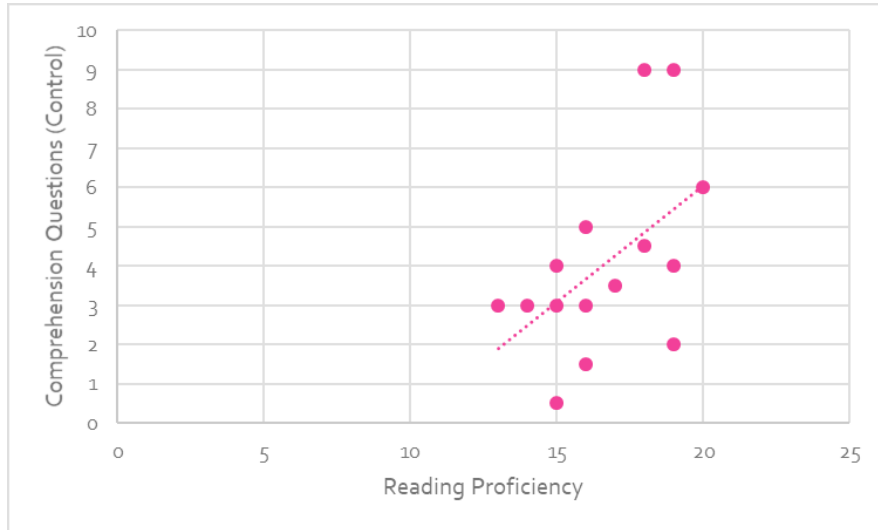
APPENDIX U14 – Scatterplots for advanced reading proficiency x written free recall
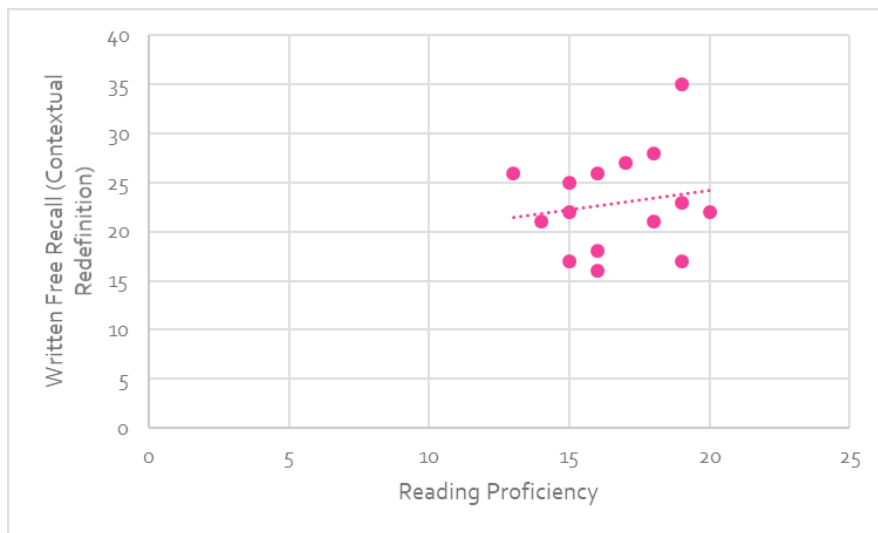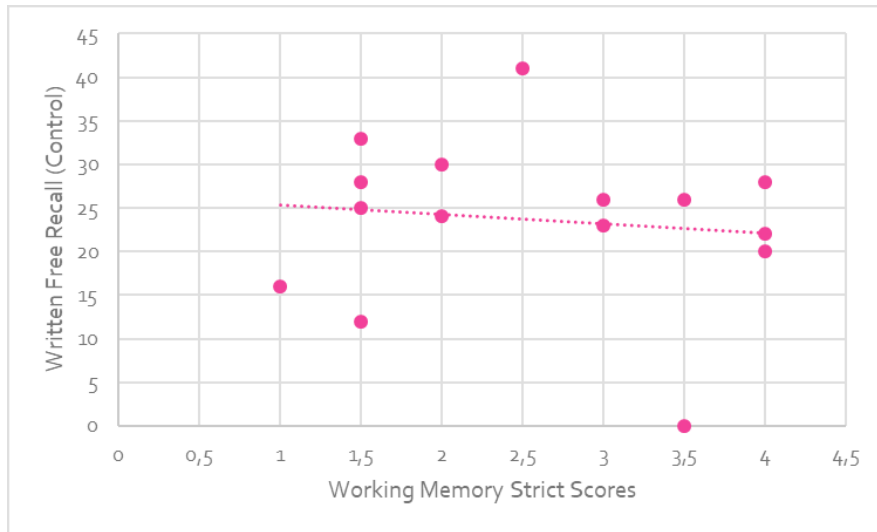
APPENDIX U15 – Scatterplots for advanced working memory strict scores x comprehension questions
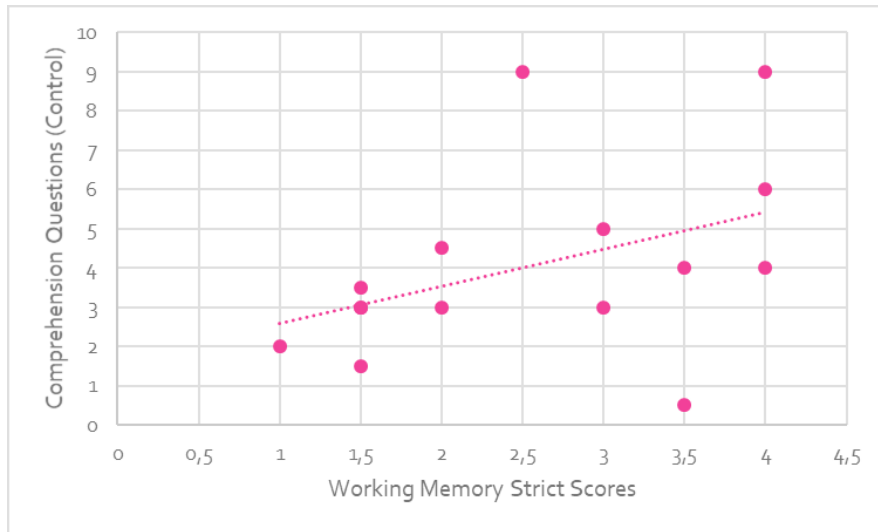
APPENDIX U16 – Scatterplots for advanced working memory lenient scores x comprehension questions

APPENDIX U17 – Scatterplots for advanced working memory strict scores x written free recall

APPENDIX U18 – Scatterplots for advanced working memory lenient scores x written free recall