Memory and the Tip-of-the-Tongue Phenomenon

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Abstract

This study is a psycholinguistic investigation of the tip-of-the-tongue phenomenon (henceforth TOT) as being experienced by a sample of advanced Iraqi learners of English. The study is based on the assumption that since speaking is a universal process for all humans, then speaking production models and theories should be broad enough to describe and explain any phenomenon in any language used whether or not that language is a native or a foreign language and specifically the tip-of-the-tongue phenomenon. Therefore, advanced Iraqi learners of English could undergo such a phenomenon while using English as a foreign language.

This study consists of two parts and seven appendices. The first part is the theoretical part of the study which is considered the basis for defining and explaining the tip-of-the-tongue phenomenon, and the basis for understanding the discussion of the results of the second part. However, the second part sheds light on the experimental work of the study. It includes the analysis of the experimental work, the discussion of the results, conclusions, recommendations and suggestions. Among the main conclusions are:

1. Although there were no significant differences in state between the males and the females in the test, it is clear that the males underwent the TOT state more than the females in few specific items.
2. Although there were a restricted number of the TOT state cases; however, in those cases almost all the speech production models and theories that explain the TOT phenomenon are applicable.
3. Most of the TOT state cases occurred in test No. four. That is to say, the subjects underwent the TOT state with verbs and adjectives more than with nouns.
4. Concerning the detected TOT cases, they occurred more with words that have sparse neighbourhoods than words that have dense neighbourhoods.
5. The recency variable effect was quite clear in test No. three. The more recent the word is the more it affects the incidence of the TOT states.
6. Length of words affects the incidence of the TOTS.
7. Only in test No. one there were no significant state differences among the males, on the one hand, and among the females, on the other. However, in tests: two, three and four there were significant state differences among the males and among the females.
8. Statistically speaking, there is only one case for the whole test in which the

group of the females and the group of the total are in the "I know" state. This case is for item No. two in test No. three

I.   The Theoretical Part:

I.1   Introduction*

Linguistic research (see: Lyons, (1970); Roelofs, (1999); Vigliocco and Vinson, (2001)…etc) has proved that speaking is an extremely complex cognitive task. Therefore, it is not surprising that error occurs during the process of speech production. In other words, normal speech is not necessarily free from errors but such errors are considered sometimes as being part and parcel of the normal process of speech production. One of the most intriguing errors is caused by what is called the tip-of-the-tongue (henceforth TOT) phenomenon.

Since speaking is viewed as a universal process for all humans, then speaking production models and theories should be broad enough to describe and explain any phenomenon in any language used. The TOT is considered one of those phenomena that are familiar to all speakers of most languages and it is of particular interest to investigate word retrieval and production.

I.2   The Problem

Sometimes advanced Iraqi learners of English (henceforth AILsE) think that all of the acquired or learned information in English, and specifically after a hard study, is stored in their memories for a long time and are able to retrieve it whenever they need to do so. However, when the time comes to recall previously learned information, such learners discover that some of the learned information is either insured in their long-term memories or not. Accordingly, they may either recall that information easily or not, or sometimes they have the feeling of knowing (henceforth FOK) a certain bit of information and they experience the TOT state (henceforth TOTS).

This study is an attempt to investigate and prove that AILsE experience the TOTS and to ensure that their stored information is not quite reliable.

I.3 The Hypothesis

The present study is based on the hypothesis that since language production (spoken or written) is a universal process preformed by normal human beings, then the phenomena related to language production could be also universal. Accordingly, the AILsE could undergo the TOT phenomenon while they are speaking or writing in English.

I.4   Objectives of the Study

This study is set out to achieve the following objectives: -
1. Investigating the TOT phenomenon psycholinguistically.

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*This paper is based on an M.A. study conducted by the second researcher and supervised by

the first one.

2. Finding out the factors that govern the incidence of the TOTS.
3. Finding out whether or not the AILsE experience the TOTS. That is, do they have the FOK a word in the English language but cannot exactly retrieve it.
4. Investigating what kind of information about the missing word could those subjects in the TOTS remember?
5. Checking the applicability of the hypothesis and models of the TOTS to those AILsE undergoing the TOTS.

I.5 Limits of the Study

The study in its theoretical part has been limited to the processes of speech production and to the theories that easily account for the results of the experimental work. And, it is limited to those factors that govern the incidence of the TOTS. As far as the experimental part is concerned, it has been limited to some linguistic definitions and character sketches previously studied by the subjects during the past three stages. It also included some general knowledge such as names of things, verbs and adjectives. The study has been limited to participants that were students in the fourth stage of the academic year 2003-2004. They are adults of almost the same age, and Arabic native speakers studying English as a foreign language.

I.6 The Procedure

The procedure that has been followed is represented by a test made up of four subtests (parts) namely: test No. One, Test No. Two, Test No. Three and Test No. Four. Each test in turn consists of three options: "I know", "I don't know" and "TOT state". For those in the TOTS three cue words were presented and a question to be answered.

I.7 Speech production

The study of speech production is divided into two areas of study. The first is the study of articulation and the second is "the study of the neural functions which construct the neurolinguistic program of motor commands to be carried out by the articulatory muscles" (Lyons, 1970:60). Che (2000:2) points out that speech production starts with an essential step to find the right word that fits the concept we wish to convey, i.e. it starts with a communicative intention.

A widely accepted view by some psycholinguists holds that the Incremental Procedural Grammar (IPG), proposed by Kempen and Hoenkamp (1987) and adopted by Levelt (1989) as cited in Roelofs (1999:179), assumes the following major subsystems in the speech production process: conceptualization, formulation and articulation. The process begins with a conceptual representation. Formulation processes activate and select a lexical item for the

message concepts (lexical access), and plan a syntactic and a morphophonological structure, i.e. it is divided into two main stages: grammatical encoding and phonological encoding. The final subsystem is the actual articulation of the phonetic segments for the utterance; this is done by sending commands to the articulatory organs, presumably by the articulatory program.

I.8 Basic Concepts of the TOTS

Despite the fact that the TOT phenomenon occurs sporadically in ordinary life, Brown and McNeill (1966) were the first in succeeding to make an empirical study of the phenomenon. As cited in Potts (1996:3) Brown and McNeill define the TOTS as a "state involves a failure to recall a word of which one has knowledge as either an eventually successful recall, or else an act of recognition that occurs without additional training, when recall has failed". In other words, they demonstrate that the TOTS is the inability to produce a word or a bit of information despite the awareness of its meaning and despite absolute certainty that the word is known and exists in memory but cannot be pulled out of memory or cannot access its sounds.

I.9   Accounts of the TOTS

Two very different hypotheses have been advanced for the incidence of the TOTS namely: the blocking hypothesis and the partial (incomplete) activation hypothesis. The blocking hypothesis was first stated by Woodworth (1929) as mentioned in Vitevitch and Sommers (1999:135), he claims that similar sounding or related words interfere with or block the retrieval of the phonological word-form. The partial (incomplete) activation hypothesis, on the other hand, states that the target items are inaccessible because they are weakly represented in the system i.e., the TOT state occurs when target words receive insufficient activation to enable retrieval from memory (Vitevitch and Sommers, 1999:135).One detailed version of this hypothesis is known as the Transmission Deficit Hypothesis (henceforth, TDH). It states that retrieval fails because of "incomplete activation of representation". According to this model the TOT state occurs when "the strength of the connections among phonological nodes is too weak to transmit sufficient priming for the TOT target word" (James and Bruke, 2000:3).

I.10 Partial Information

Numerous studies have reported that speakers are able to report partial information about the item that is on the tip-of-their-tongues and cannot be fully retrieved. Such reports support the interpretation of the TOT as a memory retrieval failure rather than a memory encoding or storage problem.

The partial information that comes up in the mind of the person in the

TOTS is classified by Koriat et al (2003:2) into two kinds namely: substantive partial clues about the features of the target word, and metacognitive feelings.

I.11 Factors influencing the TOT state

 The incidence of the TOTS is influenced by some factors. These factors are respectively: memory, word-related factor and speaker-related factor.

I.11.1 Memory

Generally speaking, most psychologists agree that in studying memory they are largely concerned with "retention and retrieval", in the human mind, of words, information and specific events previously exposed to; i.e. it is the place where information is stored in order to be recalled when required (Herriot, 1986:58-59).

Memory is an active processing system, which complements the information-processing approach. The basic stages of the approach are: 1) encoding, i.e. the way in which information is processed for storage and the "acts which influence how information is stored and remembered"(Phye and Andre, 1986:115), 2) storage, i.e. retaining information that is acquired or learned intentionally into memory. There is a general agreement that there are four different memory storage systems: sensory memory, short-term memory (or primary storage), working memory and long-term memory (or secondary storage). These four systems are determined according to time and amount of information retained (Barber, 1988:27-28). And 3) retrieval, i.e. getting information back out when needed. Retrieval depends on both the quality of the coding and the organization of information transferred to memory (Kagan and Havemann, 1975:67).

I.11.2 Word-Related Factor

Since certain words are more susceptible to the TOTS than others, the following variables bring out the most important linguistic and psycholinguistic variables of the word that affect the storage, lexicalization of that word, and the incidence of the TOTS. These variables are: 1) word frequency, Harly (1995) as cited in MacAndrew and Harley (2000:1) state that word frequency is an important variable in all language tasks and such a frequency always has a "facilitatory effect" in speech production. 2) lexical neighbourhood size which means that some words are phonologically unique. There are words that have sparse neighbourhoods i.e. words with few or no similar sounding words (e.g. corpse), and others having dense neighbourhoods i.e. words with many similar sounding words (Vitevitch and Sommers 1999:133; and MacAndrew and Harley, 2000:1). 3) word recency, that is to say, recency effect of a word means that an early item or event can be easily and accurately recalled by those later ones.4) word length which, straightforward, explains itself. The main concern is

the word recall process, which differs from the word recognition process.

I.11.3 Speaker-Related Factor

The final factor that influences the incidence of the TOTS is related to the speaker himself. This factor has two variables namely: 1) brain damage, the case in which brain damage affects speech production is called aphasia. 2) aging i.e. the ability to store and recall information weakens as we grow older; therefore, for most people aging brings with it some mild memory problems (Burke, 2003: 10).

II. The Experimental Part:

II.1   The Subjects

A group of 84 participants (32 males and 52 females) from the fourth stage of the Dept of English, College of Education, Basrah University, the academic year 2003-2004 participated in the test. They participated as representatives of advanced undergraduate learners of English as a foreign language. They have somewhat a common background knowledge of English which comes as a result of three academic years of studying that language at College, beside their already acquired knowledge they had accumulated from about 8 academic years at school, such a knowledge, it is believed, qualifies them to respond accurately to the test.

II.2 The Test Materials

The test materials have been carefully selected from the linguistic and literary textbooks taught at the Dept. of English, College of Education, for the four stages, so as to obtain the frequency of usage of each word and term used in the test. The length of those words was also an important variable; therefore, the research had to verify the length of these words. The importance of those two variables frequency and length, and other variables such as recency comes from their value in analyzing the test results.

More specifically in tests one and four, the selection of materials was based on the subjects' general knowledge which can in turn be based on the words and information that the subjects might have heard from T.V. and radio programs or come across while reading English papers or magazines

II.2.1 Test No. One

Test No. one "picture-naming test" consists of six pictures with a key sentence under each. These pictures are selected according to the subjects' general knowledge. They are respectively: a rectangle, an astronaut, a penguin, Shakespeare, grapes and a harp .The pictures are presented to the subjects one by one on a screen by using a data show. Meanwhile all the subjects were supplied with a response sheet which included three options for each picture: "I

know", "I don't know" and "TOT state" (See appendix (1)).

The subjects who know the name of the picture are told to write it in the square under the option "I know". Those who didn't know the name are told to make a tick in the square under the option "I don't know". For those who are in a TOTS, three cue words for each picture were pronounced and shown on the data show screen. Those subjects ought to choose one of the cue words and write it in the first square under the option "TOT state", at the same time they are told to answer the question in another response sheet (see appendix (2)). The subjects ought to answer the question by choosing one of the five options given and write it in the second square under the option "TOT state". The same process is followed with the six pictures. Table 1 exhibits the previous analysis for each item in Test No. One .

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Table (1)
Results of Test No. One

No. of item	Sex	Don't know states	×	√	TOT state	Total	Cue1 Total	C1 R.1	C1 R.2	C1 R.3	C1 R.4	C1 R.5	C1 W.R	Cue2 Total	C2 R.1	C2 R.2	C2 R.3	C2 R.4	C2 R.5	C2 W.R	Cue3 Total	C3 R.1	C3 R.2	C3 R.3	C3 R.4	C3 R.5	C3 W.R
1	M	7	3	2	20	32	12	3	0	3	0	4	2	4	1	0	0	0	3	0	4	0	1	1	2	0	0
	F	12	4	1	35	52	27	2	1	4	0	19	1	5	0	1	0	0	4	0	3	1	0	1	1	0	0
	T	19	7	3	55	84	39	5	1	7	0	23	3	9	1	1	0	0	7	0	7	1	1	2	3	0	0
2	M	8	1	4	19	32	10	3	0	0	0	6	1	2	0	0	0	0	2	0	7	1	0	1	0	4	1
	F	23	6	0	23	52	17	2	1	0	0	12	2	3	1	0	0	0	2	0	3	0	1	0	0	2	0
	T	31	7	4	42	84	27	5	1	0	0	18	3	5	1	0	0	0	4	0	10	1	1	1	0	6	1
3	M	11	1	9	11	32	4	0	0	2	0	2	0	1	0	0	0	0	0	1	6	0	0	0	0	6	0
	F	20	9	7	16	52	9	0	1	2	0	6		6	0	1	2	0	2	1	1	0	0	0	1	0	0
	T	31	10	16	27	84	13	0	1	4	0	8	0	7	0	1	2	0	2	2	7	0	0	0	1	6	0
4	M	13	4	11	4	32	1	0	0	0	0	0	1	1	0	0	0	0	1	0	2	0	0	0	0	2	0
	F	27	7	15	3	52	3	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	T	40	11	26	7	84	4	2	0	1	0	0	1	1	0	0	0	0	1	0	2	0	0	0	0	2	0
5	M	2	10	1	19	32	11	2	0	1	0	8	0	6	1	3	0	0	1	1	2	0	0	1	0	1	0
	F	6	20	1	25	52	13	5	1	3	1	2	1	7	2	2	1	0	2	0	5	0	1	0	1	3	0
	T	8	30	2	44	84	24	7	1	4	1	10	1	13	3	5	1	0	3	1	7	0	1	1	1	4	0
6	M	15	4	0	13	32	2	0	0	0	0	1	1	6	0	2	0	0	3	1	5	0	0	1	0	3	0
	F	21	11	0	20	52	10	0	0	1	2	6	1	7	1	0	1	0	5	0	3	1	0	0	0	2	1
	T	36	15	0	33	84	12	0	0	1	2	7	2	13	1	2	1	0	8	1	8	1	0	1	0	5	1

R = reason
W.R = without reason

II.2.2 Test No.Two

All the subjects in test No. Two were supplied with a response sheet, printed on it six linguistic definitions, under each definition there are the three options, "I know", "I don't know" and the "TOT state" (see appendix (3)). These linguistic definitions are selected from the sources taught to the subjects during the last three academic years at the College of Education. The linguistic terms are respectively: "Diachronic" study, Onomatopoeia, Pharynx, Acronymy, "Pidgin" language and Metaphor.

The subjects who know the name of the linguistic terms were told to write it in the square under the option "I know". Those who didn't know the name were told to make a tick inside the square under the option "I don't know". As for those in the TOTS, they were told to answer the question in another response sheet (see appendix (4)). Those subjects ought to answer the question by choosing one of the five options given, and write it inside the square under the "TOT state". The same procedure was followed with the six linguistic definitions.

Obviously, in Test No. Two the researchers have not presented cue words to those subjects who were in the TOTS. Table 2 exhibits the previous analysis for each item in Test No. Two.

Table (2)
Results of Test No. Two

Item No.	Sex	I don't know	I know		TOT state	Total	Option No. 1	Option No. 2	Option No.3	Option No.4	Option No.5
			×	√							
1	M	5	11	7	7	32	2	0	0	5	0
	F	25	6	7	16	52	2	1	1	11	1
Total		30	17	14	23	84	4	1	1	16	1
2	M	22	2	0	5	32	1	0	0	4	0
	F	46	3	0	6	52	0	0	0	5	1
Total		68	5	0	11	84	1	0	0	9	1
3	M	12	9	2	7	32	2	1	2	2	0
	F	34	5	2	1	52	2	1	2	7	1
Total		46	14	4	20	84	4	2	4	9	1
4	M	18	5	0	8	32	1	1	2	3	0
	F	38	8	0	7	52	0	0	2	5	1
Total		56	13	0	15	84	1	1	4	8	1
5	M	21	5	0	4	32	0	0	3	1	0
	F	37	5	0	12	52	2	0	2	7	1
Total		58	10	0	16	84	2	0	5	8	1
6	M	24	3	0	3	32	0	0	1	2	0
	F	45	0	1	8	52	0	0	3	4	1
Total		69	3	1	11	84	0	0	4	6	1

II.2.3 Test No. Three

All the subjects in Test No. Three were supplied with a response sheet, printed on it six character sketches with the three options ("I know", "I don't know" and "TOT state") under each sketch. These sketches are taken from the critical notes of the novels and plays that were previously studied by the subjects during the past three stages (see appendix (5)). Those characters are respectively: Maria, Steven Blackpool, Laertes, Cornelius, Manolin and ChillingWorth.

The subjects who know the name of the characters were told to write it in the square under the option "I know". Those who didn't know the names of the characters were told to make a tick inside the square under the option "I don't know". As for those who were in a TOTS, three cue word (names) for each sketch were pronounced and shown on the data show screen. Those subjects ought to choose one of the cue words and write it in the first square under the option "TOT state", at the same time they were told to answer the question in another response sheet (see appendix (6)). The subjects ought to answer the question by choosing one of the five options given and write it inside the second square under the option "TOT state". The same process is followed with the six sketches. The following table presents the previously mentioned analysis for each item in the test. Table three exhibits the previous analysis for each item in Test No. Three.

Table (3)
Results of Test No. Three

No. of item	Sex	Don't know states	Know state ×	Know state \	TOT state	Total	Total
1	M	3	4	0	25	32	10
	F	8	14	0	30	52	10
T		11	18	0	55	84	20
2	M	2	4	14	12	32	6
	F	4	7	27	14	52	13
T		6	11	41	26	84	19
3	M	14	1	7	10	32	11
	F	8	15	15	14	52	4
T		22	16	22	24	84	15
4	M	11	6	3	12	32	4
	F	24	12	2	14	52	7
T		35	18	5	26	84	11
5	M	10	2	1	19	32	13
	F	24	2	0	26	52	14
T		34	4	1	45	84	27
6	M	12	9	5	6	32	6
	F	18	10	14	10	52	8
T		30	19	19	16	84	14

M = male , F = female
R = reason
W.R = without reason

II.2.4 Test No. Four

All the subjects in Test No. Four were also supplied with a response sheet, printed on it three descriptions of verbs and three descriptions of adjectives with the three options ("I know", "I don't know" and "TOT state") under each description (see appendix (7)). The forms of those verbs and adjectives are as follows: gaze, absurd, liberate, ignorant, imitate and purple.

The same procedure of Test No. One was followed in test No. Four. The subjects who know the forms of the verbs or the adjectives were told to write them inside the square under the option "I know". Those who didn't know the forms were told to make a tick inside the square under the option "I don't know". For those who were in a TOTS, three cue words for each picture were pronounced and shown on the data show screen. Those subjects ought to choose one of the cue words and write it in the first square under the option "TOT state", at the same time they were told to answer the question in another response sheet (see appendix (2)). The subjects ought to answer the question by choosing one of the five options given and write it in the second square under

the option "TOT state". The same process is followed with the six items. The following table presents the previously mentioned analysis of each item in this test.

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Table (4)
Results of Test No. Four

No. of item	Sex	Don't know states	Know state		TOT state	Total	Cue Word No.1							Cue Word No.2							Cue Word No. 3						
			×	√			Total	R.1	R.2	R.3	R.4	R.5	W.R	Total	R.1	R.2	R.3	R.4	R.5	W.R	Total	R.1	R.2	R.3	R.4	R.5	W.R
1	M	11	5	8	8	32	1	1	0	0	0	0	0	6	2	1	0	0	3	0	1	0	0	0	0	1	0
	F	19	8	17	8	52	2	2	0	0	0	0	0	4	1	2	0	0	1	0	2	1	0	1	0	0	0
T		30	13	25	16	84	3	3	0	0	0	0	0	10	3	3	0	0	4	0	3	1	0	1	0	1	0
2	M	8	9	3	12	32	5	2	0	1	0	2	0	4	0	1	0	0	3	0	3	1	0	0	0	1	1
	F	17	11	0	24	52	17	3	0	1	0	12	1	3	2	0	0	0	1	0	4	1	3	0	0	0	0
T		25	20	3	36	84	22	5	0	2	0	14	1	7	2	1	0	0	4	0	7	2	3	0	0	1	1
3	M	3	0	9	20	32	14	4	1	0	0	9	0	0	0	0	0	0	0	0	6	2			0	1	1
	F	10	0	11	31	52	13	1	0	0	0	12	0	3	0	0	1	1	0	1	15	1			0	10	1
T		13	0	20	51	84	27	5	1	0	0	21	0	3	0	0	1	1	0	1	21	3			0	11	2
4	M	4	4	14	10	32	10	2	0	1	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	F	8	9	14	21	52	19	5	1	3	1	8	1	2	0	1	1	0	0	0	0	0	0	0	0	0	0
T		12	13	28	31	84	29	7	1	4	1	15	1	2	0	1	1	0	0	0	0	0	0	0	0	0	0
5	M	7	4	12	9	32	3	1	0	0	1	1	0	3	0	0	1	1	1	0	3	0	0	0	0	3	0
	F	18	7	10	17	52	8	1	2	0	1	4	0	4	1	0	1	1	0	1	5	2	0	0	0	3	0
T		25	11	22	26	84	11	2	2	0	2	5	0	7	1	0	2	2	1	1	8	2	0	0	0	6	0
6	M	13	10	0	9	32	5	2	0	1	1	1	0	2	1	0	1	0	0	0	2	1	0	1	0	0	0
	F	21	13	1	17	52	12	1	0	0	0	10	1	1	0	0	0	0	1	0	4	0	0	0	0	2	2
T		34	23	1	26	84	17	3	0	1	1	11	1	3	1	0	1	0	1	0	6	1	0	1	0	2	2

II.3 Analysis of the Results

In analyzing each item in the test the researchers have taken the following points into consideration:

1. A description of the target word: That is, a description of its length and whether it is a word with a dense neighborhood or spares neighborhood.

2. The total of the "I know" responses: The "I know" responses have been analyzed in three steps. The first step examined the total number of the "I know" responses made for each item. The second step examined the number of the " I know " responses that are actually correct. And the final step examined the number of the "I know" responses that are incorrect. A further analysis has been made of some of those incorrect responses. Such responses have been considered as "TOT" responses because they are related to the target word either phonologically or semantically. The subjects that made those responses in fact did not realize that they were actually in the TOTS.

3. The total of the "I don't know" responses: The "I don't know" responses have been analyzed by examining the total number of the "I don't know" responses that have been made for each item.

4. The total of the "TOT state" responses: The "TOT state" responses have been analyzed by examining the total number of the "TOT state" responses that have been made for each item.

5. An analysis of the cue words: This has been done in two steps. For each cue word the total number of the subjects was examined. The second step examined the reasons for choosing that particular cue word. There have been acceptable and unacceptable reasons in choosing the cue words.

6. Out of points: 4 and 5 above, the researchers have examined the total number of the positive TOTS (henceforth PTOTS) which could be defined as a TOTS that was correctly resolved, i.e. choosing a cue word for a correct reason. The negative TOTS (henceforth NTOTS), on the other hand, could be defined as that TOTS that was incorrectly resolved, i.e. choosing a cue word for a wrong reason.

7. A general discussion of the whole test.

II.4 The Statistical Tests Used

A statistical treatment is applied to the results because the obtained pure calculated values of the results of the test are not sufficient in determining the subjects' state and choice, and in providing the researchers with the appropriate conclusions wanted in investigating what has been achieved out of the Test. The statistical results, in turn, should be carefully dealt with by giving precise explanations to provide evidence for what is being investigated.

To treat the collected data statistically, they have been ranked, i.e. put in order. Number (1) indicates the "I don't know" state, which comes from adding

the incorrect responses of the "I know" responses to the "I don't know" responses. Number (2) indicates the "TOT state". And number (3) indicates the correct responses of the "I know" responses.

-1-	-2-	-3-
"I don't know" state	"TOT"state	"I know"state

According to this rank the population mean, i.e. mu (μ), equals 2, i.e. "TOT"state. Also, the null hypothesis "H_0" has been formulated and the results have been analysed statistically.

In order to achieve the objectives of the study the following statistical tests were chosen to examine the collected data:
1. The t–test which is of two types and each was applied here for a specific purpose:
    A- The "t–test of the mean": it was applied to examine the results of the groups of the males, groups of the females and the groups of the totals and determine the state of each group for each individual item in the test. That is, to compare between the results of the three groups.
    B- The "Two–sample t-test": it was applied so as to determine whether the state difference between the group of the males and the group of the females is significant or not for each individual item. And to examine whether the difference between the group of the males and group of the females in choosing the three cue words is significant or not for each.

2. The "One – way ANOVA" (analysis of variance). This was applied for all of the items in the four tests to determine whether there are significant differences in the state and in choosing the three cue words. This is done to the groups of the females and the groups of the totals separately.

The researchers compared the level of significance α = 0.05 with the calculated ρ value. If the α is less than ρ ($\alpha < \rho$) the H_0 is rejected and the H_1 is accepted.

To examine the similarity and the dissimilarity of the responses of the groups of the males and the groups of the females separately, the Coefficient of Variation (C.V.) has been calculated as follows:

C.V. = $\times 100$

For each item a comparison has been made between the C.V. of the group of the males and the C.V. of the group of the females. The more the value of the C.V. is the more dissimilar the responses are for the group and vice versa.

II.4.1 The Statistical Analysis of the Results of Test No. One

The following statistical analysis is made of the results of the "I don't know", "TOT state" and "I know" responses for each individual item in the test.

II.4.1.1 The State of All The Subjects for Each Item

In order to examine the states in which most of the subjects were in for each item, i.e. whether most of them were in the "I don't know" state or in the "TOT state" or in the "I know " state, the "t–test of the mean" was used to verify the results for each individual item in the test for all the males, females and the total of both. Accordingly, the following null hypothesis is formulated:
H_0 = Most of the subjects were in the TOTS for that specific item, i.e. $H_0 = \mu = 2$

By contrast the alternative hypothesis is: -
H_1 = Most of the subjects were not in the TOTS for that specific item, but they were either in the "don't know" state or in the "know" state which is determined by the values in the column of mean shown in table (5) that, $H_1 = \mu \neq 2$ (see II.1).

The results exposed in table (5) indicated that the results for pictures: one, five, six are somehow similar because of all the males, females and the total $\alpha > \rho$, i.e. the H_0 is rejected and the H_1 is accepted. By examining the values in the column of the mean for those subjects, it will be clear that most of the subjects were in the "I don't know" state rather than "I know" state. That is to say the mean grade is between 1("I don't know" state) and 2 ("TOT state").

The results for pictures: two, three and four on the other hand, are also somehow similar. Table (5) shows that the value of ρ for the males in the case of these pictures is larger than 0.05, i.e. $\alpha < \rho$, so the H_0 is accepted while the value of ρ for the females and the totals for those pictures is less than 0.05, i.e. $\alpha > \rho$, so the H_0 is rejected and the H_1 is accepted. By examining the column of the mean for the results of the females and the totals, it will be clear that most of the subjects are in the "I don't know"state because the mean grade is between 1 and 2.

The calculated values of C.V. displayed in table (5) show that for picture No. one the responses of the females are more similar than the responses of the

males, while the responses of the males for pictures: three, four and five are more similar than the responses of the females. For pictures: two and six the values of C.V. of the males and the C.V. of the females are almost similar. For the whole test the least value of the C.V. recorded for the females is (29.09%) for picture No. one, i.e. the responses of the females in the case of that picture are the most similar responses than the other pictures in the whole test. Similarly, the least value of the C.V. recorded for the males is (32.46%) for pictures No. one, i.e. the responses of the males for that picture are the most similar responses than for the other pictures in the whole test. Table (5) exhibits the previous analysis.

Table (5): The Subjects' States and the C.V.

Item No.	Sex	N	Mean	St. Dev.	C.V.	T	ρ
1	M	32	1.750	0.568	32.46%	2.49	0.018
	F	52	1.712	0.498	29.09%	4.17	0.0001
	t	84	1.726	0.523	30.30%	4.80	0.0000
2	M	32	1.844	0.628	34.06%	1.41	0.17
	F	52	1.442	0.502	34.81%	8.02	0.0000
	t	84	1.595	0.583	36.55%	6.36	0.0000
3	M	32	1.906	0.818	42.92%	0.65	0.52
	F	52	1.577	0.723	45.85%	4.22	0.0001
	t	84	1.702	0.773	45.42%	3.53	0.0007
4	M	32	1.813	0.931	51.35%	1.14	0.26
	F	52	1.635	0.908	55.535%	2.90	0.0055
	t	84	1.702	0.915	53.76%	2.98	0.0038
5	M	32	1.656	0.545	32.91%	3.57	0.0012
	F	52	1.519	0.542	35.68%	6.40	0.0000
	t	84	1.571	0.544	34.63%	7.22	0.0000
6	M	32	1.406	0.499	35.49%	6.73	0.0000
	F	52	1.385	0.491	35.45%	9.03	0.0000
	t	84	1.702	0.583		4.80	0.0000

N= number of the subjects   t = total
St. Dev. = standard deviation   T = calculated - t -
C.V. = Coefficient of Variation   ρ = probability

II.4.1.2 The Sex Variable Effect on the Subjects' State

In order to examine the impact of the sex variable on the subjects' state, i.e. whether or not there are any significant differences, for each picture between the males and the females, the t–test was used to verify the results of each individual picture in the test. Accordingly, the null hypothesis is formulated:

H_0 = There are no significant differences in the state between the males and females.

The results exposed in table (6) indicate that for pictures: one, three, four, five and six there are no statistical significant differences in the state between the males and the females. This is because the ρ value is larger than 0.05 i.e. α < ρ, so the H_0 is accepted while for picture No. two there are statistical significant differences between the state of the males and the state of the females because α > ρ, i.e. the H_0 is rejected. Table (6) exhibits the previous analysis.

Table (6): State differences between the males and the females for each item

Item No.	T	DF	ρ
1	0.32	59	0.75
2	3.07	54	0.0034
3	1.87	59	0.066
4	0.86	64	0.39
5	1.12	65	0.27
6	0.19	64	0.85

T = calculated -t- ρ = probability   DF= degree of freedom

II.4.2 The Statistical Analysis of the Results Of Test NO. TWO

The following statistical analysis is made of the results of the "I don't know", "TOT state" and "I know" responses for each individual item in the test.

II.4.2.1 The State of all the Subjects for Each Item

In order to examine the state in which most of all the subjects were in for each item, i.e. whether most of them were in the "I don't know" state or "TOT" state or "I know" state, "the t-test of the mean" was used to verify the results of each individual item in the test for all the males, females and the total of both. Accordingly, the following null hypothesis is formulated:
H_0 = Most of the subjects were in the TOTS for that specific item, i.e. $H_0 = \mu=2$

By contrast the alternative hypothesis is:
H_1 = Most of the subjects were not in the TOTS for that specific item, but they were   either in the "don't know" state or in the "know" state which is

determined by the values in the column of mean shown in Table (22). That is $H_1 = \mu \neq 2$. (see section 15).

The results exposed in Table (7) indicate that the results for items two, three, four, five and six are similar because for all the males, females and the total $\alpha > \rho$, i.e. the H_0 is rejected and H_1 is accepted. By examining the values in the column of the mean for those subjects it will be clear that most of the

subjects were in the "I don't know" state rather than the "I know" state. That is to say, the mean grade is between 1("I don't know" state) and 2("TOT state").

The results for item No. one are slightly different. Table (7) shows that the value of ρ for the group of males in the case of this item was larger than 0.05, i.e. $\alpha < \rho$, so the H_0 is accepted. While the value of ρ for the females and the total for this item was less than 0.05, i.e. $\alpha > \rho$, so the H_0 is rejected and H_1 is accepted. By examining the column of the mean for the results of the females and the totals, it will be clear that most of the subjects were in the "I don't know" state because the mean grade is between 1 and 2.

The calculated values of the C.V. displayed in table (7) show that for items No. one, two, three and four the responses of the females are more similar than the responses of the males. While the responses of the males for items: five and six are more similar than the responses of the females. For the whole test the least value C.V. recorded for the males is (29.87) for items five and six, i.e. the responses of the males in the case of these items are the most similar responses than the other items in the whole test. Similarly, the least value of the C.V. recorded for the females is (28.97) for item No. two, i.e. the responses of the females for that item are the most similar responses than the other items in the whole test.

Table (7): The Subjects' States and C.V.

Item No.	Sex	N	Mean	St. Dev	C.V.	T	ρ
1	M	32	1.750	0.842	48.11%	1.68	0.10
	F	52	1.519	0.700	46.08%	4.95	0.0000
	t	84	1.607	0.761	47.355%	4.73	0.0000
1	M	32	1.750	0.842	48.11%	1.68	0.10
	F	52	1.519	0.700	46.08%	4.95	0.0000
	t	84	1.607	0.761	47.355%	4.73	0.0000
2	M	32	1.156	0.369	31.92%	12.94	0.0000
	F	52	1.115	0.323	28.97%	19.77	0.0000
	T	84	1.131	0.339	29.97%	23.47	0.0000
3	M	32	1.375	0.609	44.29%	5.80	0.0000
	F	52	1.308	0.544	41.59%	9.18	0.0000
	T	84	1.333	0.567	42.535%	10.78	0.0000
4	M	32	1.250	0.440	35.2%	9.64	0.0000
	F	52	1.135	0.345	30.40%	18.11	0.0000
	T	84	1.179	0.385	32.65%	19.54	0.0000
5	M	32	1.125	0.336	29.87%	14.73	0.0000
	F	52	1.231	0.425	34.52%	13.04	0.0000
	T	84	1.190	0.395	33.19%	18.78	0.0000
6	M	32	1.125	0.336	29.87%	14.73	0.0000
	F	52	1.173	0.430	36.66%	13.86	0.0000
	t	84					

II.4.2.2 The Sex Variable Effect on the Subjects' State

In order to examine the impact of the sex variable on the subjects' state i.e. whether or not there are any significant differences for each item between the males and the females, the t-test was used to verify the results for each individual item in the test. Accordingly, the following null hypothesis is formulated:

H_0 = There are no significant differences in the state between the males and the females.

The results exposed in table (23) indicate that for all items: one, two, three, four, five and six there are no statistical significant differences in the state between the males and the females. This is because the ρ value is larger than 0.05.i.e. $\alpha < \rho$, so the H_0 is accepted.

Table (23): State Differences between the Males and Females

Item No.	T	DF	ρ
1	1.30	56	0.20
2	0.52	59	0.61
3	0.51	60	0.61
4	1.26	54	0.21
5	1.26	76	0.21
6	0.57	77	0.57

II.4.3 The Statistical Analysis of the Results of Test No. Three

The following statistical analysis is made of the results of the "I don't know", "TOT state" and "I know" responses for each individual item in the test.

II.4.3.1 The State of all the Subjects for Each Item

In order to examine the state in which most of the subjects were in for each item, i.e. whether most of them were in the "I don't know" state, or in the "TOT state", or in the "I know " state, the "t-test of the mean" was used to verify the results for each individual item in the test for all the males, females and the total of both. Accordingly, the following null hypothesis is formulated:
H_0 = Most of the subjects were in the TOTS for that specific item, i.e. $H_0 = \mu = 2$
By contrast the alternative hypothesis is:
H_1 = Most of the subjects were not in the TOTS for that specific item, but they were either in the "don't know" state or in the "know" state which is determined by the values in the column of the mean in table (8). That is, $H_1 = \mu \neq 2$. (see section II.1).

The results exposed in table (8) indicate that the results for items: one, four, five and six are similar because for all the males, females and the total $\alpha > \rho$, i.e. the H_0 is rejected and the H_1 is accepted by examining the values in the column of the mean for those subjects, it will be clear that most of the subjects

were in the "I don't know" state rather than "I know" state. That is to say, the mean grade is between 1("I don't know" state) and 2 ("TOT state").

The results for item No. two shown in table (8) indicate that the value of ρ of the group of the males was larger than 0.05, i.e. $\alpha < \rho$, so the H_0 is accepted. While the value of ρ for the females and the total in the case of this item was less than 0.05, i.e. $\alpha > \rho$, so the H_0 is rejected and the H_1 is accepted. By examining the values in the column of the means of the females and the total, it will be clear that most of them were in the "I know" state rather than "I don't know" state. That is to say, the mean grade is between 2 ("TOT state") and 3 ("I know" state). These two groups, the group of the females and the group of the total, for this specific item were the only groups that were actually in the "I know" state in the whole test, i.e. test No. One, test No. Two, test No. Three and test No. Four.

The results for item No. three shown in table (8) indicate that the values of ρ for the group of the males and the group of the females were larger than 0.05, i.e. $\alpha < \rho$, then the H_0 is rejected and the H_1 is accepted. By examining the value in the column of the mean for the total it will be clear that most of those subjects were in the "I don't know" state because the mean grade for the total is between 1 and 2.

The calculated values of the C.V. displayed in table (8) show that for items: one, two, four and five the responses of the males were more similar than the responses of the females. For items three and six, there were slight differences between the values of the C.V. for the males and the females. That is, the values of the C.V. were almost identical for the males and the females. For the whole test the least value of the C.V. recorded for the males was (23.58%) for item No. one. That is, the responses of the males in the case of this item were the most similar responses than the other items in the whole test. Similarly, the least value of the C.V. recorded for the females was (31.64%) for item No. one, i.e. the responses of the females in the case of this item were the most similar responses than the other items in the whole test.

Table (8): The Subjects' States and C.V.

Item No.	Sex	N	Mean	St. Dev.	C.V.	T	ρ
	M	32	1.7812	0.4200	23.58%	2.95	0.0061
1	F	52	1.5769	0.4989	31.64%	6.12	0.0000
	t	84	1.6548	0.4783	28.90%	6.62	0.0000
	M	32	2.2500	0.7620	33.87%	1.86	0.073
2	F	52	2.3077	0.8053	34.90%	2.76	0.0081
	T	84	2.2857	0.7850	34.34%	3.34	0.0013
	M	32	1.7500	0.8032	45.90%	1.76	0.088
3	F	52	1.8462	0.8491	45.99%	1.31	0.20
	T	84	1.8095	0.8284	45.78%	2.11	0.038
4	M	32	1.5000	0.6222	41.48%	4.55	0.0001

	F	52	1.3846	0.5991	43.27%	7.41	0.0000
	T	84	1.4286	0.6069	42.48%	8.63	0.0000
	M	32	1.6562	0.5453	32.92%	3.57	0.0012
5	F	52	1.5000	0.5049	33.66%	7.14	0.0000
	T	84	1.5595	0.5230	33.54%	7.72	0.0000
	M	32	1.5000	0.7620	50.8%	3.71	0.0008
6	F	52	1.7308	0.8658	50.02%	2.24	0.029
	t	84	1.6429	0.8308	50.57%	3.94	0.0002

II4.3.2 The Sex Variable Effect on the Subjects' State

In order to examine the impact of the sex variable on the subjects state i.e. whether or not there are any significant differences, for each item, between the males and the females, the t-test was used to verify the results for each individual item in the test. Accordingly, the following null hypothesis is formulated:

H_0 = There are no significant differences in the state between the males and the females.

The results exposed in table (9) indicate that for all items: one, two, three, four, five and six, there are no statistical significant differences in the state between the males and females. This is because the ρ value is larger than 0.05, i.e. $\alpha < \rho$, so the H_0 is accepted.

Table (9): The State Differences between the Males and Females in all Items

Item No.	T	DF	ρ
1	2.01	74	0.048
2	0.33	68	0.74
3	0.52	68	0.60
4	0.84	63	0.41
5	1.31	61	0.19
6	1.28	72	0.20

II.4.4 The Statistical Analysis of the Results of Test No. Four

The following statistical analysis is made of the results of the "I don't know", "TOT state" and "I know" responses for each individual item in the test.

II.4.4.1 The State of all The Subjects for Each Item

In order to examine the states in which most of the subjects were in for each item, i.e. whether most of them were in the "I don't know" state or in the TOTS or in the "I know " state, the "t–test of the mean" was used to verify the results for each individual item in the test for all the males, females and the total of both. Accordingly, the following null hypothesis is formulated:

H_0 = Most of the subjects were in the TOTS for that specific item, i.e. $H_0 = \mu = 2$

By contrast the alternative hypothesis is:

H_1 = Most of the subjects were not in the TOTS for that specific item, but they were either in the "don't know"state or in the "know" state which is determined by the values in the column of the mean in table (46). That is, $H_1 = \mu \neq 2$. (see section 4.7.1).

The results exposed in table (10) indicated that the results for items: three and four are similar because for all the males, the females and the total $\alpha < \rho$, i.e. the H_0 is accepted and the H_1 is rejected.

The results for items two and six are also similar because for all males, the females and the total $\alpha > \rho$, i.e. the H_0 is rejected and the H_1 is accepted. By examining the values in the column of the mean for those subjects it will be clear that most of the subjects were in the "I don't know"state rather than "I know" state. That is to say, the mean grade is between 1 ("I don't know" state) and 2 ("TOT" state).

The results for item No. one exposed in table (10), show that for the males and the females the value of ρ is larger than 0.05, i.e. $\alpha < \rho$, i.e. the H_0 is accepted and the H_1 is rejected. While the ρ i.e. value for the total is less than 0.05, i.e. $\alpha > \rho$ the H_1 is accepted and the H_0 is rejected. By examining the column of the mean for the total, it will be clear that most of the subjects were in the "I don't know"state because the mean grade is between 1 and 2.

Finally, the results for item No. five shown in table (10) indicate that the males and the total results were similar because $\alpha < \rho$, i.e. the H_0 is accepted. While the results of the females in the case of this item $\alpha > \rho$, i.e. H_0 is rejected and the H_1 is accepted. By examining the column of the mean in table (10), it will be clear that most of the females were in the "don't know" state because the mean grade is between 1 and 2.

The calculated values of the C.V. displayed in table (10) show that for items No. one, three, four, five and six the responses of the females were more similar than the responses of the females. On the other hand, the responses of the females for item No. two were more similar than the responses of the males. For the whole test the least value of the C.V. recorded for the males was (27.07%)

for item three, i.e. the responses of the males in the case of this item were the most similar responses than the other items in the whole test. Similarly, the least value of the C.V. recorded for the females was (31.75%) for item three, i.e. the responses of the females for that item were the most similar responses than the other items in the whole test.

Table (10): The Subjects' States and C.V.

Item No.	Sex	N	Mean	St. Dev.	C.V.	T	P
	M	32	1.750	0.842	48.11%	1.68	0.10
1	F	52	1.808	0.908	50.22%	1.53	0.13
	t	84	1.786	0.879	49.22%	2.23	0.028
	M	32	1.563	0.669	42.80%	3.70	0.0008
2	F	52	1.462	0.503	34.40%	7.71	0.0000
	t	84	1.500	0.570	38%	8.03	0.0000
	M	32	2.187	0.592	27.07%	1.79	0.083
3	F	52	2.019	0.641	31.75%	0.22	0.83
	t	84	2.083	0.625	30%	1.22	0.23
	M	32	2.187	0.821	37.54%	1.29	0.21
4	F	52	1.942	0.777	40.01%	0.54	0.59
	t	84	2.036	0.798	39.19%	0.41	0.68
	M	32	2.031	0.861	42.39%	0.21	0.84
5	F	52	1.712	0.776	45.33%	2.68	0.0098
	t	84	1.833	0.819	44.68%	1.87	0.066
	M	32	1.281	0.457	35.675%	8.90	0.0000
6	F	52	1.365	0.525	38.46%	8.72	0.0000
	t	84	1.500	0.570	38%	8.03	0.0000

II.4.4.2 The Sex Variable Effect on the Subjects' State

In order to examine the impact of the sex variable on the subjects' state, i.e. whether or not there are any significant differences, for each item between the males and the females, the "t-test" was used to verify the results for each individual item in the test. Accordingly, the null hypothesis is formulated:

H_0 = There are no significant differences in the state between the males and the females

The results exposed in table (11) indicate that for all items there are no statistical significant differences in the state between the males and the females. This is because the ρ value is larger than 0.05, i.e. $\alpha < \rho$, so the H_0 is accepted.

Table (11): State Differences between the Males and

the Females in Each Item

Item No.	T	DF	ρ
1	0.03	69	0.77
2	0.74	52	0.47
3	1.22	69	0.22
4	1.36	63	0.18
5	1.72	60	0.091
6	0.77	72	0.44

II.5 Conclusions

The following are the main conclusions of this study:

9. Although there were no significant differences in state between the males and the females in the tests, it is clear that the males underwent the TOT state more than the females in few specific items.

10. Although there were a restricted number of the TOT state cases; however, in those cases almost all the speech production models and theories that explain the TOT phenomenon are applicable.

11. The effect of the cue words on the subjects' state was clear in the whole test. In tests: One, Three and Four, where there were cue words presented to the subjects, the subjects' state varied considerably, while in Test No. Two, where no cue words were presented, most of the subjects were in the "don't know" state.

12. Most of the TOTS cases occurred in Test No. Four. That is to say, the subjects underwent the TOTS with verbs and adjectives more than with nouns.

13. In the whole test and specifically in the case of those items wherein the subjects experienced the TOTS, the males' responses were more similar than the females' responses.

14. Generally speaking, there are no significant differences in choosing the three cue words between the males and females in tests: One, Three and Four. As for Test No. Two, there are no significant differences in choosing the five options between the males and the females.

15. Concerning the detected TOT cases, they occurred more with words that have sparse neighbourhoods than words that have dense neighbourhoods.

16. The recency variable effect was quite clear in Test No. Three. The more recent the word is the more it affects the incidence of the TOTS.

17. Length of words affects the incidence of the TOTS.

18. Some subjects thought that they knew the correct answer and that they were in the "I know" state, but actually they were in the TOT state without realizing it; this is because some of the learned or acquired information is not correctly and properly stored in their memories. Accordingly, they wrote words that are related either phonologically or

semantically to the target word. This unrealized TOTS is mostly found in Test No. One.

19. Only in Test No. One there were no significant state differences among the males, on the one hand, and among the females, on the other. While, in tests: Two, Three and Four there were significant state differences among the males and among the females.

20. In Tests: One, Two and Four there were no significant choice differences among the males, while in Test No. Three there were such differences. In tests: One, Two and Three there were no significant choice differences among the females, while in Test No. Four there were such differences.

21. In Test No. One, most of the subjects in the case of items: one, two and three were in the PTOTS; while in the case of items: four, five and six most of the subjects were in the NTOTS. For all the six items, there were no significant differences in the (PTOTS and NTOTS) between the males and the females, and among the males themselves and among the females themselves.

22. For all the six items in Test No. Three, most of the subjects were in the PTOTS. Also for all items there were no significant differences in the (PTOTS and NTOTS) between the males and females, and among the males themselves and among the females themselves.

23. In Test No. Four most of the subjects in the case of items: two, three, four and six were in the PTOTS; while in the case of items one and five most of the subjects were in the NTOTS. For items: one, four, five and six there were no significant (PTOTS and NTOTS) differences between the males and the females. While in the case of items: two and three there were significant differences in the (PTOTS and NTOTS) between the males and the females. Furthermore, there were significant differences in states among the males themselves and among the females themselves.

24. Statistically speaking, there is only one case for the whole test in which the group of the females and the group of the total are in the "I know" state. This case is for the second item in Test No. Three.

II.6   Recommendations

Depending on the above conclusions, the researchers present the following recommendations:

1. In order to insure storing the learned information in the students' long term memory, the teacher ought to repeat what s/he says in the lecture especially after the first presentation of new terms and difficult information. This is because repetition aids memory and reduces the amount of later forgetting.

2. The teacher ought to present information that fits with the ideas in the students' mind. But in the case of presenting new or odd terms or information for the first time, the teacher ought to use pauses before and after their first presentation. Pauses are used so that to avoid interfering

the information presented and because information presented before the pause has time to sink in the students' memories and time for the students to rehearse it and take notes.

3. Some of the unrealized TOT states experienced by some students are due to the lack of the written form of the word. Accordingly, the teacher ought to attract the students' attention to the form of the new term or word by writing it on the blackboard and give time for the students to write it and rehearse it.

II.7 Suggestions

The present study investigates the TOT state experienced by the AILsE only by asking for individual words, terms and names. For further studies the researchers suggest asking a sample of subjects for a longer piece of information instead of asking for words, terms and names. In other words, the test conducted in this work can be made the other way round, viz. by giving the word, term or name and asking for the details. In this way a researcher can investigate what information can certain subjects remember about a given term, noun or word, and what information do they have the FOK it but cannot exactly retrieve it.

Moreover, a researcher can ask about a piece of poem by giving the name of the poet and the title of the poem or by giving a brief explanation of that piece of poetry. In this way, s/he can investigate in what words or terms do subjects experience the TOTS and in what kind of poems do they mostly undergo the TOTS.

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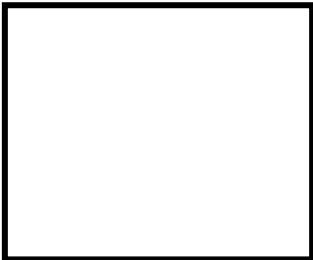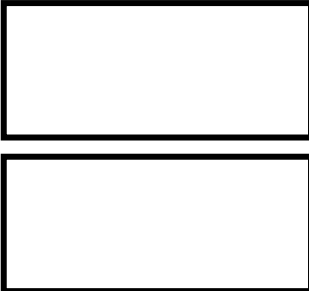
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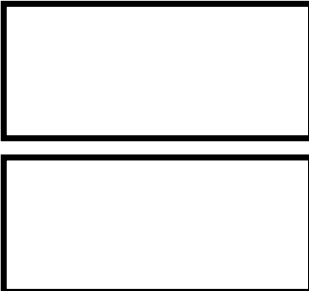
Appendix 1

Test NO. One: Picture Naming

❖ **Picture One**

I know	I don't know	ToT state

❖ **Picture Two**

I know	I don't know	ToT state

❖ **Picture Three**

I know	I don't know	ToT state

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Cont.

Test NO. One: Picture Naming

❖ **Picture Four**

I know	I don't know	ToT state

❖ *Picture Five*

I know	I don't know	ToT state

❖ **Picture Six**

I know	I don't know	ToT state

40

Appendix Two

<u>*Note:*</u>

If you are in the TOT State, answer the following question:

❖ Why have you chosen that word? Is it because of its:
1. initial letter(s) or sound(s)?
2. final letter(s) or sound(s)?
3. the number of syllables?
4. stress patterns?
5. Meaning

❖ None of the above points. Then what is it?

Appendix 3

Test NO. Two

Read the following definitions then give the appropriate term or name for each. If you are in the ToT State, answer the question on the other page for each definition.

1. It is the study or analysis of any language from the point of view of its historical development, i.e., by taking into account its changes from one point in time to a later one.

I know	**I don't know**	**TOT state**

2.Words that reflect their properties in a language. So, this indicates that words intended to mimic a natural sound, i.e., some words have sounds which seem to echo the sounds of objects or activitie

I know	**I don't know**	**TOT state**

3.A tube which begins just above the larynx. At its top end, it is divided into two parts, one part being the back of the mouth and the other being the beginning of the way through the nasal cavi

I know   **I don't know**   **TOT state**

Cont.

Test NO. Two

4.The process where by some new words are formed from the initials of a set of words, e.g., UNICEF.

I know   **I don't know**   **TOTstate**

5. It is a native language of no one. It is formed by two speech communities attempting to communicate each approximating to more obvious and common features of other languages. Such language is used for trade or similar purposes by those who have no other common language.

I know   **I don't know**   **TOT state**

6. A figure of speech that expresses an idea through the image of another object. It suggests the essence of the first object by identifying it with certain qualities

of the second object. It is the use of a word or phrase that ordinarily designates one thing and is used to designate another thus making an implicit comparison.

I know	**I don't know**	**TOT state**
☐	**Appendix 4**	☐

 NOTE:
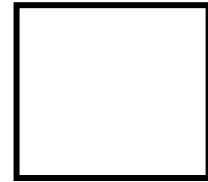
If you are in the ToT State, answer the following question for each definition:

❖   What partial information of the term can you remember? Is it,
   1. The initial letter(s) or sound(s)?
   2. The final letter(s) or sound(s)?
   3. The number of syllables?
   4. Other words that came up in your mind and sound the same or you feel they are related to the target term phonologically or semantically?
   5. Stress pattern?

Appendix 5

Test NO. Three

❖   What is the name of the following characters?

1. One of Shakespeare's characters in Twelfth Night is the source of the comic action in the play. She enjoys seeing people humiliated and made uncomfortable. Her job is to expose the faults, vanities and ignorance of her fellow creatures in a pleasant way (Coles Editorial Board, 1982: 78).

I know	**I don't know**	**TOT state**

2. One of Dickens' characters in Hard Times is a wealthy middle-aged factory owner of Coketown, is a self-made man. Fabricating a story of his childhood, he has built himself a legend of being abandoned waif who has risen from the gutter to his present position. His story then had been proved false by the appearance of his mother who had not abandoned him but who had reared and educated him, he is revealed as a fraud who had rejected his own mother (Coles Editorial Board, 1982: 58).

I know	I don't know	TOT state
□		▭ ▭
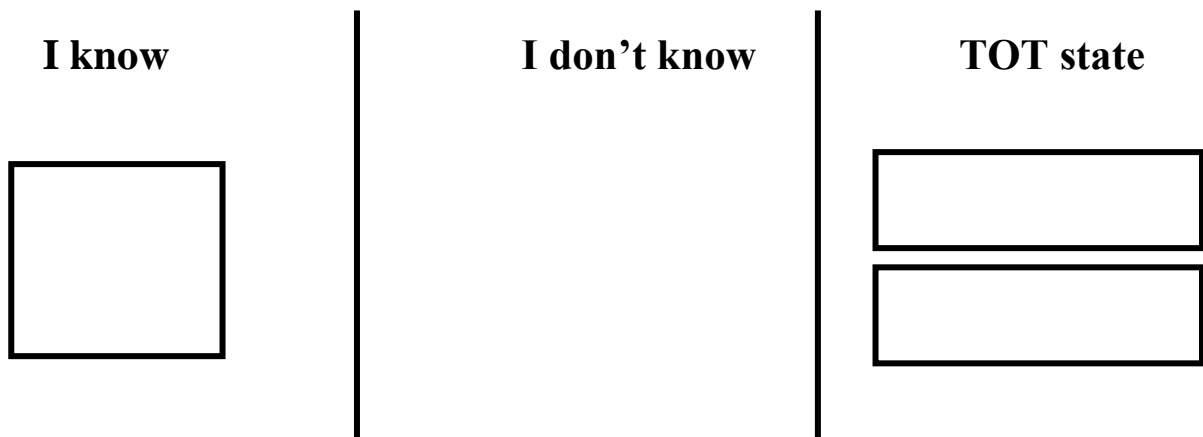
Cont.

Test NO.Three

3. One of Shakespeare's characters in *Hamlet* is Polonius' son and brother of Ophelia, he is somewhat cynical like his father in advising Ophelia of the impossibility of love with Prince Hamlet. But he has a basic courage and honesty. He seems to have had a youthful fling in Paris, but he returns to Denmark to the serious responsibility of manhood, that is to uncover his father's murder and to avenge Polonius' almost secret, unhonored burial (Coles Editorial Board, 1982: 65).

I know	I don't know	TOT state
□		▭
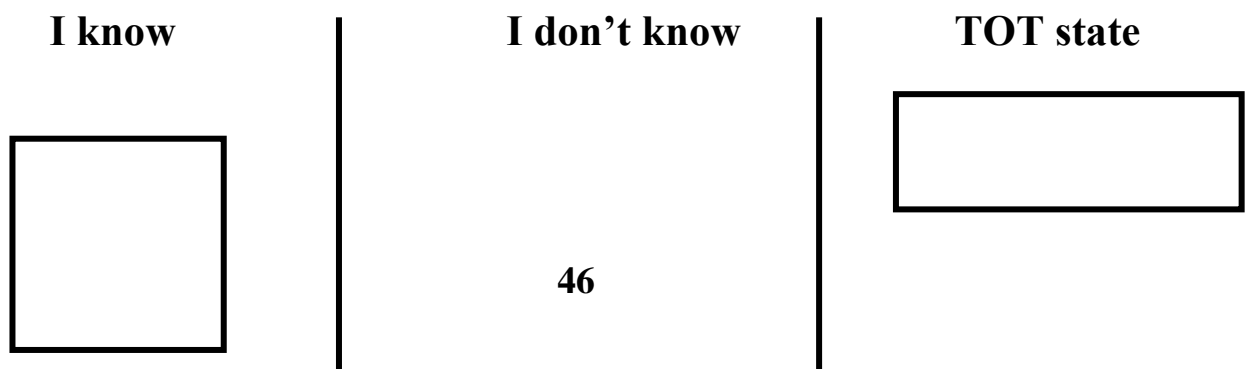
4. One of Marlowe's characters in *Doctor Faustus* is a magician who, with Valdes, promises Faustus with wealth and power if he should practice magic. The two magicians, renowned for their skill in black magic, hope to gain from Faustus' intelligence but are seen no more after they disclose their secrets (Engel, W. F., 1983: 16).

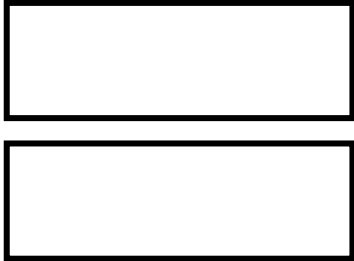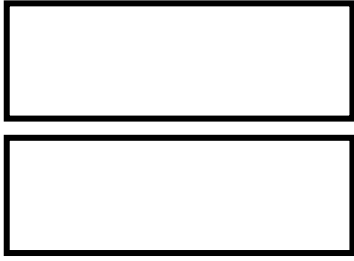| **I know**	**I don't know**	**TOT state**

Cont.
Test No. Three

5. One of Hemingway's characters in *The Old Man and the Sea* is a young boy. He was known as being Santiago's companion in fishing. Their relationship began when the boy was only five years old. In spite of Santiago's bad luck, the bound between them has never been weakened. The boy's father forced the boy later on to leave the unlucky old man and work with another. In his relationship with Santiago, he proves himself to be a boy of unusual and striking qualities (Coles Editoral Board, 1982: 34).

I know	**I don't know**	**TOT state**

6. One of Hawthorn's characters in *The Scarlet Letter* is Hester's Husband, a man much older than she, had left her many years. He had been held captive by the Indians but had also fed "the hungry dreams of knowledge" in study of alchemy. Then he became Salem's physician and Dimmesdale's "medical advisor" (Coles Editoral Board, 1981: 52).

I know	**I don't know**	**TOT state**

Appendix 6

Test No. Three

<u>NOTE:</u>

❖   If you are in the ToT state, answer the following questions:

Why have you chosen that name? Is it because of its,
1. initial letter(s) or sound(s)?
2. final letter(s) or sound(s)?
3. number of syllables?
4. stress pattern of the word?
5. It sounds the same as the word in your mind?

❖   None of the above points. Then what is it?

Appendix Seven

Test NO. Four

Memory and the Tip-of-the-Tongue Phenomenon

Write the correct form of the verbs and adjectives for the following:

1. A verb that means looking steadily especially for a long time.

I know	**I don't know**	**TOT state**
☐		▭▭

2. An adjective that means something unreasonable; foolish; against reason or common sense.

I know	**I don't know**	**TOT state**
☐		▭▭

3. A verb that means setting free and allowing to go..

I know	I don't know	TOT state

Cont.

Test NO. Four

4. An adjective that refers to a lack in knowledge, education or consciousness.

I know	I don't know	TOT state

5. A verb that means copying the behaviour of or appearance or speech of a person.

I know	I don't know	TOT state

6. A colour made of a mixture of red and blue.

I know	I don't know	TOT state

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الذاكرة وظاهرة على طرف اللسان

الخلاصة

يهدف هذا البحث الى دراسة احدى ظواهر علم اللغة النفسي وهي ظاهرة "على طرف اللسان"، التي تعتري الطلبة العراقيين من ذوي المستوى المتقدم الذين يتعلمون اللغة الانجليزية كلغة أجنبية. بنيت الدراسة على الفرضية التالية : بما ان عملية الكلام هي عملية كونية تشمل عموم البشر، اذن فنظريات الكلام يجب ان تكون مؤهلة لوصف أي ظاهرة ، وتفسيرها اي ظاهرة في اي لغة سواء كانت اللغة الام ام لغة اجنبية خصوصاً، ظاهرة "على طرف اللسان". ولذلك فأن الطلبة العراقيين من ذوي المستوى المتقدم في تعلم اللغة الانجليزية ليسوا مستثنين من تأثرهم بهذه الظاهرة عندما يتكلمون اللغة الانجليزية .وقد خلصت الدراسة الحالية الى مجموعة من الاستنتاجات اهمها مايلي:

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١.على الرغم من عدم وجود فروقات مهمة في حالة الذكور والاناث ممن اشتركوا كعينة اختبار فأنه من الواضح ان الذكور اختبروا ظاهرة "على طرف اللسان" اكثر من الاناث في بعض فقرات الاختبار

٢.اوضحت نتائج الاختبار الكلي انّ كل نظريات الكلام تقريباً تنطبق على حالات "على طرف اللسان" التي سجلت في الاختبار الكلي.

٣.ظهرت اغلب حالات "على طرف اللسان" على عينة الاختبار عند التعامل مع بعض الافعال والصفات اكثر من الاسماء الانكليزية .

٤.تكررت الحالات المسجله لهذه الظاهرة مع الكلمات ذوات السياق الغني اكثر من تلك ذوات السياق الشحيح.

٥.كان لعامل حداثة المعلومة المكتسبة تأثير على هذه الظاهرة.

٦.كان لطول الكلمة علاقة بحدوث او عدم حدوث هذه الظاهرة.

٧.كانت هنالك فروقـات مهمـة فيمـا بـين الإنـاث كمجموعـة منفصـلة والـذكور كمجموعـة منفصـلة ايضـاً خصوصاً في الاختبارات الفرعية للاختبار الثاني ، والثالث والرابع.

٨.من ناحية احصائية ،سجلت حالة واحدة فقط في الاختبار بأكمله بينت أن الإناث كمجموعة منفصلة والعينة الكلية مرتا في حالة واحدة من عدم المعرفة .