A Study of the Activation of Goal Inferences by Readers of EFL at University Level

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Abstract:

Several studies have reported that readers activate goal inferences as they read action statement in different texts. As such, the purpose of this study is to examine two hypotheses: (1) Readers of EFL perform well in activating goal inferences. (2) The activation of goal inferences, automatically during reading, depends on readers' level of experience reading EFL. To test these hypotheses, a strategy called (Question-and-answer relationship) has been used where subjects are required to read narrative passages and answer questions about each action statement. The data indicate that subjects are good in activating the two types of goal inferences, viz. superordinate and subordinate; and that readers' experience in reading EFL has a great advantage in activating these inferences spontaneously during reading rather than after reading completion.

دراسة عن تفعيل استنباط الأهداف من قبل قرّاء اللغة الإنكليزية بوصفها لغة أجنبية في المستوى الجامعي

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ملخص البحث :

ذكرت عدة دراسات بأن القراء يفعّلون استنباط الأهداف أثناء قراءتهم للجمل الفعلية في نصوص مختلفة. وعليه فأن هدف هذه الدراسة هو التحقق من فرضيتين: (1) قرّاء اللغة

الإنكليزية بوصفها لغة أجنبية جيدون في تفعيل استنباط الأهداف. (2) يعتمد تفعيل استنباط الأهداف، تلقائيا أثناء القراءة، على مستوى تجربة القراء في قراءتهم للغة الإنكليزية بوصفها لغة أجنبية. ولاختبار هاتين الفرضيتين، استعملت الباحثة إستراتيجية تسمى (علاقة السؤال بالجواب). المطلوب من القراء، من خلال هذه الاستراتيجية، هو قراءة نصوص قصصية والإجابة عن أسئلة تتعلق بالجمل الفعلية في هذه النصوص. أشارت نتائج الدراسة إلى أن القراء جيدين في تفعيل استنباط الأهداف بنوعيها: الأساسي والثانوي. بالإضافة إلى أن مستوى خبرة القراء في قراءة اللغة الإنكليزية بوصفها لغة أجنبية ذو فائدة كبيرة في تفعيل استنباط الأهداف تلقائيا أثناء القراءة بدلا من بعد إكمال القراءة.

1. Introduction

Inferences are essential to and part of being human. Inferences drawn during reading are much like those drawn in everyday life. For example, we infer it is raining when we see someone with an open umbrella; we infer people are thirsty if they ask for a glass of water. Drawing inferences while reading requires exactly the same willingness to look at the evidence and to come to a conclusion that has not been expressed in words explicitly. Only in reading, the evidence of our inferences consists solely of sequences of words rather than actual events.

During reading, it is frequently the case that a reader must gain a true understanding of a text. Many experimental results have shown that in such case the reader must engage in an active process to ensure the cohesion relations among the propositions stated in the text (cf. Rayner and Sereno, 1994 and Urquhart and Weir, 1998). Among such cohesion relations is the one called ***inference activation***. This relation is activated when the reader suffers from coherence breaks, then s/he becomes involved in an inferential process to search for the lacking information. Following this, inferences are defined by Gernsbacher (1997:7) as "… implicit coherence cues that are necessary for the mapping cognitive

process[1] involved in text and discourse comprehension"(see also Savinov, 1997).

Many types of inferences[2] can be activated during reading. Of these types is the one called goal inference which is the basic concern of this research. This class of inferences is further subdivided into superordinate and subordinate goal inferences. The former deals with the description of intentional actions, while the latter describes the operations involved in performing those actions (Long and Golding, 1993:56).

In a series of studies, Graesser and his colleagues found that goal inferences are activated while readers answer questions about characters' intentional actions in conventional stories. Moreover, the authors found that readers in response to why- and how- questions activate these specific types of inferences more than other types (Graesser and Murachver, 1985; and Graesser and Clark, 1985).

2. Hypotheses

This research is intended to test the following hypotheses:

1. Readers of EFL are good in activating goal inferences.
2. The amount of experience reading the English language has a significant role to play in activating goal inferences during reading.

3. Aims

The immediate area of concern of this research is to:

1. understand the types of inferences that readers will activate, how they are activated, and the conditions under which it is reasonable to assume that they will be activated;
2. explore which theory of reading, the ***Minimalism***, the ***Constructionism***, or the ***Mental Models*** theory holds better for explaining how, what, and when inferences are made; and

3. present the role of instruction in the use of contextual cues and different strategies for inferences activation to aid students increase and consolidate their abilities in inference making.

4. Reading Theories and Inference Activation

During immediate or on-line comprehension many questions remain unclear. These questions are centered on (1) how much information is typically inferred? (2) under what conditions unexpressed information becomes part of a reader's representation of a certain text? (3) how the information inferred is activated? (4) what types of inferences are there? (5) when are they activated, if at all? (cf.Urquhart&Weir,1998).

There has been a longstanding debate between the proponents of different reading theories viz. ***Minimalism***, ***Constructionism***, and ***Mental Models*** on the role and types of inferences in reading comprehension. In this section, we will explore what each type of theory underlies in relation to the above-mentioned queries. Moreover, we would like to indicate some points that are unclear with respect to the criteria of inference activation for each type of reading theories.

Minimalism is a theory that dates back at least thirty years. The essence of this theory, according to Thorndyke (1976), Corbett and Dosher (1978), and Singer (1980), is that the only inferences made as a text is read are those that are necessary to establish a coherent interpretation. This means that there is a distinction between those inferences that are important for a coherent interpretation and those that are merely used for an analytic description of a text, i.e. those inferences that depend, in their activation, on information that is available in the text. According to this theory, only the former type of inferences are activated automatically during reading, and they are called Minimalist inferences, while all other types are activated subsequent to the initial

reading of a text, i.e. they are non-automatic and are called non-minimalist inferences(3) (McKoon and Ratcliff, 1992).

The notion of automaticity is used, by the Minimalists, in its classic sense to refer "…to processes that are fast, free from conscious awareness, and low in their demands on cognitive resources"(ibid.:p.441). However, this notion is rather confusing. According to Minimalism theory, the only inferences that are made automatically are those that are based on what knowledge is readily available in the text; and those that are required to make the propositions of the text locally coherent. Noordman and Vonk (1992,1993) claim that their experimental results indicate that these inferences are not always made during reading, i.e. are not always automatic. ***Causal inferences*** are examples of such type. These inferences are activated after reading the text when the reader verifies the information in the text. In other experiments, Garnham (1993) concludes that readers activate inferences spontaneously during reading if they are experts in the topic they are reading, i.e. they have the relevant knowledge necessary for making these inferences. In this concern, Noordman and Vonk (1993:p.4) write, "although the knowledge was available, the inferences did require extra time in making them". In this sense, the inferences are not made automatically.

Because of the aforementioned contradictions, reading theorists call for a more parsimonious version of an inference making theory. This version is called the ***Constructionism*** theory. According to this theory, constructive processes are a crucial part of text comprehension. In particular, constructive processes contribute to the activation of many inferences during comprehension. The hallmark of constructive processing, in Garnham's (1993:p.3) words is that, "…the combination of information explicit in the text with relevant background knowledge to produce a representation of the situation that the text is most probably

about". In this vein, many straightforward inferences that establish local, as well as global, coherence are constructive. Haviland and Clark (1974) give examples of such type of inferences that make use of background knowledge, namely ***bridging inferences*** and ***anaphoric inferences*** like establishing the referent of the pronoun ***he*** in sentences as:

John blamed Bill because he spilled the milk.

The local coherence of this sentence depends basically on the background knowledge that is not readily available in the text. This knowledge, in turn, includes information that spilling milk is usually undesirable, and the circumstances under which one person blames another (see also Noordman and Vonk, 1993).

However, researchers' view are not clear concerning how readers engage in constructive processing when they read a text containing sentences like the one mentioned earlier. It seems necessary to incorporate extralinguistic perception processes and knowledge structures in the study of whether, or under what circumstances constructive inferences are activated. Therefore, many reading theorists, (for example, Haberlandt, 1993; Fernandez and Carriedo, 1993; and Carreiras, 1993), consider Mental Models theory the best solution to understand the processes of inference activation. Glenberg and Mathew (1992), cited in Haberlandt (1993:p.2), define a mental model as "a representation of what the text is about, a representation of the events, objects, or processes described by a text, rather than of the words, sentences, or structures of the text itself" (see also Rickheit and Sichelschmidt, 1999). Mental model theorists focus on two types of inferences, viz. ***spatial inferences*** and ***case-filling*** inferences. The former type is an encoded proposition which distinguishes between a representation of what is described in the text and the language used to describe it. However, the propositions used to describe the spatial relations may not be directly represented. Within the

latter type, the difference between information encoded into a mental model and a linguistic expression that can be used to express that information is less apparent (see Garnham, 1992 and Haberlandt, 1993).

To sum up the debate about inference activation, it seems very useful to consider the points of contrast among the three reading theories. The first contrast is between Minimalism and Constructionism. The former theory claims that only few inferences are activated during reading, while the latter suggests that many are. We believe that either position is completely correct. Such theories need make no such claims. What if there are circumstances, in which readers make no inferences at all, for example when readers get to the end of the text they are reading and they comprehend nothing of it.

The second contrast is about the question of ***local vs. local and global inferences***. Minimalists believe that although global inferences are necessary for comprehending a text, local inferences are the most important in this concern. Regarding the other position, Constructionists mention that both types of inferences are activated for a proper interpretation of a text.

The third contrast is between Minimalism and Mental Models theory. The former theory concentrates on a linguistic representation of the text being read in making inferences, while the latter focuses on a representation of the situation described by the linguistic form of the text (Keenan, 1993). The last contrast concerns the use of background knowledge in inference making. Minimalism suggests little use of background knowledge, while Constructionism holds that there is an extensive use of this knowledge.

Finally, if we consider the arguments posited by the three reading theories in relation to inference activation, we find that some of the arguments are not conclusive. We do strongly support the view presented by Fernandez and Carriedo (1993:p.4) "…that more theoretical

elaboration and empirical research are needed and…more must be learned about the relationships that may exist among factors such as types of texts, levels of processing and representation and levels of comprehension".

5. Strategies for Teaching Inference Activation

Inferential reading requires students to know how to make inferences. They do so based on their peers' physical appearance, actions, speech, or based on their teachers' facial expressions and body language. However, what we need to help them do is transfer this skill to their interactions with a text. And so, how do we teach this seemingly elusive skill? And how do we make them critical readers[(4)]?

For this specific purpose, some authors present a series of strategies teachers can make use of to help students to infer. For example, Ericson, et al. (1987) introduce what is called the Anticipation-Reaction Guides. This strategy can be summarized into the following six steps:

1. Identify major concepts, issues, and details from the reading.
2. Identify likely related student experiences or beliefs that could be challenged or supported by the reading.
3. Write 3-5 statements using information from steps 1 and 2, preferably statements that are controversial or debatable.
4. Students read the statements and agree or disagree. This could be followed by a class or small group discussion or writing assignment.
5. Students read the selection.
6. Students compare the author's ideas to their own opinions on the A-R Guide.

A different strategy is presented by Brozo and Simpson (1999) and is called Discussion Webs. Discussion Webs are graphic representations

of arguments for discussion. They can be used after reading or as a prewriting activity. Eight steps form the discussion webs, namely:

1. Choose a debatable question that the reading focuses on.
2. Create the Discussion Web--a graphic with the central issue in the middle and a place for "yes" and "no" or "pro" and "con" on either side.
3. Activate students' prior knowledge about the topic, set the purpose for reading, and/or make predictions about the reading.
4. Read the selection.
5. Introduce the central question and the discussion web. Students will work in pairs to list both sides of the issue.
6. The partners combine to form groups of four, which should reach by consensus on a conclusion and choose best support for that conclusion.
7. Each group should select a spokesperson and decide what he/she will say to the class.
8. Each group reports on their results, followed by class discussion and possibly a writing assignment.

6- Previous Researches

There is a wealth of studies in the field of inference activation. These studies concentrate basically on the processes involved in the activation of different types of inferences. Our task in this section is to present an account of some of the studies that would be of a great advantage in constructing the model of the study.

Long and Golding's (1993) study stemmed from the evidence that readers spontaneously activate superordinate goal inferences as they read action statements in stories. The purpose of their study was to determine whether non-native readers activated these inferences under relatively

demanding time constraints. To achieve this purpose, the authors conducted an experiment using three techniques, viz. the rapid serial visual presentation (RSVP), a 250-ms stimulus onset asynchrony (SOA)[(5)], and a lexical decision task. Moreover, the subjects had to answer simple comprehension questions in order to assess their memory for episodes in the stories. The results of this experiment reported that good comprehenders exhibited different patterns of decision latencies between testing words from superordinate and subordinate goal inferences; whereas the patterns of poor comprehenders showed no reliable differences in their latencies. These findings in Long and Golding's (1993:p.55) words "…provide support for a global-coherence model of inference [generation] which argues for the importance of causal information in constructing a coherent text representation".

By employing reading time and eye-fixation paradigms, Revlin and Hegarty (1999) tested two models of activating bridging inferences. The first model argues that bridges "…reflect the creation of a proposition that is minimally necessary to maintain the coherence of the text"(p.79). The second model proposes that "the bridging process is more elaborate and requires the construction of a *scaffold* to support the inference"(ibid.). These models were tested using reading times, verification accuracy, verification latency, and regressive eye fixations. Revlin and Hegarty found that the data were best understood by general principles of the second model, viz. the scaffold model. This model treats bridging inferences as an intrinsic component in understanding connected discourse and directs the attention to how these inferences are actually drwan.

In a similar vein of measuring the time course of activating inferences, Estevez and Calvo (2000) examined whether the time of making predicative inferences in reading varied as a function of

individual differences in working memory capacity (***WMC***). To assess the activation of predicative inferences, Esteves and Calvo used two tasks, namely a ***naming task*** and a ***reading span task.*** By using the former task, a predicting, or a control, context sentence was followed by a target word to be named, which represented the predicted event or an inconsistent event. Moreover, the interval between the end of the context and the onset of the target word varied between 50 and 1050 msec. As for the latter task, it was used to assess the individual differences in WMC. The findings of this study indicate that WMC and the time course of predicative inferences were positively related. In other words, high WMC accelerated the time of activating this type of inferences but not to the extent that they become automatic.

A more recent study, which represents a step forward in relation to the contribution of working memory to the time course of elaborative inferences, is that by Calvo (2001). Calvo's aim was to assess the continuos monitoring of cognitive activity, being reflected in eye fixations in relation to WMC as assessed by the reading span task. The experiment used for this purpose was designed out of context sentences predicting likely events, or non-predicting control sentences. Continuation sentences in which a target word represented an event to be inferred or an unlikely event followed these two types of sentences. Analysing the data showed that high WMC was related to shorter gaze durations across sentence regions. Moreover, the reanalysis of the continuation sentence that represented the inference concept was easier for high- but not for low-span readers. This means that WMC makes the activation of elaborative inference easier for readers, but at the time of late text integration process than early lexical-access processes.

7. The Model

In the present study, we have assessed the activation of goal inferences by readers of EFL at university level using the strategy presented by Vacca and Vacca (1999) which is called QARs (Question-and-answer relationships). This strategy is based upon the fact that readers should be trained to recognize how and where to find information to help them understand that not all information is in the text. According to this strategy, information falls into three general groups:

1. Right there: information is clearly found in the text.
2. Think and Search: readers must make inferences based upon information in the text.
3. On my Own: readers must use information they already know.

This study makes use of a combination of the above-mentioned groups of information. Its material and experimental design are similar to those used in Long and Golding (1993). However, the way in which the materials are presented is different. Instead of using the presentation procedure called the rapid serial visual representation (RSVR), subjects are required to read narrative passages and answer questions about them.

8. Method

8-1 Participants

Twenty subjects participated in this research. They were divided into two groups each one formed out of ten individuals. The first group was formed out of undergraduate students majoring in English as a foreign language. They were recruited from the fourth grade at the departments of English in the college of Arts, and College of Basic Education, University of Mosul. We shall call this group the beginners group from now on. The second group was formed out of M.A. and Ph.D. holders who have an experience of at least (5) years reading and teaching

English as a FL at the departments mentioned above; we shall call this group the advanced group from now on. All subjects participated in this experiment on a voluntary basis.

8-2 Materials

Four short stories were used in this experiment. They were taken from Long and Golding (1993). The stories were designed in the form of numbered sentences so that they range in length from (11-16) statements. For each action statement, in these stories, the researcher formulated a why- and a how- question. These questions are followed by the most distinctive content word as a key for the inference to be activated (see the appendix which includes the stories with the formulated questions). By answering these questions one superordinate and one subordinate goal inference had been activated, respectively.

8-3 Procedure

The procedure of this experiment is composed out of two phases. Within the two phases, subjects were tested individually and they were given the time they needed to read the stories thoroughly to give them the chance to answer the questions that follow correctly. During the first phase, subjects were presented two stories with the instruction to read silently or orally[(6)] these passages statement by statement, and to answer the why- and how- questions that follow the action statement immediately i.e. on-line comprehension. In the second phase, subjects were presented with the second two stories and they were instructed to read the stories also statement by statement, but this time they had to answer the why- and how- questions after completing reading the story i.e. after-reading completion comprehension. Subjects' answers constituted a corpus of inferences that were activated in response to each action statement. The

answers were corrected out of (100) marks for each story by assigning (5) marks for each correct answer and (0) mark for the wrong answer and for the questions left unanswered. Subjects were also informed to make use of the content words that follow the questions to help them in activate the inference. They were also informed not to go back to the dictionary to search for the meanings of unknown words but to try to understand them from the context of the story.

9. Results

In order to analyze the data obtained from the experiment adopted in this research accurately, the researcher used the calculated mean and the standard deviation. Moreover, a T-test for a single sample and another one for two dependent samples in relation to the amount of experience reading English were conducted.

Regarding the first hypothesis which reads "Readers of EFL are good in activating goal inferences", a T-test for a single sample was computed. The results yielded were very highly significant in relation to success degree which was 50%. The calculated T-values were more than the tabulated T-value which is (2,262) at (0,05) level of significance and (9) degrees of freedom. Table (1) and (2) summarizes these results.

Table (1) : T-test Results for the Advanced Group for the on-line & after Reading Completion Comprehension

Variable	N	Mean	Std. Deviation	Calculated T-value	Tabulated T-value	Sig.
On-line Comp.	10	84	6,99	15,377	2,262	V.H.S
A. R. Comp.	10	85,5	9,264	12,117	2,262	

Table (2): T-test Results for the Beginners Group for the on-line & after Reading Completion Comprehension

Variable	N	Mean	Std. Deviation	Calculated T-value	Tabulated T-value	Sig.
On-line Comp.	10	71,5	10,554	6,441	2,262	V.H.S
A. R. Comp.	10	81	11,254	8,71	2,262	

Consistent with the second hypothesis, the effect of the amount of experience reading the English language was significant. This result was clarified by applying a T-test for two dependent samples in relation to two variables, viz. on-line comprehension and after reading completion comprehension. In the case of the advanced group, there were no statistically significant differences between the mean scores of this sample in relation to the above mentioned variables. The calculated T-value of these variables (0,579) was less than the tabulated T-value which is (2,262) at (0,05) level of significance and (9) degrees of freedom. Table (3) shows this.

Table (3) : T-test Results for the Advanced Group for the on-line & after Reading Completion Comprehension

Variable	N	Mean	Std. Deviation	Calculated T-value	Tabulated T-value	Sig.
On-line Comp.	10	84	8,1819	0,579	2,262	N.S
A. R. Comp.	10	85,5				

Turning to the case of the beginners group, the differences between the mean scores of this sample in relation to the variables used were just significant. This difference is in favour of the variable of the comprehension after reading completion. The calculated T-value (2,389) was more than the tabulated T-value (2,262) at (0,05) level of significance and (9) degrees of freedom. Table (4) clarifies these results.

Table (4): T-test Results for the Beginners Group for the on-line & after Reading Completion Comprehension

Variable	N	Mean	Std. Deviation	Calculated T-value	Tabulated T-value	Sig.
On-line Comp.	10	71,5	12,572	2,389	2,262	J.S
A. R. Comp.	10	81				

10. Discussion

When reading a text, it is generally assumed that readers will make different kinds of inferences to fill in gaps between what has been explicitly stated and what the implicit message intends to convey. One important type of such inferences is goal inferences. The first hypothesis of this study is intended to measure whether readers of EFL at university level are good in activating goal inferences while reading English texts or not.

The statistical analysis of the data indicates that this hypothesis is strongly supported. This means that Iraqi readers perform well in activating new or implicit information that is derived on the basis of information in the text through some inference procedure. Consistent with previous works, e.g. Mckoon and Ratcliff (1986) and Calvo and Castillo (1996), the experiment used in this study demonstrates that making goal

inferences involve anticipations of likely events, i.e. the reactivation of earlier portions of a text representation. This reactivation involves the connection of concepts represented in the text. For example, "the dragon wanted to eat the daughters" is a superordinate goal inference which is activated as a likely consequence of the action of kidnapping the daughters. Moreover, the subordinate goal inference "the dragon kidnapped the daughters by grabbing them" describes the operations involved in performing the action. It is quite clear from the results mentioned in tables (1) & (2) that Iraqi readers are fully aware of the fact that in any text characters have classes of goals and classes of plans. The latter class is used to accomplish the former.

Another issue observed in the data, mentioned in tables (3) and (4), is related to the second hypothesis of this study. This hypothesis is based on the assumption that readers' experience in reading the foreign language, in our case the English language, is closely related with the on-line status of goal inferences. This relation is reflected, in turn, in readers' working memory and knowledge structures (Estevez and Calvo, 2000). The results suggest that the advanced group exhibits similar capacity in the activation of goal inferences whether during reading the text or after reading completion. On the contrary, this activation, in the case of the beginners group, is better after reading the whole text.

A plausible explanation of this finding is that goal inferences are not the result of automatic lexical access of word meanings. Rather, they involve the construction of a new representation of implicit information in a message. This construction process differs between the advanced and the beginners groups because of the different organization of their knowledge in memory. This difference can be ascribed to the relationships among the goal, the necessary actions to achieve the goal, and the result of these actions (see Baudet and Denhière, 1991). In this

framework, it is assumed that both the advanced and beginners groups have the necessary knowledge to answer the questions correctly. The knowledge of the beginners group is organized as a series of causal links. In this form of organization, a goal leads to a sequence of actions, which eventually produces a certain outcome. For this reason, the beginners group performs better after reading completion, i.e. after going through all of the actions mentioned in the text and links them causally specifying the outcome. In contrast, the knowledge of the advanced group is organized hierarchically, i.e. the goal and the outcome are directly linked and the actions are subordinate to the goal. This group profited from this form of organization in that they do not need to complete reading the text to infer the correct answers.

11. Conclusions

1. The experiment conducted in this study yields supporting evidence of the hypothesis that readers of EFL at university level are good in activating goal inferences. They perform well in activating this type of inference when there is a causal coherence break in the text. Moreover, these readers are aware of the fact that these inferences typically involve characters' plans or instrumental actions; and that the goal inference is either superordinate or subordinate depending on its role in the text.
2. This experiment also shows that the level of knowledge of reading the FL makes a significant contribution to goal inferences during reading. The differences in prior knowledge organization of beginner and advanced Iraqi readers are due to differences in the relationship they establish between a goal, the actions, and the outcome of a certain text. This result suggests that the beginners did not establish a relation between the goal and the outcome during reading unlike the advanced

readers for whom the outcome was more available in memory. For this reason, the advanced readers were better in activating goal inferences during reading than the beginners who activate these inferences after completing reading the whole of the text.

3. After considering carefully what different reading theories propose, in relation to inference activation, we arrive at the conclusion that there is a serious need for constructing a model for inference activation. This model must be based on factors such as the type of the text, e.g. narrative or expository, levels of presentation, e.g. lexical, propositional, or situational, and levels of comprehension, e.g. general or detailed, and the number of times of reading.
4. The reactivation of earlier portions of a text representation can account for many types of necessary inferences that involve the connection of concepts presented in the text. These include: causal inferences, bridging inferences, elaborative inferences, spatial inferences, case-filling inferences, and anaphoric inferences.

Notes

1. According to Gernsbacher (1997), mapping is one of the central processes of structure building involved in text and discourse comprehension.
2. For more details about these types of inferences, see section (4) in which these types are discussed in relation to reading theories and inference activation.
3. Garnham (1992) uses the terms minimal vs. non-minimal inferences to represent the distinction between automatic vs. non-automatic inferences, respectively. Zwaan and Graesser (1993) use the terms automatically vs. partially encoded inferences for this distinction.

4. A critical reader is defined by Kurland (2006: p.1) as the one who "…recognizes not only what a text says, but also how that text portrays the subject matter".
5. Estevez and Calvo (2000: p.53) define (SOA) as "…the interval between the onset of the last word in the context sentence and the onset of the target word".
6. Goodman (1982:p.39) mentions that the only difference between oral and silent reading is reading speed. This aspect is significant in the accurate comprehension of a text and the activation of inferences for native but non-native speakers of English. For this reason subjects were free to read silently or orally.

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APPENDIX

The Stories with the Formulated Questions Used in the Experimental Side of the Study

Part A: the Stories Used in the First Phase of the Experiment

Read the following stories statement by statement, then answer the questions that follow each action statement immediately. Please make use of the words that follow each question in your answers and don't refer to the dictionary.

The Czar and His Daughters

1. Once there was a Czar who had three lovely daughters.

2. The three daughters went walking in the woods.

- Why did the three daughters go walking in the woods? (exercise)
- How did the three daughters go walking in the woods? (stroll)

3. They were enjoying themselves so much that they forgot the time and stayed too long.
4. A dragon kidnapped the three daughters.

- Why did the dragon kidnap the three daughters? (eat)
- How did the dragon kidnap the three daughters? (grab)

5. The dragon dragged off the daughters.

- Why did the dragon drag off the daughters? (cave)
- How did the dragon drag off the daughters? (tie)

6. The daughters cried for help.

- Why did the daughters cry for help? (hear).
- How did the daughters cry for help? (wail)

7. The heroes heard the cries and set off to rescue the daughters.
8. The heroes came and fought the dragon.

- Why did the heroes come and fight the dragon? (help)
- How did the heroes come and fight the dragon? (surround)

9. The heroes rescued the maidens.
10. Then the heroes returned the daughters to their palace
11. When the Czar heard of the rescue, he rewarded the heroes.

The Ant and the Dove

1. A thirsty ant went to a river.

- Why did the thirsty ant go to the river? (drink)
- How did the thirsty ant go to the river? (wall)

2. He became carried away by the rush of the stream and was about to drown.
3. A dove was sitting in a tree overhanging the water.
4. The dove plucked a leaf and let it fail.

- Why did the dove pluck a leaf and let it fail? (save)
- How did the dove pluck a leaf and let it fail? (beak)

5. The leaf fell into the stream close to the ant and the ant climbed onto it.

- Why did the ant climb onto the leaf? (live)
- How did the ant climb onto the leaf? (leg)

6. The ant floated safely to the bank.
7. Shortly afterwards, a birdcatcher came.

- Why did the birdcatcher come? (trap)
- How did the birdcatcher come? (search)

8. The birdcatcher laid a trap in the tree.

- Why did the birdcatcher lay a trap in the tree? (kill)
- How did the birdcatcher lay a trap in the tree? (hide)

9. The ant saw his plan and stung him on the foot.
10. In pain, the birdcatcher threw down his trap.
11. The noise made the bird fly away.

Part B: the Stories Used in the Second Phase of the Experiment

Read the following stories statement by statement. Complete your reading of the story and then answer the questions that follow it. Please make use of the content words that follow each question in your answers and don't refer to the dictionary

John at Leone's

1. John went to New York.
2. On the bus he talked to an old lady.
3. When he left the bus, he thanked the driver.
4. He took the subway to Leone's.
5. On the subway his pocket was picked.
6. He got off the train and entered Leone's.
7. He had some lasagna.
8. When the check came, he discovered he couldn't pay.
9. The management told him he would have to wash dishes.
10. John washed the dishes.
11. When he left, he caught a bus to New Haven.

-Why did John go to New York? (holiday)

-How did John go to New York? (bus)

-Why did he take the subway to Leone? (eat)

-How did he take the subway to Leone? (walk)

-Why did the management tell him to wash dishes? (earn)

-How did the management tell him to wash dishes? (lead)

-Why did John wash the dishes? (money)

-How did John wash the dishes? (water)

-Why did he catch a bus to New Haven? (home)

-How did he catch a bus to New Haven? (corner)

The Boy and His Dog

1. A boy was holding a dog by a leash.
2. Then the leash broke.
3. The dog ran away and the boy fell.
4. A rabbit looked at the dog as the dog ran past him.
5. When a fox saw the dog, the fox and the dog started fighting.
6. The rabbit started running.
7. The fox chased the dog.
8. The dog chased the rabbit.
9. The rabbit jumped into a hole.
10. Then the dog jumped into the hole to safety.
11. Soon the rabbit met the dog.
12. Some rabbits gave the dog carrots.
13. Then the rabbits rode on the dog.
14. When the dog left, the rabbits cried.
15. The dog returned to the sad boy.
16. The boy hugged the dog and they were happy to be together again.

-Why was a boy holding a dog by a leash? (walk)

-How was a boy holding a dog by a leash? (hand)

-Why did the fox and the dog start fighting? (defend)

-How did the fox and the dog start fighting? (bite)

-Why did the dog chase the rabbit? (eat)

-How did the dog chase the rabbit? (run)

-Why did the rabbit jump into a hole? (escape)

-How did the rabbit jump into a hole? (leap)

-Why did some rabbits give the dog carrots? (friend)

-How did some rabbits give the dog carrots? (offer)