

The Effects of the Inference Process in Reading Texts in Arabic

May George

Abstract—Inference plays an important role in the learning process and it can lead to a rapid acquisition of a second language. When learning a non-native language i.e., a critical language like Arabic, the students depend on the teacher's support most of the time to learn new concepts. The students focus on memorizing the new vocabulary and stress on learning all the grammatical rules. Hence, the students became mechanical and cannot produce the language easily. As a result, they are unable to predicate the meaning of words in the context by relying heavily on the teacher, in that they cannot link their prior knowledge or even identify the meaning of the words without the support of the teacher. This study explores how the teacher guides students learning during the inference process and what are the processes of learning that can direct student's inference.

Keywords—Inference, Reading, Arabic, and Language Acquisition.

I. INTRODUCTION

THE process of inference is related to making a correct guess or knowing the context through guessing the meanings and themes when acquiring a second language. Inference consists of a chain of events which include linking prior knowledge, experiencing a novel context, identifying the relation between these two and, finally reflecting what have been conceptualized.

The Inference process in a second language acquisition involves guessing a new word, and understanding a context. In Arabic, most words have a three letter root or and a various pattern [1], [2]. From the root, many words can be generated for example; "study" is the root which consists of three letters. We can generate many words that have different meanings like "studying", "school", and a "teacher". All these words have similar root but they have different patterns.

It is believed that novice learners of Arabic language can identify the meaning of the words in context or in isolation even before learning the root and pattern rules through using their inference. Therefore, inferencing can be related to the important role the reader's ideas play in comprehension [3]. Inference involves taking risk and giving a reasonable answer [4].

The inference process can appear as a result of a prior experience, and it can occur in certain words for example; "teacher", "leave", and "work" [5], [6].

Learning the rules of root and patterns in Arabic, can assist in understanding the meaning of context as a whole without using dictionary. Accordingly, [5] "reading in any language

cognitively demands involving the coordination of attention, perceptual processes, and comprehension processes".

This case study will focus on a student's inference on acquiring a second language. It is believed that inference plays an important role in the learning process and it helps in advancing to the second level of learning. The main questions in this study are related to how the teacher guides students during the inference process, and what are the situations of learning that are associated with student's inference.

The main problem of this case study is that when learning a non-native language, a critical language like Arabic, the students depend on the teacher's help and support most of the time to learn new concepts. During this process of learning Arabic the students focus on memorizing the new vocabulary and depend on learning all the grammatical rules and they became mechanical during the learning process. Therefore, the students do not give themselves the opportunity to guess the new text or discover the context because they rely heavily on the teacher, in that they cannot link their prior knowledge or figure out the meaning without the support of the teacher. Hence, this study will focus on both the teacher and the students' interactive process of acquiring a language and how inference occurs during learning Arabic language.

II. THE MAIN QUESTIONS

- 1- How the inference process happens when learning a second language?
- 2- What are the syntactical, morphological, and semantic features that can help the learners to infer the meaning during the learning process?
- 3- Are there different types of inference involved?
- 4- Why the inference process is important?
- 5- What is the teacher role in increasing student's inference?

III. LITERATURE REVIEW

Understanding how inference happens in a second language requires determining word inference ability, individual differences in the word meanings from the context, and the effect of prior knowledge.

Concerning how inference happens in a second language, a study [5] examined the effects of instruction on an intermediate level of students learning the French language. The reading and inference ability to determine what types of learners that can benefit from instruction were examined [5]. Fifty three students enrolled in French level three participated in the study and there were divided into two groups. The first group received explicit instruction in reading and the second group covered the same material with no instructions. The

M. G. is with the College of William and Mary, Williamsburg, VA 23185 USA (phone: 757- 221-5511; e-mail: mggeorge@wm.edu).

explicit instructions included word analysis, sentence analysis, and discourse analysis. The researcher used Dunn's methods which were related to post-test score minus pre-test score. The findings of the study show that the effects strategy of instruction on reader's word inference ability was less clear. But it was found that the instruction strategy helped to infer unfamiliar words from context. The study recommended providing second language learners with a set of specific strategies designed to process text at a discourse level.

Individual differences in learning vocabulary were examined [2]. The participants were divided into three groups with different comprehension skills. Performance on individual tasks involved direct instruction, vocabulary inference from context. It appeared from the results that direct instruction required a lot of repetitions; however the ability to retain the vocabulary were substantial. While, in vocabulary inference task there were not substantial differences among the three groups.

It is interesting that the researchers had pointed out to many limitations in their study, and among these that they focused on a single word rather than the full meaning of unknown words. Therefore, the participant could partially infer the meaning. The other limitation was instruction method affects the acquisition of vocabulary.

Concerning the relation between inference and prior knowledge, a study was made [4]. The researcher focused on the participants' familiarity and unfamiliarity of lesson. The participants were enrolled 101-102 French and Italian at the University of Rhode Island. The students studying Italian were given topics related to sports, cinema, and biography to read. While, the students studying French were given subjects related to AIDS, Stealth bomber, and Sudan. The researcher examined their proficiency, familiarity, and recall frequency. Inference was used to make the participants guess. It appeared that the beginner recalled more inferred words than the advanced. This shows the effect of prior knowledge on the beginners. In addition, the written recall assignments show that the beginners tried to construct meaning from prior knowledge. Finally, the researcher pointed to the fact that, inference is considered as an external factor of the interaction between the reader and the text.

IV. PROCEDURE

In this case study, a second year student studying Arabic was given selected readings and was asked to infer the meanings of words, answer certain questions, and identify the ideas learned from the text and these were used in certain tables. The students used both Arabic and English to infer the meaning. In all these readings were asked not to use the dictionary.

The student was asked to use prior knowledge, the verb roots and patterns rules in Arabic to infer the meaning of the words.

A. First Reading Analysis from the Student Point of View

The first reading was short and the level of difficulty was medium in difficulty for a learner of Arabic (see Fig. 1). The researcher gave the student some outlines to understand the text. These were summarized in four steps. The first step was to write questions about the text, the second text was to find information from the text that will help to the question, the third step was to think about what he/she know about the text, and final step was to combine what the text says with what he/she know and to come up with the answer.

In the first step, the student formed four questions: who is talking? Where does she live? In which university she studies? And why she likes travelling and visiting other countries? In the second step, the student provided answers to these questions as: my name is Fatima, I live in Egypt, I study at Cairo University, and I live travelling other countries like Spain because of its beautiful architecture.

In the third step, it what the student learned after reading the text. The student answer was in English "Someone is introducing themselves; she is stating where she lives."

In the final step, the student came up with main information and these were Fatima, Egypt, Cairo. The student said, "I am guessing she likes to travel about study different states in the region, I feel if she comparing her experiences from one state to another".

B. Analysis of the Frist Reading Data by the Researcher

The researcher identified steps for the student to follow during the passage analysis which included making questions, finding the answer to the question, thanking about what information the student knew, and combing what the text says and the student know have led to some indication about how inference works (see Fig. 2)

Making questions and finding the answers helped to student to identify the major points in the text. This kind of inference happened indirectly, the researcher made the student identify what he/she knew and indirectly the topic was clear.

The student knew some vocabulary and this helped to identify deeper themes in the text. Then the student combined this with a guessing that the person in the text likes to travel which was definitely correct.

Inference process happened during using prior experience related to knowing some of the vocabularies and determining the meaning of main themes in the text. Asking questions and answering them played a role in understanding the text and here inference process happened indirectly. Combining what the student knew and the student guessing was a direct form of inference from the part of student and this would not be accomplished without the previous steps.

Please read the following ^① identify ^② idaafa/ and make ^③ question: (Please do not use dictionary)

Who من, where أين, is she هل, why ماذا :

أنا إسمي فاطمة, أعيش في مصر, أبلغ من العمر 20 سنة, أدرس [بجامعة القاهرة] أحب بلدي كثيرا, أذهب مع أصدقائي لزيارة الأهرامات مرة في الشهر, أحب أيضا المشي بجانب نهر النيل حيث النسيم المنعش و المنظر الخلاب.

أحب السفر و زيارة الدول الأخرى, [زرت مرة المغرب] و أعجبتني كثيرا, الناس هناك كرماء و لطفاء, إستمتعت بالأكلات المغربية مثل الكسكس و غيرها. أيضا [زرت الأردن] بلد رائع حقا! أمضيت يوما [كاملا أستمتع بمنظر] البتراء, منازل منحوتة على الصخر... [زيارتي المقبلة] سوف تكون للإسبانيا حيث أرغب بزيارة ساحة الحمراء بالأندلس, [بنقوشها الفنية الجميلة] أنا مشتاقة حقا لتلك الرحلة.

Fig. 1 First Reading

It Says - I Say - And So...

Question	It Says...	I Say...	And So...
Step 1... Write the question (created or provided)	Step 2... Find information from the text that will help answer the question.	Step 3... Think about what you know about that information.	Step 4... Combine what the text says with what you know to come up with the answer.
(أ) من تتكلمين ؟ (ب) أين تعيش ؟ (ج) في أي جامعة تدرس ؟	" أنا اسمي فاطمة " " أعيش في مصر " " بجامعة القاهرة "	someone is introducing themselves. she is stating where she lives. she is stating the name of a college.	Fatima, فاطمة Egypt, مصر The university of Cairo, جامعة القاهرة
(د) ماذا هي تجرب السفر و زيارة الدول الأخرى ؟	" أحب السفر و زيارة الدول الأخرى " " هناك ... " " مثل ... " " أيضا ... " " كاملا ... " " سوف تكون للإسبانيا ... " " حيث ... " " بنقوشها الفنية الجميلة ... "	I know that السفر means traveling & دولة means state; I know that مثل means like, so may be things are being compared. also the words كثيرا may express different in size of something, and comparison over time with the use of لا go, meaning daily. with أيضا meaning also, it is obvious she is listing things.	I'm guessing she likes to travel about study different states in the region; I feel as if she may be comparing her experiences from one state to another.

Fig. 2 Analysis of the First Reading

C. Second Reading analysis from the Student Point of View

The researcher gave the student a three page assignment to infer the meaning (see Fig 3). After reading each paragraph the student selected main vocabulary words and used her inference and prior experience to identify the meaning. The second paper included making questions and inferring the idea. The student stated that "I feel like the main idea of the passage is to tell people, inform them of elements that helped with drinking water". The student came up with these questions "Who is speaking, What is the main idea, what are the different purposes for water?". The third paper was given to student and included identifying facts and using inference to complete the task. The student inferred that "drinking water is a major them in the text" (see attachment two).

D. Analysis of the Second Reading Data by the Researcher

The passage that was given to the student "The doctor recommended drinking water" included many advices related to the importance of water. The level of difficulty was medium high. The student followed a certain way in arriving to the main theme. The student used to marker to highlight certain lines and it seemed to me the student did not understand the meaning and circled words she knew.

The student identified some words and used inference to determine the meanings of the some words. The student used also prior experience for example; the student knew the meaning of the word "medicine" means in Arabic. Knowing the verb roots and patterns in Arabic helped the student to figure out the meaning of the context (see Fig. 4).

There were several questions the student made related to the text. Accordingly, the inference process occurred when the student answered the questions related to the text. The student states that "I feel like the main idea of passage is to tell people/ inform them of elements that can be useful with drinking water". The student inference about theme of the text was correct. The inferred the meaning of the text after many attempts to understand the passage by stating that "I can infer that drinking water is a major theme of the text (see Figs. 5 & 6).

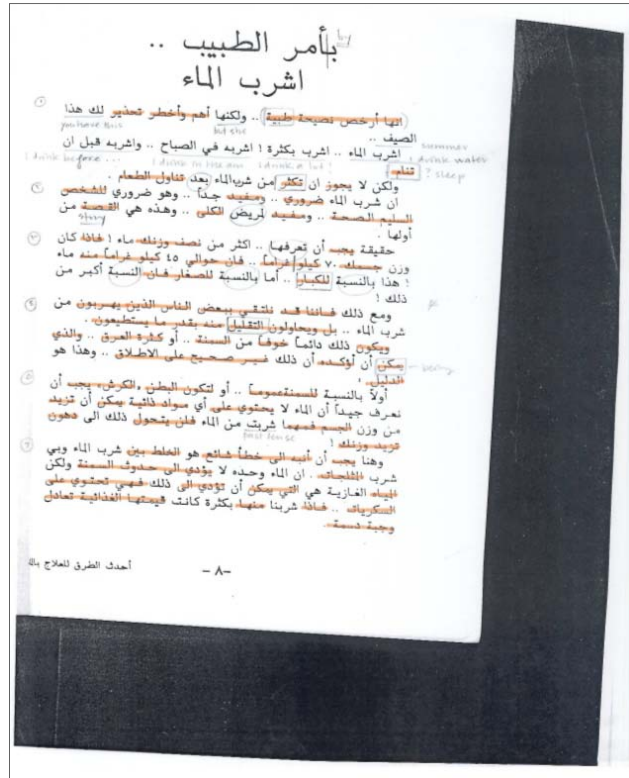


Fig. 3 The Second Reading.

Word	What we infer it means	What helped us?
1- بأمر 2- الطبيب 3- تنام	"By order" or "by work of" "Doctor" or "physician" "sleep"	• Knowing that the prefix "بـ" means by or which • I know that "طب" means medicine • By context I figured opposites were being presented so an activity at night would be sleep.
4- يجوز 5- كثر 6- مفيد	"He is able" "To make big" "important"	• I know it is a verb & used with subjunctive. It has to reflect an action/ desire to do something • I know that "كثـ" has something to do with becoming larger/bigger • This word is followed by "لـ", so the writer is conveying something to a degree.
7- غرابة 8- للصغار 9- يمكن	"being weird" "in order to be small" "he is being"	• I know that the word "غريب" means weird so this may be the state of weirdness. • The use of "لـ" in order to & also knowing "صغير" meaning small. • Knowing the root "كـن" as was figured with the "ق" it may be an incomplete version of the word.
10- يحتوي على 11- فلن 12- وزيادتك	"able to" "affected or impacted" "your habits"	• As the context in this paragraph is discussing other's opinions, and this word also has a "و" in front that's questioning ability. • I know that "تأثر" means truly so I'm guessing this describing the water in other ways. • In this context of medicine & knowing that "عادت" means pattern, I inferred it meaning habit & your because of the suffix.
13- المتلذذات 14- حدوث	"having been cold" "occurrence, event"	• I know that "تأثر" means know & that its form is masdar. • I know that "حادث" means accident & this word is in an idafa phrase, so it is an event of some kind.

Fig. 4 Analysis of Meaning in the Second Reading

Questions	Inferences
• Where was this published? (where could this passage be found?) • Who is speaking? • Who are some other characters or people interviewed in this passage? • What is the main idea? what are the different purposes for water?	• Maybe a journal on health or in a textbook on general health. • This could have been written by someone reflecting on advice given from physicians & doctors about water. • Doctors, physicians, maybe people who have studied water's medical benefits. • I feel like the main idea of the passage is to tell people / inform them of ailments that can be helped with drinking water. Some of the different purposes are straightforward like in the summer to avoid dehydration to general well-being.

Fig. 5 Analysis of Questions in the Second Reading

Facts (Something We Can See and Observe)	Inferences (Interpretation)
<p>• "drinking water" "اشرب الماء" is in the title & in the text in many forms; this summer is mentioned in the first paragraph "هذا الصيف" "في الصباح" "قبل" before & "في الصباح" in the morning are also used.</p> <p>• "بعد" meaning after; "لمرض" with sickness is also used.</p> <p>• Usage of "تعرفها" which I assume means "he knows of it/her" as well as "according to..." used in several forms including: "بالنسبة للكاتب", "بالنسبة للصغار", "النسبة" & "النسبة".</p>	<p>• I can infer that drinking water is a major theme/activity of this text, as it is mentioned in the title & throughout the passage. I can also assume this piece is taking place in the summer, during different parts of the day (i.e. the morning).</p> <p>• I can infer this paragraph may be discussing the many uses of water & drinking it like after certain activities or when feeling sick.</p> <p>• I can infer that the third paragraph includes different opinions concerning drinking water & why it is important or what people consulted in this paragraph know about it.</p>

Fig. 6 Analysis of Facts

V. CONCLUSION

It appears from the analysis of the student's readings that inference and learning process happen through several steps and these steps were related. These steps included reading the texts, then focusing on each paragraph, identifying certain words and certain semantic, syntactic, and morphological aspects, making direct and un-direct questions and answering these questions, and finally inferring the meaning of the text as a whole.

The teacher's role was identifying these steps and asking students to follow up. Therefore, the teacher was involved in the inference process directly and indirectly through planning structured patterns to follow. This made the predication of meaning faster and helped in acquiring the context easily.

It appears that, there were two learning processes involved in students learning and these are hidden and obvious processes of learning and inferring. The hidden process is related to prior knowledge the student had about the language and the steps the teacher designed and asked the student to follow. The obvious learning process happened through putting the information in writing.

As a result, the unconscious process of learning and teaching which is referred to in this study as the hidden process happened at the same time of the conscious process of the obvious process. Inference in this case was a series of conscious and unconscious learning processes.

The inference process helped to arrive at certain clues that motivated student's to discover and reach to a correct predication. As a result, inference is considered as a tool that can lead to new discovery, and motivate human thinking to come up with inventions, new ideas, and solutions.

REFERENCES

- [1] I. A. Al-Sughaiyer and I. A. Al-Kharashi. (2004). "Arabic morphological analysis techniques: A comprehensive survey," *Journal of the American Society for Information Science and Technology*, vol. 55, pp. 189-213.
- [2] Cain, K. Oakhill, J. & Lemmon, K. (2004). Individual differences in the inference of word meanings from context: the inference of reading comprehension, vocabulary knowledge, and memory capacity. *Journal of American Psychological Association*, 96, 671-681.
- [3] Carton, A. (1966). *The method of inference in foreign language study*. NY, Dissertation.
- [4] Hammondou, J. (1991). Interrelationships among prior knowledge, inference, and language proficiency in foreign language. *The Modern Language Journal*, 75, 27-38
- [5] Kern, R. (1989). Second language reading strategy instruction: its effects on comprehension and word inference ability. *The Modern Language Journal*, 73, 135- 149.
- [6] Phillips, L. (1990). *Inference strategies in reading comprehension. The Study of Reading Technical Report No. 410*. Champaign, IL: Univ. of Illinois.