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Metaphor-Based Schemas and Text Representations in English and Tunisian Arabic: The Case of M.A.Students of English at ISLT

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Abstract

Four experiments were conducted to investigate the role of metaphor-based schemas in text comprehension and representation in English and Tunisian Arabic among 80 Tunisian MA students of English. The study explores specifically, the extent to which topic shifts, familiarity with metaphors and semantic relatedness, are responsible for connecting elements within a text. The data were collected through two tasks: Priming in item recognition task and two off-line questionnaires. Results revealed that: (1) Schemas facilitate recognition judgments for schema-related sentences presented in texts in English and Tunisian Arabic. (2) Priming effect is not evident between words referring to the same domain. (3) Priming effect is evident between words referring to different domains. (4) Priming effect does not result from topic shifts, semantic relatedness, and the degree of familiarity. Interestingly, *connections between primes and targets are attributed to their shared relationship to a metaphor-based schema and not merely to a shared reference to a common subject matter. These findings point to the role of metaphor-based schema in fostering coherence within readers' text representations in English and Tunisian Arabic.*

Keywords: Text comprehension, Metaphor-based schemas, Priming effect, Familiarity, Semantic relatedness, Topic shifts.

1. Introduction

1.1. Scope and Aim

The study fits within the field of language comprehension, in general, and metaphor comprehension, in particular. First, it aims at investigating the role of metaphor-based schemas in text comprehension and representation across two languages: English and Tunisian Arabic. Second, it explores the extent to which semantic relatedness, topic shifts and familiarity with metaphors can affect text representation. Third, it also probes into the difference between native language (i,e., Tunisian Arabic) and non-native language (English) in priming effects.

1.2.Rationale

The rationale for this study stems from an increasing need for language comprehension research in the Tunisian context. Language processing studies are very limited. This study is an attempt to bring about awareness to language processing, in general, and metaphor processing, in particular. Furthermore, there have been few attempts to shed light on the role of metaphors in text comprehension and representation. This study aims to fill this gap, at least partially, by conducting four experiments in English, the most researched language, and in Tunisian Arabic, an under-researched language. Particularly, it investigates the extent to which metaphor-based schemas could create connections within memory representations.

2. Theoretical background

In 1980, the publication of *Metaphors We Live By* (Lakoff & Johnson, 1980) made a milestone in metaphor study. In this book, the idea of "conceptual metaphor" was put forward for the first time. Conceptual Metaphor Theorybrings a turning point in metaphor study. Lakoff's cognitive view on metaphor is regarded as a breakthrough in metaphor study. Since then, metaphor is not only a figure of speech. It is no longer regarded as a mere textual, stylistic decoration considered merely as an ornamental device that is restricted to literature and poetry. Instead, metaphor is understood as a matter of thought and human cognition (Lakoff & Johnson, 1980; Lakoff, 1993) which pervades our everyday lives. Lakoff and Johnson (1980) stated their aims and claimed forthrightly at the outset (p.3) that, "Metaphor is pervasive in everyday life, not just in language but in thought and action". In this view, metaphor becomes a valuable cognitive tool and an inevitable part of everyday human communication,

Metaphor is a conceptual phenomenon (Lakoff, 1980). It is, generally, defined as a conceptual mapping of certain salient features from one vehicle (source) domain to another topic (target) domain. These conceptual metaphors play a special role in organizing conceptual knowledge through the interaction of source and target domains (Gentner, 1983). Allbritton (1995) found that conceptual metaphors are responsible for the existence of schematic knowledge structures. He claimed that these structures may affect the way information about a metaphor's topic domain is processed and represented in memory. The representational structure that maps knowledge about a conceptual metaphor's vehicle domain onto its topic domain can be termed a metaphor-based schema. The domain of time, for example, is often understood through the schema

TIME IS MONEY, in which conceptual structures associated with money (source domain) are mapped onto the domain of time (target domain), and in the process, influence the way time is understood. Allbritton, Mckoon, & Gerrig, (1995)found evidence that metaphor-based schemas can create connections between elements of readers' text representations. That is, metaphors may contribute to the ongoing process of text comprehension (Allbritton, 2007).

Metaphor-based schemas are described as "extended, analogy-like metaphors similar to conceptual metaphors" (Allbritton, 2007, p. 3). Allbritton (2007) assumed that, in Lakoff's theory, conceptual metaphors are described as entrenched -extended metaphors that shape our concepts and experiences. He also postulated that metaphor-based schema, however, is intended to be a broader term, encompassing both familiar extended metaphors such as the conceptual metaphors identified by Lakoff and Johnson as well as coherent but unfamiliar extended metaphors. Metaphor-based schemas are assumed to be part of the world knowledge that readers bring to the process of text comprehension (Allbritton et al.1995).

The research attempts to investigate how metaphors are interpreted have led to three main approaches: the structural mapping view, the attributive categorization view, and the conceptual metaphor view. The structural mapping view sees metaphors as analogies. They are comparisons between two situations that highlight common information and invite inferences from the source (the vehicle) to the target (the topic) (Gentner& Bowdle, 2001).

The attributive categorization view assumes that metaphor interpretation does not require any such pre-existing metaphorical structures between source and target domains that are part of long-term memory (Allbritton, 1995; Glucksberg, McGlone, & Manfredi 1997). Instead, metaphors are comprehended via class-inclusion assertions (Gong & Ahrens, 2007).In other words, attributional models characterize metaphor comprehension as a search for properties of the vehicle concept (source) that can plausibly be attributed to the topic (target) (Bortfeld & McGlone, 2001). According to this view, metaphor-based schemas are not part of readers' pre-existing knowledge but are instead constructed ad hoc during comprehension (Allbritton et al.1995).

Gong & Ahrens (2009) claimed that the conceptual metaphor view, however, proposes that metaphors rely on a set of established mappings between pairs of domains in long-term memory. In other words, metaphors are instantiations of conceptual mappings that are understood via mapping source/concrete domains to target/abstract domains. Thus, comprehension of the metaphor *"This relationship is going nowhere"* proceeds via a preexisting system of correspondences between the conceptual domains of *love (target)*and *journey (source)*(Lakoff,1980). These conceptual mappings play a role in metaphor understanding in discourse. This view predicts that metaphorical expressions with congruent (i.e., consistent) mappings to the prior context are interpreted more easily and effortlessly than ones with incongruent (i.e., inconsistent) mappings to the prior context (Kong & Ahrens, 2009). Studies on idioms (Gibbs, 1994) and metaphors (Allbritton et al., 1995) showed evidence for the congruency effect in

discourse in offline rating, online priming, and reading experiments. But, the attributive categorization approach does not predict a metaphorical congruent effect in discourse (Gong & Ahrens, 2003).

However, the question of which account better explains how metaphors are understood and whether the conceptual mappings between source-target domain pairings are activated in ongoing discourse is still controversial. In this study, conceptual metaphors are predicted to play a role in connecting elements within a text. This facilitating role of metaphors reflects the view of conceptual metaphors that motivated our research.

Allbritton(1995) demonstrated that conceptual metaphors foster connections in memory between elements of a text during comprehension. This entails that words or sentences, sharing a relationship to a metaphor-based schema, were found to be more closely related in memory. Allbritton (2007) extended the findings of his previous research (1995) on the use of metaphors to make connections in text comprehension. The results of his study were consistent with the hypothesis claiming that there are schemas in long-term memory associated with conceptual metaphors. It was also found that these metaphor-based schemas can be accessed to make connections in readers' memory for a text. In a series of experiments, testing participants' memory for texts, Allbritton et al. (1995) and Allbritton (2007) found evidence that metaphor-based schemas create connections between elements of readers' text representations.

The study addresses the central question about conceptual metaphors' role in text comprehension based on the theories and functions discussed above. Indeed, four experiments were conducted to probe into the facilitating role of conceptual metaphors in text comprehension. The previous research on the effects of metaphor in text comprehension proved that conceptual metaphors could connect parts of a text representation, as evidenced by priming in word and sentence recognition tests. The study extended the previous findings with a priming methodology.

Data were collected using online priming in item recognition tasks and offline questionnaires to investigate the role of conceptual metaphors in creating connections in memory between elements of a text. Thus, three questions were addressed in this study:

1. *Do metaphor-based schemas have an effect on text comprehension and representation in memory?*

2. *Do topic shifts, semantic relatedness and familiarity with metaphors affect text comprehension and representation?*

3. *What is the difference between the comprehension of texts in Tunisian Arabic and English? Is the role of metaphor-based schema more evident in the native language which is Tunisian Arabic than L2?*

3. Methodology

3.1.Experiment 1

3.1.1. Participants andMaterials

Twenty Tunisian students of English enrolled in Master's classes at the"Institut Supérieur des Langues de Tunis" were subjects of the study. Their age ranged from 19 to 25 years old. All students are from LMD (*Licence, Master, and Doctorate*) system. Their native language is Tunisian Arabic and their L2 are both English and French.

The researcher used English and Tunisian Arabic texts to investigate the role of metaphor-based schemas in text comprehension in English and Tunisian Arabic. The English texts were adapted from a study by Allbritton et al., 1995. Before the study, some students of English checked their familiarity with these texts. Only twenty out of forty stories were used and the others were removed because they proved to be quite difficult and unfamiliar.

Twenty texts were prepared in Tunisian Arabic with Arabic calligraphy. They were a translation of the English version. The translation was based on the researcher's intuition as a native speaker of Tunisian Arabic. It was also cross-checked informally by postgraduate students and English teachers to minimize the risk of interference from English expressions. Some attention was paid to the metaphors used in Tunisian Arabictaking into consideration cultural specificity and universality issues. Generally, the data in Tunisian Arabic comes from the conventionalized expressions used in everyday speech. The works of Maalej (2004) and Hamdi (2010) proved to be useful guides to extracting some of the metaphors.

Ultimately, 40 brief texts were used in the four experiments (i.e., 20 experimental and 20 filler passages in English and Tunisian Arabic). Twenty of the passages in both languages contain sentences that are related to a metaphor-based schema with a different schema used in each passage. Many of the English schemas used in the passages correspond to a list of frequently used conceptual metaphors identified by Lakoff and Johnson (1980). The other 20 passages did not refer to metaphor-based schemas, and they served as fillers.

Two versions were written for each passage. One in which the metaphor-based schema is instantiated throughout the passage (the schema-matching version) and another in which the schema is only instantiated in the first part of the passage but not at the end of the passage (the non-matching version). Each passage begins with two or three lines that identified the setting of the story. The third or fourth line introduces the metaphor-based schema which later serves as the priming sentence in the recognition test.

The next three to four sentences of the passage are different in the two versions. In the matching- version, these sentences contain one or more additional sentences related

to the metaphor-based schema. In the non- matching version, they instead create a context in which the final sentence of the passage is unlikely to be interpreted as being related to the metaphor-based schema.

3.1.2. Data Collection Procedure and Analysis

Subjects were tested individually on a computer running PsychoPy 2 software version 1.77 (Peirce, 2009). Instructions for the experiments appeared on the screen in English and were further explained orally by the researcher in Tunisian Arabic. When participants were ready, they pressed any key and a paragraph appeared at the center of the screen. They were told to read each text carefully. And they were instructed that once they pressed a button, they could not be able to backtrack the proceeding text. Reaction time for the test sentence was measured from the onset of the sentence to the button pressed by the participant. On average, participants took approximately 50 minutes to complete each experiment.

When the participant pressed a key after reading the instructions, the trial session started and the first passage appeared on the screen and remained for a fixed amount of time (approximately 31 seconds). This provided enough time for participants to read each passage. When the time elapsed, the first test sentence appeared. After the second trial passage had been presented, the practice session started. Participants were told to press the right cursor to indicate an old judgment (the sentence occurred in the text) or the left cursor to indicate a new judgment (sentence did not occur). Participants were instructed to respond as quickly and accurately as possible. The test sentence remained on the screen until the participant pressed a key, and then the screen was cleared before the next passage was presented.

PsychoPy 2 automatically generated output in an excel file. Two pages were generated. The first output page contains the results of the trial phase. The second page contains the text stimulus, prime or target sentence in English at first and then Tunisian Arabic, correct answers, number of repeats, response key correlation raw(0 or 1), response keys(right or left), response key reaction times mean (milliseconds). The aforementioned data were entered into the Statistical Package for social sciences (SPSS) version 20. Then, data were analyzed using a sample paired t-test.

3.1.3. Results and Discussion

Recognition responses were predicted to be faster when the target sentence was related to the metaphor-based schema that had been instantiated in the priming sentence (matching condition) than when the test sentence was not related to the schema (non-matching condition). To test the aforementioned hypothesis, a comparison was made between the matching and non-matching response means.

Sample paired t-test analysis showed that reading times for the target sentences in the matching condition in English were faster than in the non-matching condition (535 and 835 ms, respectively) with *t*-test significance (t (19) = 1.93, p<.01). The hypothesis,

stating that recognition responses were predicted to be faster when the target sentence was related to the metaphor based schema than not, is confirmed.

Table 1

Sentence recognition times (in milliseconds) in experiment 1

	Version		
Matching		**Non - matching**	**Significance**
English	535	835	1.93
Tunisian Arabic	550	541	.185

*Note. RTs are in milliseconds

In Tunisian Arabic, the prediction was also confirmed by finding correct responses to the target sentences being faster in the matching condition than in the non-matching condition. Table 1 reveals that participants took more time to recognize target sentences in the matching condition (550 ms) than in the non-matching one (541ms) with no significance (t (19) =.185, p = .855).

According to these results, recognition responses are faster in the matching condition, where schema was instantiated throughout the passage, for both English and Tunisian Arabic than in the non-matching condition. That is, the metaphor-based schema has a role in text comprehension. The priming effect found in this experiment suggests that the prime and target sentences are more closely connected within the participants' text representation when they share a relationship to a metaphor-based schema than when they do not.

The findings are in line with Allbritton et al.'s (1995) study concerning faster recognition responses for the primes and targets in the matching condition in English. The results also endorse Allbritton's (2007) study. He found that sentences related to metaphor-based schemas are recognized more accurately if a preceding test sentence is related to the same schema, and this pattern is held for both novel and conventional metaphors. The results also go along with the conceptual metaphor view.

The results of the Tunisian Arabic targets, where there is no priming effect, are consistent with Glucksberg, Brown and McGlone 's (1993) study on English idioms in discourse interpretation. It is also in support of Ahrens and Gong's study (2003) investigating the role of conceptual mappings in metaphor interpretation in discourse. The lack of metaphorical congruency effect for conventional metaphors in the online reading task suggests that conceptual mappings for conventional metaphors are not activated in discourse comprehension. However, there is an effect for novel metaphors. This finding is consistent with Glucksberg *et al* (1993) idiom study, which supports the attributive categorization view that the conceptual mapping may not be accessed. It is also in support of Ahrens and Gong's study (2003) investigating the role of conceptual mappings in metaphor interpretation in discourse.

To conclude, it was found that conceptual mapping is partially activated. The conflicting results can be attributed to three possible reasons, (i.e. task demand, time pressure and familiarity with metaphors). The issue of whether conceptual mappings are activated during the conventional metaphors being read is still not clear. So far, we cannot prove which metaphor approach, (i.e. the conceptual metaphor view or the attributive categorization view), better explains how metaphors are interpreted and comprehended. Further analysis was conducted to report which view the study supports.

3.2.Experiments 2 and 3

3.2.1. Participants and Materials

Twenty Tunisian MA students of English at ISLT participated in this experiment. The materials for the recognition tests consisted mainly of pairs of prime and target words from the passages. Four words were selected from each passage. Among these were pairs of schema-related words from the experimental passages. Two additional words were selected from each passage for use as primes, and each of them was paired with a new test word that did not occur in any of the passages.

3.2.2. Data Collection Procedure and Analysis

The procedure and analysis were identical to that used in experiment 1 except that students were tested on word pairs. Data generated from the English Tunisian Arabic output file consisted mainly of words.

3.2.3. Results and Discussion

For both of these experiments, it was hypothesized that priming is evident not only between words referring to the same domain of the metaphor, in experiment 2 but also between words referring to different domains that are related through a conceptual metaphor, in Experiment 3. The results showed that there is a considerable difference in reaction times between the two versions across the two languages. Participants were significantly faster to judge the matching version than the non-matching version in English and Tunisian Arabic (see Table 2). This is evidence of the facilitating role of metaphor-based schemas.

A sample paired *t*-test was carried out to detect the differences between the pairs of words in the matching and non-matching conditions. When examined individually, both prime and target words coming from sentences that instantiated the metaphor-based schemas were unexpectedly recognized slower (581 ms) than those in the non-matching condition with no *t-test* significance (t (19) = 1.17, p = .524). In the non-matching version, however, prime-target pairs were recognized faster (516 ms). Unlike what was hypothesized, there is no priming effect between words referring to the same domain. These findings are not in line with Allbritton et al.'s study (1995) where priming was evident between words from the same vehicle domain.

Table 2
Target word recognition times (in milliseconds) in experiment 2

Prime-target	Version: Matching	Version: Non-matching	t	Sig.
English	581	516	1.17	.524
Tunisian-Arabic	527	582	1.24	.229

*Note. RTs are in milliseconds

For the Tunisian Arabic data, participants took less time to judge the prime target pairs from the matching version (527 ms) than the non-matching version (582 ms) with no *t-test* significance (t (19) = 1.24, p = .229). Table 2 shows that there was no priming effect in words referring to the same vehicle domain neither in the Tunisian Arabic version nor in the English one.

Table 3
Matching and non-matching mean recognition times in experiment 3

Languages	Versions: Matching	Versions: Non-matching	t	Sig.
English	973	1053	1.63	.004
Tunisian Arabic	1066	1299	1.76	.002

*Note. RTs are in milliseconds

A further analysis, in experiment 3, was conducted to examine the connections between a concept from the topic domain and a concept from the vehicle domain to see if there is evidence for the priming effect. Results showed that participants took significantly the least time to recognize the test word in the matching condition than in the non-matching condition in English with 973 and 1053 ms respectively with *t*-test significance (t (19) = 1.63, p< .01). For the Tunisian Arabic data, the same difference was recorded with the matching version having faster recognition time latencies (1066 ms) than the non-matching condition (1299 ms) with *t*-test significance (t (19) = 1.76, p< .01).

A comparison of the matching versions in English and Tunisian Arabic reveals that the English matching version was faster to be recognized than the Tunisian Arabic one with a mean of (43 and 53 respectively) and no *t*-test significant (t (19) = 1.30, p = .20). Even though the metaphors in Tunisian Arabic were carefully selected, it remains a question of familiarity and lack of data in Tunisian Arabic that can be possible reasons to account for the difference.

Table 4
Target word mean recognition times (milliseconds) in experiment 3

	Versions			
Prime- target	**Matching**	**Non-matching**	**t**	**Sig.**
English	448	644	2.94	.008
Tunisian Arabic	533	637	1.33	.001

*Note. RTs are in milliseconds

As it was predicted, a priming effect is more obvious within the English matching condition (448 ms) than in the non-matching condition (644 ms) with test significance (t (19) = 2.94, $p < .01$). The same significance was recorded for the Tunisian Arabic in the matching condition than in the non-matching condition with (533 ms) and (637 ms) (t (19) = 1.33, p < .01) (see table 4).

Given these results, the priming effect is evident between words referring to different domains. That is, connections of elements of a text are found between a concept from the topic domain of the metaphor and a concept from the vehicle domain both in English and Tunisian Arabic. This priming effect is mainly found in the matching condition where the schema is instantiated throughout the passage. The results support the conclusion that sentences related to the same metaphor-based schema are better connected in the participants' text representation than sentences that do not share a relationship to a metaphor-based schema.

The findings are in line with Allbritton et al.'s (1995) study. The results are relevant to the question of whether conceptual metaphors are accessed during comprehension. Glucksberg et al. (1993) failed to find evidence that conceptual metaphors are accessed following metaphor-related idioms and argued that conceptual metaphors are not accessed during comprehension, consistent with the Class Inclusion Model of metaphor. The possibility remains, however, that something other than the schema could have been responsible for better connections.

3.3.Experiment 4

3.3.1. Participants and Materials

Twenty MA students of English at ISLT took part in this experiment.
The same schema-matching version of each passage was used as in the previous experiments where schema was instantiated throughout the passage. A new neutral version was created by changing the last sentence of the passage. This sentence had the same meaning in both versions of the passage, but instantiated the metaphor-based schemas only in the matching version. The prime and target words were reversed from topic-vehicle, in Experiment 3, to vehicle-topic in Experiment 4. In the new neutral

condition, the primes are the neutral words that replace the vehicle term in the final sentence of each passage (e.g., *solution).*

Two questionnaires on semantic relatedness in English and Tunisian Arabic were administered. Each questionnaire included 65 prime-target pairs in the two languages. The items in English were adapted from Allbritton et al.'s study (1995). The Tunisian Arabic questionnaire consisted of items translated from English and others taken from experiment 4.

Relatedness ratings for the prime-target word pairs in English and Tunisian Arabic were collected from 30 English MA students for each questionnaire in both languages which is a total of 60. Participants rated the two sets of prime–target pairs from experiment 4, along with prime target pairs from the other unrelated experiments and 20 unrelated prime-target pairs from the filler passages, on a scale of 1 =unrelated to 5 = very highly related.

Another 30 students of English rated the familiarity of the metaphors used in experiment 4 in English and Tunisian Arabic (n=60). The researcher gave the participants two booklets. The booklet in English listed the 10 metaphors from the experiment along with 6 other conventional metaphors and 8 less conventional metaphors from unrelated experiments. The booklet in Tunisian Arabic contained also 24 metaphors. Each metaphor was listed in the nominative form (e.g., the theory is a building) along with an example of how the metaphor might be used. A rating scale, numbered from 1=very unconventional to 5=very conventional, was provided below each item and participants were instructed to circle the number indicating how conventional they found that metaphor.

3.3.2. Data Collection Procedure and Analysis

The procedure and analysis were identical to that used in experiments 1, 2, and 3.

3.3.3. Results and Discussion

It was also hypothesized that participants recognize the test word faster when it was cued by a word from a sentence that instantiated the metaphor-based schema than it was cued by a word from a sentence that simply referred to the same topic.

Table 5

Target word mean recognition times (in milliseconds) in experiment 4

	Version			
Prime- target	**Matching**	**Neutral**	**t**	**Sig.**
English	315	917	1.38	..0183
Tunisian Arabic	596	720	1.95	..066

*Note. RTs are in millisecond

As illustrated in the table above, results showed that participants took significantly longer when responding to the neutral condition than to the matching condition in English(t (19) = 1.38, p < .02). The same significance was found for the Tunisian Arabic data (t (19) = 1.95, p <. 01). In view of these results, priming effects did not result simply from topic shifts in the neutral condition. However, connections between the primes and targets were attributable to their shared relationship to a metaphor-based schema, and not merely to shared references to a common subject matter. In other words, a metaphor-related word in the final sentence of a text link the sentence to earlier elements of the text better than a neutral word that was not related to the metaphor in English and Tunisian Arabic.

The relatedness rating offline task showed that the prime and target words in the matching condition were judged to be slightly less related than those in the neutral condition in both languages with mean item ratings (36 and 37) respectively and with no t-test significance (t (30) = 1.10, p = .279). Therefore, semantic relatedness did not affect priming.

The mean familiarity rating for the metaphors used in experiment 4 was 40 and 43 for the metaphors in English and 43 and 44 for Tunisian Arabic. Although the familiarity ratings indicated that participants were generally well acquainted with the metaphors from the passages, the researcher wanted to determine whether differences in familiarity had any effect on priming in experiment 4. We separated the items into two groups of 10 based on their conventionality; conventional metaphors used in the experiment, 6 other conventional and 4 less conventional metaphors. Analysis of data revealed no significant main effect for familiarity neither in English nor in Tunisian Arabic. Thus, at least for the metaphors in this experiment, the relative degree of familiarity did not affect priming.

The results allowed us to reject the hypothesis that our priming effects resulted simply from topic shifts, semantic relatedness and familiarity with metaphors. Indeed, no potential source for the priming effect was recorded other than the metaphors themselves which proved to be responsible for such connections of elements within a text. The best way to characterize the relationships between the text elements in our experiments is regarding metaphor-based schemas.

The findings are, in part, in line with Allbritton et al.'s study (1995). They found that metaphor-related words were better recognized if an immediately preceding prime instantiated the same metaphor. Using different materials, and with accuracy rather than reaction time as the dependent measure, conventional metaphor-based schemas again produced priming in both word and sentence recognition (Allbritton, 2007). They argued that the similarity of metaphor schemas in providing a basis for connections among text elements is a good reason to argue that metaphor -schemas are part of the world knowledge that readers bring to the process of text comprehension. This is the view of conceptual metaphors that motivated the research. Several idioms (Nayak & Gibbs, 1990, as cited in Allbritton 2007; Gibbs, 1994) and metaphors (Allbritton et al.,

1995; Kemper, 1989) studies have shown evidence for the congruency effect in discourse in off-line rating and online priming and reading experiments.

4. Implications and Recommendations

The implications of the study are theoretical, pedagogical and methodological. The study offers a unified theoretical framework for the study of metaphor in the Tunisian context. Pedagogically speaking, the study of metaphor processing should move from theory to practice by proposing ways of teaching metaphors in class. The teaching of metaphors should be brought into classrooms and teachers are encouraged to draw learners' attention to metaphors. Methodologically speaking, the presentation method of metaphorical expressions influences the access of conceptual mappings in ongoing discourse.

The researcher did not probe into the factors that may affect such priming effects such as task demand (i.e., a reading task or a judgment task), the method of stimuli presentations (materials presented sentence by sentence or in a paragraph style), and the other possible factors namely; salience, conventionality and aptness of metaphors. In the future, it is advisable to examine these possible factors.

The present study examined the role of metaphor-based schemas in text comprehension with English MA students at ISLT across two languages: English and Tunisian Arabic. In future research, it is advisable to investigate a large size of the population including participants from different institutes for the results to be generalized. The study can be conducted in English, Tunisian Arabic and French to see the priming effect cross-linguistically. Finally, it is recommended that Tunisian writers and researchers should work further on the Tunisian Arabic language and provide natural texts to facilitate the works of researchers on language processing.

5. Conclusion

This study investigates the role of metaphor-based schemas in text comprehension in English and Tunisian Arabic. It also aims at finding the difference between Tunisian Arabic and English. The priming in item recognition task reveals that in English: (1) Metaphor-based schemas facilitate text comprehension in English both with the sentence and prime target pairs. (2) The priming effect is evident only in words referring to different domains. (3) No priming is found in words referring to the same vehicle domain. (4) The hypothesis that the priming effect resulted from the topic shift is rejected. Finally, the relative degree of familiarity and relatedness does not affect text comprehension.

Concerning the Tunisian Arabic data, the important findings of the study are: (1) Metaphor-based schemas are used as a basis for relating and connecting pieces of information in a text. (2) No significant priming effect was found in the prime target pairs referring to the same domain. (3) Regarding the English language, the priming effect is evident in words referring to different domains. (4) Topic change is not a

potential source for the priming. (5) The relative degree of familiarity and relatedness does not affect text comprehension.

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