The reader in the text:
A schematic perspective

By

Laila Abd El-Aal Al-Ghalban

ABSTRACT

This paper attempts a discourse analysis of the readers' texts recalls. Readers' text representations of a target culture-based text vs. a native culture based text are examined and compared, with special reference to the influence of schema (plural: schemata) (cultural schema, text-structure schema, genre schema, etc.) on the content and form of the readers' texts. Text representation involves (1) textbase construction and staging (microstructure, macrostructure, metadiscourse devices etc.) and (2) inferential situation model (inferences, distortions, evaluations, word conceptualizations and associations etc.). Kintsch & van Dijk's (1978: 384) sample text represents the first text, introduced in its original version. The second text is a nativised (Egyptianized) version of the first text. The two texts are of identical length, structure, etc., yet have different cultural backgrounds: American vs. Egyptian. Each text was given to a group of eleven 4th year English majors (the original text was given to group one "G1" readers and the nativised to group two "G2" ones). Each group was asked to read a text and then recall as much as possible of it. The recalls were analyzed and then compared. Results show that text representation and comprehension at all levels are primarily a product of an interaction between readers' schemata and the text. The discrepancy between the two groups of readers in text representation processes is

basically attributable to the cultural schema possessed by G2 readers, but not fully developed by G1 ones. G2 readers better recall propositions, better construct macrostructure, make more inferences and evaluations, make fewer distortions, show more word associations and use more interpretive metadiscourse than G1 readers. Results also show that many readers, from both groups lack genre schema, text structure/coherence schema and target culture schema. Finally, adopting the schematic approach in studying the reader's text would help understand the cognitive processes associated with text representation, explore the underlying cultural schemata (native/target), identify which knowledge domains readers have schemata on and on which ones readers lack schema, and therefore, develop materials and techniques needed for better text representation and comprehension.

Introduction:

"*The author does not really convey ideas to the reader, he merely stimulates him to construct them out of his experience*" (Erust Horn 1937 in Anderson & Pearson 1984: 259).

Text analysis theory and literature have extensively focussed on the text written by the author. Little is known about the text generated by the reader (recall). Though the reader's role in recreating and reconstructing the text has been intriguely stressed, there has been a dearth of research conducted on the reader's text, which mirrors the reader's representation of the text written by the author. It is commonly argued that text representation and comprehension involve an interaction of text-based knowledge (words, grammar, etc.) and reader-based knowledge (the reader's

personal experience, world knowledge, cultural background, etc. i.e. schemata).

Many studies have investigated the role of the reader's schema in text understanding [e.g. Anderson 1977, 1978, 1982, Anderson *et al.* 1978, 1979, 1983, 1984, Goodman 1985, Rumelhart 1980, 1985, Carrell 1987, 1992, Ice 1986, Anderson & Pearson 1984]. The reader is thought to bring to the text the background knowledge derived from his or her personal experience to construct meaning by interacting with the text. Prior knowledge is technically known as schema/schemata (among other terms). Schemata refer to the cognitive units in which knowledge is packed (Rumelhart, 1980) and represent knowledge at all levels from ideologies to truths to letter decoding … etc.). Schema theory has intrigued scholars from a wide range of specializations. (linguistics, psycholinguistics, discourse analysis, cognitive linguistics, pedagogy, etc.) However, it is in discourse analysis that schema theory has not been fully explored. Being cognitive structures representing a person's knowledge about objects, people and situations, helping in organizing our knowledge, guiding our behaviour, predicting likely events, and making sense of our experiences, schemata are of many types (Carrell 1987): (1) social schema whereby an individual is familiar with social events, e.g. shopping, (2) textual schema whereby a reader is familiar with the text genre, grammar, etc. (3) ideological schema whereby the individual is aware of the inferred ideology implicit in texts, and (4) cultural schema which helps speech community members to act linguistically in a way conforming to the community values and routines.

Closely related to other types of schema, cultural schemata are regarded as "conceptualizations that enable people within a cultural group to encode and make sense of their cultural experiences and expressions" (Malcolm & Sharifian 2005: 517). That there is a one to one correspondence between cultural schema and better access to text processing and understanding is widely confirmed. (Anderson 1977, 1984, Anderson & Pearson 1984). It has also been postulated (e.g. Andersen *et al.* 1985: 284) that having access to cultural schema helps in many respects. Firstly, schema helps readers selectively attend to important elements, and consequently these elements are learned and later remembered better. Secondly, schema acts as a retrieval booster when recalling by selecting the text information fitting it. Thirdly, schema helps recall organization. Recalling is a sort of discourse that embodies the reader's understanding of text. Text understanding involves an interaction between the text-based and the reader-based knowledge. When text-based knowledge reflects primarily the Anglo-American culture or experience, non-Anglo-American readers face difficulties in comprehension (e.g. Steffenoon, Jondev and Anderson 1977, Tannen 1980, Rogers-Zegarra & Singer 1985). On the other hand, reader-based knowledge is mandatory for text understanding, as the text does not necessarily contain all the information. Reader-based knowledge involves cultural schema and semantic network connecting propositions about the world. It is hypothesized that as cultures vary, readers' recalls/texts would also vary, for readers would modify their recalls/texts so that the meaning constructed, accordingly, would match the schemata already present in the readers' background knowledge.

Recalling, as a discourse type, is represented in the reader-generated text, which is customarily written after readers are asked to read a text and then recall information. Thus, the reader starts with a text, the original text, and ends up with his/her own text, recalling discourse. It is proposed that the reader attempts a representation of the original text by: (1) listing its propositions, (2) applying macro-rules to attain macrostructure, (3) using inferences to work out implicit meaning, predicting future events, and (4) visualizing the situation model of the whole discourse with all its characters, events, props, etc. Once the original text is comprehended, recalling starts, and the reader's text is compared to the original text. Comparison also covers the generalizations, modifications, distortions and additions the reader's text contains. This study examines text representation of the original(s) (as mirrored in the reader's text) with a view to identifying the impact of (cultural) schema on the content and form of the readers' text. The study falls in four sections. Section one reviews the literature and discusses the study theoretical framework. Section two describes the methodology of data collection & analysis. Section three illustrates and discusses the results obtained. Finally, section four is a conclusion.

1. Theoretical considerations:

1.1. The reader's role in text understanding:

Text study has intrigued scholars of diverse disciplines and interests such as text linguistics, cognitive psychology, ethnography, psycholinguistics, artificial intelligence, rhetoric, literary theory, philosophy and neurolinguistics. Yet, there has been little interdisciplinary work among scholars of these sciences. Scholars of each discipline are hardly aware of the exact theorization, questions,

procedures and findings of their colleagues in other fields. The result is a fragmentary, unintegrated study of text (Goodman, 1985).

Views of text study are basically shaped in light of the major preoccupations of each field. Text linguists, pioneered by van-Dijk (1972) onwards, have been concerned with text grammar. Under the influence of generative theory, texts were thought of as units whose structures and combinations are governed by rules i.e. grammar. Thus, story grammar, for instance, shows its structure: situation, theme, problem, solution and outcome.

Solution, outcome

Cognitive psychology has focussed on text comprehension and its relation to memory, background knowledge and mental representation of texts. Its theorists provide deep insights into text processing by exploring the interaction between the text, the reader and world knowledge. The process of interpreting a text is not restricted to decoding the surface forms; it is rather a product of a complex interaction between many factors, some of which are not known. However, it is the reader that is the key factor. It was in the decade-long collaboration between the linguist van-Dijk and the cognitive psychologist Kintsch (1974-1984) that the two disciplines meet, leading to an explosion of knowledge concerning text processing, comprehension and analysis. In artificial intelligence (AI), the reader's ability to parse or interpret sentences, including the ungrammatical ones, as well as to organize text propositions in a way permitting easy recall/retrieval has been taken as an example to what a machine may do (Minsky, 1975). AI researchers design parsing programs analogous to those of the humans. Consequently, a

host of views on the abstract nature of knowledge structures including terms like *frame*, *script*, and *scenario*, eventually circulated in text analysis literature. Ethnographers and sociolinguists are preoccupied with the literacy process, emphasizing the role of reader and the social factors that foster reading. [e.g. Ainsworth, 1981, Chafe, 1982, Cook-Gumperz *et al.*, 1981, Guthrie & Hall, 1984, Gumperz 1981]. Text is seen as an object which has a parallel, reconstructed copy in the reader's head. Thus, text comprehension is regarded as a constructive process of meaning. In literary criticism, especially reader response theory, the role of the reader is the crux of the matter. Readers dynamically recreate texts as a corollary of their background knowledge and the intrinsic properties of texts (e.g. Wallek & Warren 1962, Cullar 1975). Text structure is seen as equally dynamic because of the cognitive processes involved in reading. A text is not viewed as an object, but as an experience or process created by the reader. Readers' literary background enables them to identify the "genre" of the text. It is also via intertextuality, where "all texts contain traces of other texts, and frequently they can not be readily interpreted, or at least fully appreciated-without reference to other texts" (Wallace, 1992: 25), that the reader is able to interpret a text. A text is a transformation of another. Reader's knowledge of genre and intertextuality activates a bundle of expectations regarding text formal properties, social functions and contextual appropriateness.

Pragmatics, whose main thesis is the study of what people mean by an utterance in a given context, provides invaluable insights into the understanding of the text from multiple perspectives

including the role of context in text analysis/comprehension, text-information structure, cognitive process of text comprehension, etc. It is proposed that pragmatics bridges the gap between linguistic concepts such as context, information structure, etc., and such cognitive processes as predicting, inferencing, visualizing, etc., necessary to understand how the reader works out the contextual factors and information structure strategies (van Dijk, 1995).

Further enhancing the role of the reader as producer is cognitive linguistics. Cognitive linguistics is primarily concerned with how language is shaped by human experience. To Lakoff & Johnson (2002: 245-203) meaning/text interpretation is "grounded in our sensomotor experience and that embodied meaning was extended via imaginative mechanisms such as conceptual metaphor, metonomy, radical categories and various forms of conceptual blending to shape abstract conceptualization and reasoning". How readers understand a text is determined by what they experience as relevant phenomena, what they count as data, what inferences they make about the situation described in the text and how they conceptualize it.

The role of the reader and reader-based knowledge in text processing and analysis, and in producing meaning in particular, is central in psycholinguistic literature. To Smith (1992), meaning is provided by the addressee: the listener or the reader. To Perfetti (1981), the reader encodes text propositions "in the context of knowledge about concepts, knowledge about inferences, knowledge about the forms of texts and general knowledge about the everyday world" (40). Harris & Hodges (1995) point out that meaning resides

in the productive interaction between reader and text and that the content of meaning is influenced by the reader's prior knowledge and experience. Goodman (1985: 827) states that:

> Most research is converging on the view that transactions between reader and text characteristics result in construction of meaning. This view makes the reader a highly active one. It makes what the reader brings to the text as important as the text itself in text comprehension.

The reader's knowledge about texts, inferences, made during reading/analysis, and his world knowledge represent schemata which help in constructing text representation. In his reader response theory, Rosenblatt (1978), (1994) postulates that reading is a transaction between the reader and the text based on his or her previous knowledge and experience. The reader connects his background knowledge to what he/she reads.

1.2. Reader's schema and text processing:

Background knowledge is of two sorts: language knowledge and world knowledge (Ruddell & Speaker 1985). Language knowledge includes lexical, syntactic and text structure knowledge, whereas world knowledge has to do with the reader's world experience ranging from facts and beliefs to actions and procedures for functioning in specific situations.

The term "schema" was first postulated by Plato and Socrates, and later utilized by Kant to refer to the general imagination rules and procedures necessary for constructing an image or concept. It

was in Bartlett (1932) (in Anderson & Pearson, 1984) that the term was introduced in psychology. Ever since, there has been a mushrooming body of research on schema. Schema becomes a major theoretical component in cognitive and educational psychology (Anderson *et al.*, 1978 onwards, Rumelhart 1977, 1980, 1985, Schank & Abelson, 1977), cognitive linguistics (Langacker 1987, 1990), text linguistics (van Dijk 1972 onwards), psycholinguists (Perfetti, 1985, 1995, Smith 1992, Goodman, 1985) and last, but not least, artificial intelligence (Minsky, 1975).

Schemata are the pre-existing knowledge and ideas that we have in our heads and organized in cognitive blocks/units. Schemata are also mental data structures that represent objects, situations, events, sequence of actions, and natural categories (Anderson 1983), and a set of coherent knowledge that is brought up in a set of similar contents or situations. To Szentagotai *et al.* (2005), schema theory is based on the premise that cognition, core beliefs and other meaning-based representations have a slot structure that specifies the value that a given situation object/event has on various attributes. Further, schema theory suggests that concepts have abstract schemata that are stored in memory in terms of features necessary for all instances of these concepts, represented in the form of category types. Individuals have schemata for everything they experience. Rumelhart (1980: 41) says that:

> Schema can represent knowledge at all levels from ideologies and cultural truths to knowledge at all levels about the meaning of a particular word to knowledge about what patterns of

> excitations are associated with letters of the alphabet. We have schemata to represent all levels of our experience at all levels of abstraction. Finally, our schemata are our knowledge. All of our generic knowledge is embedded in schemata.

Schemata are not static but developing and ever changing. New knowledge units, once introduced, are assimilated into the existing knowledge structures. However, when new knowledge contradicts or corrects the old knowledge, the latter is readjusted to accommodate the former. Rosenblatt (1978) points out that schemata differ from one reader to the other, the same text takes different meanings by different readers or even by the same reader at different times. Schemata also are not necessarily correct and may contain irregularities (Choo 2000: 569). On viewing a scenario of specific examples of concepts or events, our schemata are instantiated. For example, one's schemata for visiting a doctor is instantiated by viewing or reading a scenario on the doctor, the clinic, having health problems, etc. Once a schema is instantiated, it leads directly to the activation of more similar scenarios. For schema activation, knowledge on similar fields is redesigned to learn a new subject. Schema activation links new information with old information.

That readers use their background knowledge (schema) in text comprehension is confirmed by findings of many studies (e.g. Spiro 1980, Rosenblatt 1978, Anderson 1977 onwards, Rumelhart 1977 onwards, Perfetti 1985 onwards, Carrell 1987, 1992). Readers make connections from their existing knowledge and experience to new

information they read. Three connections are identified: (1) text to self by making connections to an experience, (2) text to-text via making connections to our reading experience of similar texts (intertextuality), and (3) text to world by making connection to culture which shapes the way we view the world. Smith (1994: 14) postulates that text comprehension involves connecting text knowledge to "the knowledge, intentions and expectations we already have in our heads".

The notion of text to text connection (intertextuality schema) is based on the premise that readers develop a schema involving (1) genre schema related to the conventional organization and classification of literary texts/discourse types (e.g. essay, short story, novel, play, advertisement, letter, note, etc.), and (2) a text-structure schema which enables the reader to identify the structure of each genre as well as the subcomponents of such structure (micro-structure, and macrostructure i.e. text grammar). To Culler (1975), readers' literary competence derived from reading experience/ schema makes it possible to frame a text within a genre. A genre, thus, is regarded as an intertextual concept, as it involves a dialogue between the text given and other contemporary or past texts. Further, a genre is materialized in the principle that texts, conforming to the conventions inherited from and shared by previous similar works, belong to the same genre (Wales, 1988). Familiarity with a wide range of genres equips readers with a genre schema, which enables them to distinguish among various genres or kinds of text. Moreover, genres may have different genre schemata in different cultures. Smith (1994) points out that understanding a text can not be

attained in the absence of the relevant schema. Kintsch and van Dijk (1978, 1985) repeatedly stress the importance of schema or background knowledge in decoding texts and constructing meaning.

The assumption that schema represents the main vehicle to achieve text understanding entails that texts are interpreted in a top-down fashion (i.e. reader-driven) rather than a bottom-up (text-driven) fashion. Top-down processing comprises activating a relevant schema, filling slots, predicting what the rest of the text would be, sampling information from text to confirm or disconfirm these predictions, and drawing inferences from past experience to work out vague or unstated information. Commonly, schema theory advocates top-down text processing. Bottom-up processing constitutes word by word (local) processing. It works when the reader lacks the appropriate schema that ensures global processing. Bottom-up processing is usually adopted by less-proficient readers (Anderson 1981, Brown & Yule, 1983; Carrell, 1984).

The above distinction may suggest that the reader exclusively employs either a bottom-up or a top-down model. Yet, many theorists note that both models are sometimes used simultaneously, depending on (1) reading purposes, (2) type of information being used and (3) individual differences in processing (Spiro, 1980). The interactive model (Goodman, 1985), the compensatory model (Stanovich 1985) and the transactive model (Rosenblatt, 1978) are based on the postulation that the reader, while decoding work via sound-symbol correspondence, working out the meaning of individual words in these sentences, and cohering individual sentences into a paragraph or a text (bottom-up), is activating the

relevant schema, filling in its slots by information from the text (top-down). It is the interaction of the two processes that results in meaning construction. Drawing on the context (context schema) is utilized as a compensatory means for working out text meaning, should the text does not provide enough cues to ensure understanding.

1.3. Cultural schema and text representation:

That language and culture are related is an indisputable fact. Theorists "disagree only on deciding the nature of the relationship and finding ways to demonstrate it," (Hudson 1990: 217). Culture is acquired, not genetic, and it refers to "whatever a person must know in order to function in a particular society. A similar view was expressed by Goodenough (Cited in Hudson, 1990: 217). "a society's culture consists of whatever it is one has to know or believe in order to operate in a manner acceptable to its members, and to do so in any role that they accept for anyone of them". The relationship between language and culture has taken three stances; (1) that language is shaped by culture, (2) that culture is an influential factor in shaping language and (3) that there is no relationship between language and culture.

A quick glance at culture definitions (cited above) and schema definitions (cited in the previous section) demonstrates that the two concepts are similar and share a number of associations and conceptualizations: both involve background knowledge, both are socially acquired, and both enable one to function in a given situation. Consequently, culture and schema are interrelated and might be grouped under one heading: cultural schema. Cultural

schema refers to “conceptualizations that enable people within a cultural group to encode and make sense of their cultural experiences and expressions (Sharifian 2004-75). Readers’ success to make sense of texts is attained by developing a referential code involving an orientation towards the outside world: a world of physical, social and cultural experiences where social ideology and cultural implications are encoded. Since cultures are not uniform, even within a nation, individuals’ vision, schema and perspectives on issues, events and texts will vary considerably.

Learning a foreign language is commonly viewed as a cognitive, cultural process that necessarily involves developing a foreign culture schema. Malcolm & Sharifian (2005-513) argue that “language and culture are both largely cognitive systems that closely interact with each other towards the creation of meaning during the process of communication”. In order to cope with the task of learning a foreign language, learners have to acquire a new cultural schema which fits into the foreign language linguistic patterns and leads to generating and constructing correct meaning representations

1.4. Semantic representation of text:

How is a text represented? Many linguists, psycholinguists and psychologists have proposed various models (based on diverse theoretical premises) of text representation (van Dijk, 1977, 1995, Rumelhart, 1977, 1980, 1985, Thorndyke 1977, de Beaugrande 1980). In the following section, a brief discussion of the notion of (mental) models of text representation, with special emphasis on van Dijk and Kintsch’s model, is given.

Readers are believed to create a picture in their minds while reading a text. Dynamic and changing, this mental picture involves an interaction of the meaning of words on the page and schema. The notion of mental model has a long history dating back to Greek philosophers. However, it is Johnson-Laird (1983) who focuses on its significance in text analysis/interpretation. Since mental models are based on knowledge stored in mind, schema theorists have proposed five processes to postulate knowledge representation in mind (e.g. Nassaji, 2002). One process is *selection* whereby only related knowledge in the activated schema is selected. The second one is *abstraction* which involves the encoding of the semantic features of words rather than their surface forms. The third process is *interpretation* by which extracting text meaning goes in line with the schema activated. The fourth process has to do with knowledge *integration,* as new information, once acquired, is integrated into organised cognitive structures. The last process is *reconstruction* by means of which the newly originated information structures are recalled or reconstructed by readers in light of the schema instantiated. Nassaji also notes that text mental representation functions at all levels ranging from a letter feature level to a word level to a syntactic level, then to thematic and to discourse levels. He further points out that as a corollary of mutual interactions among levels, information needed for understanding is created.

In reaction to the semantic-feature approach of working out word meaning which decomposes a word into a number of features, Johson-Laird argues that word decomposing does not occur while reading and understanding sentences. Alternatively, words function

as clues to set up a mental model which helps readers understand. The constructed model matches reality, and varies from one individual to the other. The construction of models involves drawing inferences from world knowledge to work out text meaning and match them to reality. Brown & Yule (1983: 255) point out that: "when we construct a mental model for a piece of discourse, we use some of our pre-existing knowledge and experience to get a picture of the state of affairs described by the discourse". McKoon & Ratcliff (1995) voice a similar view: mental representation of a text is a copy of the real-life situation described in the text; and that comprehension is a consequence of visualizing the overall situation being communicated by the text.

van Dijk's work on text linguistics and principally his text grammar theory have benefited a great deal from the cognitive views proposed by Kintsch. Text semantic representation in van Dijk and Kintsch's theory comprises (1) a textbase and (2) a situation model. A textbase construction involves two semantic components: microstructure and macrostructure. Microstructure is closely linked to the text itself, for it constitutes the text propositions parsed by the reader/analyst. Parsing is the first step in textbase construction, and it operates on words, phrases and sentences, yielding propositions. Elsewhere in text-analysis literature, a proposition is often taken to represent "a once-off interpretation of a text-sentence as it is used in a context" (Brown and Yule, 1983: 107). Propositions are syntactically represented as a relationship between a predicate and its arguments. Common syntactic labels are used (e.g. S, VP, N, V, P. etc.) as in:

(1) John bought a car yesterday.

(1a) bought (John, a car) yesterday (e).

Propositions constitute completed NPs and filled argument frames. For an NP, an "exist" proposition is assigned, for verbs and PPs a "predicate" proposition, and an "anaphoric" proposition is assigned to pronouns and definite NPs (Perfetti & Britt 1995). Propositions cohere to make up the text. How new propositions relate to what has been already processed has been a central issue in van Dijk and Kintsch's model. Propositions are processed in cycles in short-term memory reflecting recency and salience. McKoon & Ratcliff (1995: 98) maintain that "concepts mentioned recently would be assumed to be more accessible than concepts mentioned further back in a text". Brown & Yule (1983) point out that staging and topicalization largely influence reader's proposition accessibility as they involve many interacting factors, including argument repetition, syntactic position in a sentence, semantic position relevant to verb, and connections to other concepts via semantic, pragmatic and associative ties. These factors reside in the text as well as world knowledge stored in long-term memory. Propositions are connected and sequenced (i.e. making coherence), not just by relation to facts and world knowledge relevant to discourse topic, but also via "intentional and extensional relations between parts of propositions (quantifiers, predicates, arguments)", (van Dijk and Kintsch, 1985: 801). The text proposition list is hierarchically arranged on the basis of argument repetition/salience (repetition of content). The top propositions are the most important in the content of the discourse as indicated by the repetition of their concepts in the

rest of text. Proposition hierarchy which makes up the microstructure constitutes what van Dijk and Kintsch term “local text”. The second stage is constructing macrostructure. Being a semantic structure, macrostructure can be defined as “higher order propositions subsuming underlying propositions” (van Dijk 1995: 389). For a reader to understand a text, a macrostructure is to be constructed. The relationship between microstructure and macrostructure is best elucidated in the application of a number of macro-rules. van Dijk has emphasized the abstract nature of macrostructure and the difficulty an analyst faces in pinpointing it in experimental work. He maintains, however, that macrostructures can be “seen” in summaries and recall protocols. Macrorules work on microstructures “proposition hierarchy” generating macrostructure. Microrules are:

1. Deletion :

Propositions denoting an accidental property of a discourse referent are deleted e.g. (2a) Mary played with the ball. (2b) The ball was blue (2c) → Mary played with a ball.

2. Generalization:

Subsequent micropropositions are substituted by “a proposition defining the immediate super concept of the micropositions” e.g. (3a) Mary played with a ball. (3b) Mary played with blocks. (3c) Mary played with toys.

3. Selection:

Propositions representing “a normal condition, component or consequence of a fact denoted by another proposition” are deleted

e.g.: (4a) I went to Paris. (4b) So, I went to the station, bought a ticket, and took the train. → (4c) I went to Paris (by train).

4. Construction:

A sequence of propositions may be substituted by a proposition if "they denote normal conditions, components or consequences of the macroproposition substituting them". e.g. (5a) I went to the station, bought a ticket … (5b) I traveled (to Paris) by train.

Macrorules serve as reconstruction devices, yielding information reduction. They help also organize discourse meaning to higher levels of representation. Macrostructure is established during reading and refers to the overall organization/coherence in text. Being abstract, macrostructure is encoded implicitly in recall protocols and summaries. Also, being "a retrieval cue" entails that macrostructure is not integrated in short-term memory. Rather, it becomes part of the long-term memory. Macrostructure integrates into larger discourse content and eventually interacts with it, constructing a situation model.

In constructing a textbase with its two semantic components (1) microstructure (encoding words & sentences, analyzing their syntactic arguments, assembling propositions, arranging them hierarchically based on some syntactic and semantic cues, such as repetition, (co)references, ellipses, etc. and ultimately achieving local coherence of text and (2) macrostructure (selecting the top-level propositions, employing cohesive devices, activating genre schema, drawing inferences to materialize local and global

coherence, etc.), the reader employs vast amounts of knowledge represented in cognitive structures commonly known as *scripts*, *frames*, or *schema*. A situation model is a mental representation of the event or situation in the text. A text is interpreted in relation to the reader's version of reality, not reality itself. Accordingly, constructing situation model of a text is entirely determined by reader's experience. The resultant model is thought to be richer than the text itself. The text introduces only new information and alludes to old information. Consequently, to van Dijk the text merely represents:

> ….. the tip of an iceberg that constitutes the model, featuring bridging propositions, fragments of personal knowledge, fragments of general social knowledge, and so on. Thus models are the ideal interface between shared social information such as knowledge, on the one hand, and the personal, unique semantic interpretation or production of a specific text, on the other hand (395).

The situation-model notion, as a component of text representation, fills a needed pragmatic gap in van Dijk & Kintsch's (1983) model making it more appealing to linguists, as the proposition-based approach of microstructure proposed earlier (1978) has received considerable criticism on the basis that it is too bottom-up (Brown & Yule 1983). In this regard the situation model concept draws heavily on the importance of such theories as *context*

of situation, speech event and *ethnography of speech*. The situation model is a mental representation (so analogic to Johnson-Liard's model discussed briefly above) of people, setting, actions and events and probs described in the text. An interesting metaphor suggested by Graesser & Zwaan (1995) is that of mental stage. Constructed in working memory, a mental stage has a mental director who monitors everything including characters, props, a mental camera and the agenda. The mental director's manipulation also includes character movements, objects and components of stage, camera work (zooming in/out), etc. throughout the course of comprehension. Schmalhofer (1995) indicates that a situation model construction involves the generation of a wide range of inferences (termed strategic inferences) in contrast to automatic inferences producing a textbase. Similar views on the role of inference in text understanding have been suggested by many theorists of diverse disciplines, which study discourse. Their core argument is that without prior knowledge, and inferencing, a situation model and ultimately comprehension can not be attained. It has always been postulated that it is not possible for a writer to state explicitly every thing in the text. Alternatively, a text must comprise some cognitive slots/textual gaps which are to be filled in by the reader via drawing on various resources of his world experience and vision (schema). The role of inference has been central to all text analysis & comprehension models (e.g. van Dijk & Kintsch 1983, Goodman 1985, Perfetti 1985, Rumelhart 1985, La Pearge & Samuels 1981, Ruddell & Speaker 1985).

1.5. Schema, inferences and text representation:

Inferences are commonly regarded as "a deductive process whereby implicit meaning is worked out" (Wales 1988: 248); and are connections made by people "when attempting to reach an interpretation of what they hear" (Brown & Yule 1983: 256). As a cognitive process, inferencing is "the computation of the implicit information the writer supposes the reader will compute from the text" (Vonk and Noordman 1990: 447). Reviewing related literature, Collins *et al.* (1980: 386) identify two views of inference: (1) semantic-based view whereby inference is regarded as filling in missing connection between text propositions by drawing on context and world knowledge; and (2) model-based view whose main purpose is to construct an underlying model via inferences guided by a target structure which serves as an organizational principle.

Anderson & Pearson (1984: 269) identify four types of inference, three of which are pertinent to text understanding(1). The first kind of inference has to do with deciding which schema among many should be called into play to understand a text. Readers automatically activate the relevant schema guided by text clues. For instance, on reading that Academy Award ceremony is tonight, the reader activates a schema of audience, stage, presenters, awards, winners, feelings of suspense, happiness and disappointment, etc. The second inference type is "involved in a process of instantiating slots within a selected schema". Knowledge stored in memory has slots which are filled in by the text via inference. An example is a football match schema which includes slots for players, crowds, referees, etc. On reading Beckham's name, the reader places it in the player slot of the schema, and the same thing is done in filling the rest of the slots if reading goes on. The third inference type is

"assigning default values in the absence of any specifically substantiating information in the text". Default values are "assumed to be present even when not mentioned (Brown & Yule 1983: 236). Default values are commonly defined as automatic inferences drawn by the reader to supply the blank parts of propositions. As writers assume that they share common background knowledge with readers, inferring the unmentioned, on the part of the latter, is mandatory, A frequently-cited example is:

6- The man dug the hole:

The implied instrument (by shovel) is inferred and regarded a default value.

Brown & Yule (1983: 53-256 FF) suggest a similar set of inference types. The first one is inferences as missing links, e.g.:

7a. John visited Egypt last year.
7b. He was impressed by the pyramids.
7c. The pyramids are in Egypt.

The second type is non-automatic inferences which require more interpretive work on the reader's part. e.g.:

8a- Mary bought a nice evening dress.
8b- The high heels look mandatory.

The third type is "inferences as filling in gaps or discontinuities in interpretation." Such inferences are commonly known as "elaborative" and "evaluative" via which connections are made between items that are not explicitly connected e.g.:

9. As John was on his way to school, he thought about what an effective teacher would be like (Keenan *et al.,* 1990).

McKoon & Ratcliff (1990: 403) specify a number of inference types corresponding to the two views mentioned above: (1) automatic inferences yielding complex kinds of information, (2) inferences drawn from goals, strategies and situations of the text, (3) inferences concerned with word meaning, and (4) inferences concerned with larger units such as event structure etc. They also, note that elaborative inferences (suggested by Warren *et al.*, 1979) which "go beyond what is actually required to connect the explicitly stated ideas in a text", and evaluative inferences which reflect reader's inferencing of "the hidden causes, consequences of action, people's motifs, etc." (409) are largely employed in constructing mental models or "situation models adding information to complete the model and combining the elements of a text into an integrated whole" (409). Further, referential inferences involve anaphoric, cataphoric and endophoric reference.

van den Broek (1990: 423 FF) points out that a comprehensive theory of text understanding should give an account of two processes: (1) text representations in memory and the inferential work which yields such representations. Inferencing is thought to be a problem-solving mechanism towards working out meaning. van den Broek's representation model is "a network" rather than a hierarchy. It is based on "backward and forward causal inferences". Backward inferences connect a focal event to prior events with the purpose of maintaining causal coherence in a narrative text representation. Additional inferences are drawn to achieve causal coherence should: (1) the antecedents to the focal event do not meet any or all of the following criteria: temporal priority, operativity,

necessity, and sufficiency; and (2) relevant causal information is not available to the reader due to memory limitations. Forward inferences, on the other hand, are regarded as expectations/predictions about what will happen next in a text. Predictions facilitate processing and are constrained by prior events. Further, van den Broek argues that predictive/forward inferences, offer expectations about the events which are explicitly stated in the text, but more importantly, about "what events will take place in the world described by the text". He provides empirical evidence in support of forward and backward inferences, displaying that in text representation, drawing inferences is a mandatory process.

Sanford (1990: 516) differentiates between necessary and elaborative inferences. Necessary inferences are logically valid and involve presupposition, entailment, and conventional implicature (e.g. anaphoric inferences). As for elaborative inferences, Sanford points out that they are not necessary for understanding. The following are two examples, proposed by van den Broek (1990), exhibiting the two types (necessary and elaborative) respectively:

10. No longer able to control his anger, the husband threw the delicate porcelain vase against the wall. It cost him over one hundred dollars to replace it.
11. No longer able to control his anger, the husband threw the delicate porcelain vase against the wall. He had been feeling very angry for weeks, but had refused to seek help.

In example (10), it is necessary to infer that the vase broke in order for the reader to understand the text. In example (11), in contrast, the inference that the vase broke is not necessary for text

understanding, and it represents elaborative information. Sanford concludes his point by proposing that the computational limitations/control of inference is in the writer's hand and it is determined by the writer's intentions, discourse genre, etc.

Finally, it is Graesser and Zwaan's (1995) study of inferences used in constructing situation models in narratives that seems substantially relevant and significant. Their study attempts to answer a number of controversial questions among which: (1) what inferences are generated when a situation model is constructed? [(2)], and (2) which model of inference generation is supported?[(3)]

Concerning the first question, Graesser & Zwaan maintain that most inferences used in constructing a situation model of a narrative text are knowledge based, drawn from long term memory. Analyzing a narrative text (e.g. short story), Graesser & Zwaan (119) identify the following inferences:

a. Superordinate goal inference of what motivates the agent's action.
b. Subordinate goal inference of the plans, actions specifying how the agent's intentional action is achieved.
c. Causal antecedent inference linking the clause being comprehended to prior clauses.
d. Clausal consequence inference establishing a causal chain of evennts, plans etc.
e. Character emotion inference of the emotions experienced by the character in reaction to the events/actions.

1.6. Inference sources:

The issue of inference sources (the lexicon and/or the text) receives little attention. Lexicon-based inferences, to Graesser & Zwaan 1995: 128), are derived from world knowledge contained in content words e.g. *HERO* is brave, a hero helps victims, a hero fights villains. In contrast, a strictly formal approach would be concerned with the phonological, syntactic and semantic aspects: HERO:

Phonological code. he-ro
Syntactic code: + noun
Semantic code: + concrete, + animate, + human,
+ male

In an intermediate semantic approach, Hero is the central male character in a novel, play, or story.

Similar views are voiced by a number of linguists (e.g. Palmer, 1981, Leech 1974, Yule 1985). A distinction is traditionally made between conceptual meaning (meaning is a composite of some semantic features) and associative meaning (meaning is identified in terms of the associations and connotations a word evokes, based on world knowledge). Lexical based inferences are cultural or prototype-based (Rosch: 1973). Analysing the world knowledge (of course including schema, prototype etc.) stored in 128 lexical items, Graesser & Zwaan (1995) found that on the average, a lexical item had 166 total propositions, only 4% of them end up being inferences.

In contrast, situation-based inferences are products of a number of such mechanisms as (1) compared cues (two words combined evoking a rather different meaning from their meaning

when each occurs separately), (2) synthesized explanations which "are products of multiple steps of reasoning" assembling knowledge fragments from various sources, and (3) operations of the mental director (mentioned above). The reader is visualizing the theater representing the text world with all its characters, motivations and, objects. The reader is acting as a mental director of this world inferring what is unsaid and visualizing it. Statistics show that lexical based inferences are far less frequent than situation-based inferences. This supports the hypothesis that inferences are a primarily context-related phenomenon, and that they develop as the text develops.

One of the controversial issues in the study of inference is how to detect that the reader draws an inference. Keenan *et al.* (1990) maintain that the method used in detecting inferences is largely as important as the inference itself in this regard(4).

1.7. Reader-generated text:

The reader having represented the text influenced by version schemata, cultural schema, text schema, etc. and having employed cognitive processes such as inferencing, predicting and confirming while reading, he/she creates a text parallel to the original text. The reader-generated text is materialized in recall protocols or think-aloud protocols. It is commonly argued that the original text characteristics, the reader's schemata and the experimental task determine to a large extent the structure and content of reader-generated text. Brown & Yule (1983: 134) point out that the way information structure is staged in a piece of discourse influences the

way it is interpreted and recalled. Further, Fletcher *et al.* (1995: 203) suggest a text recall model featuring the following:

1. Title and context of text are the primary retrieval cues.
2. A search in the long-term memory is activated by the retrieval cues and the outcome is either recalling a new proposition or failing to do so. The success of the former depends on the strong associations the proposition has with other previously recalled ones.
3. The newly recalled proposition is integrated into the previous ones.
4. Once a recall failure occurs, an increment in the values of two variables takes place: "one variable keeping the track of the number of failures with the current set of retrieval cues (local failures), while the other keeps a running count of all retrieval failures (global failures)".
5. If the failure number leads to a comprehension dead-end, new set of retrieval cues is selected.

Tapiero & Denhiere (1995: 211) remark that the surface structure is the most forgettable level in text representation/model, whereas the situational model is the most memorable, lying in between are the micro- and the macrostructures. Goldman & Varma (1995) denote that text proposition recall is conditioned largely by the strength of node correlations linking between text propositions. However, they confirm such a bottom up approach, where text processing and modeling/recalling is conditioned by text features, should be supplemented by other factors/ resources. One factor is genre schema which helps reader develop higher level organization (global coherence).

Free recall is a memory storage; de Beaugrande (1981) indicates that the text recalled "recall protocol" or reader-generated text may involve abstraction, construction and reconstruction processes. More specifically, Meyer & Rice (1984) argue that analysing the reader's generated text and comparing it to the original text do not receive due attention. The comparison shows that the reader's text varies from the original text, and it is desirable to measure changes that occur such as generalizations, deletions, constructions, distortions and elaborations. Meyer & Rice remark that although text analysis models may be employed in analysing the reader's text, very little research has been conducted on this issue. However, they maintain that the discrepancies between the original text and the recalled (reader) text become greater if a text, written for an audience with certain background knowledge (schema), is given to an audience with different or limited knowledge of the same topic. Thus, it is schemata including cultural schema, that largely constraint the characteristics of the reader's text making it different from or similar to the original text. Goodman (1985: 827) terms the idea of two texts (original and reader-generated) "dual texts". He elaborates:

> … the reader is constructing a text parallel and closely related to the published text. It becomes a different text for each reader. The reader's text involves inferences, references and coreferences based on schemata that the reader brings to the text. And it is this reader's text which the reader comprehends and on which any reader's later account of what was read is based.

Thus, the readers' aim is to construct meaning by interacting with the text and then produce texts of their own. On macrostructure, Lee (2002: 38) points out that problem-solution structure is the most common macrostructure in narrative and expository texts. It comprises such components as: situation, problem, solution and result and evaluation. She points out that in a reader's text, little attention is given to "situation" (which postulates the background and context of the problem). Student writers "mistakenly assume that the readers already know what they are talking about". More importantly, the represented macrostructure helps readers construct and generate their own texts which reflect readers' understanding of texts, as it serves as a cue manipulated by readers to remember the text content. van Dijk and Kintsch (1985: 807) remark that the difference between summaries/abstracts and recall protocols lies in that the latter provide the macrostructure and further details encoded in the microstructure, whereas the former present only the macrostructure. Recall protocols display both reconstruction (where the reader maintains the macrostructure of the original text, yet providing details, that are not mentioned in the text, from his own background knowledge) and genuine reproductions from the text.

In a similar vein, Perfetti's (985: 40 FF) account of the reader text involves modification/change at local level i.e. word meaning. Below are two sentences (1) the original and (2) the recalled on a doctor's office:

12. The room was warm and stuffy.
13. The office was hot and stuffy.

Perfetti attributes such local text change to “semantic memory connections and lack of precision in encoding”. *warm* and *hot* are closely related while *office* and *room* are not quite the same, the latter error is ascribed to the reader’s schema of a doctor’s “office”. Furthermore, the reader’s text reflects inferential alternations:

14. Joe and his infant daughter were waiting for the doctor.
15. The room was warm and stuffy, so they opened the window.

In a recalled version, “they” is replaced by “Joe”.

16. ….. so Joe opened the window.

Based on world knowledge, the reader infers that it is “Joe” rather than “Joe and his infant” who opened the window. Perfetti proposes that text understanding involves a combination of text propositions and world knowledge (schema). Perfetti also points out that the reader’s text highlights the atypical information, being tagged to schema.

Samuels & Kamil (1984: 219) note that the reader’s text may also reflect transformations by which the core meaning of a sentence in the original text is retained, yet in a different form. Their argument is that what is represented in memory is not necessarily the surface form; it is rather propositions, meaning units, that are stored and recalled. Moreover, deletion of some vague or incomprehensible parts in the original text would be very common in the reader’s text. Equally common would be the distortions the reader’s text contains of some misunderstood propositions. It is argued that the reader processes the text in the light of his/her linguistic and world knowledge schemata. If the reader lacks the appropriate schema, she/he would make some distortions twisting the text meaning to conform to his/her background knowledge.

1.8. Cultural schema and the reader's text:

Rogers-Zegarra and Singer (1985: 612) report that in Barttlett's (1932) study (which investigated the British readers' understanding of an American Indian Folktale), readers modify the events and content of the story in a fashion consistent with their schemata. However, it is Anderson and his associates who pay the utmost attention to the relationship between schema and recall. (Anderson, 1977, 1982, 1983, Anderson *et al.* 1978)

Reader's recall reflects the discourse analysis schema activated by the reader to represent meaning. Investigating the protocols of some American and Greek subjects after watching a movie, Tannen (1980) finds that American subjects have been most interested in the events and the technical work involved, whereas the Greek subjects have been primarily concerned with the affective aspects high lighted by the movie. Another classical study is Steffenson Joag-Dev and Anderson (1979) in which two groups of students (East Indians and Americans) were given two texts on East Indian and an American wedding ceremonies. Readers recalls in both groups were found to be composed in line with the readers' cultural schema. In Malcolm & Sharifian (2005), aboriginal Australian students were reported to have English word conceptualizations based on a cultural schema different from that of Australian English students. To the former the concept of "family" is derived from their schema where "family" refers exclusively to an extended family. In contrast, the schematic representation of "family" in the latter's background knowledge is that of a nuclear family.

2. Method:

2.1. Subjects:

22 male and female 4th year English majors participated in this experiment. Student sample was chosen on the basis of the grades students have in a number of courses including essay, grammar, culture, novel, drama and poetry. The minimal grade is "good" in all these courses. The rationale is that the sample should have relatively equal reading ability. Such a technique compensates for lack of conducting a reading ability test in most studies. The sample is randomly divided into two groups: group one (G1) reading the culturally American-based text, and group two (G2) the culturally Egyptian-based text (the nativised one).

2.2. Material:

Kintsch & van Dijk's (1978: 384) sample text represents the original text (Appendix A). The second text is a natived version of the first one based on Egyptian culture (Appendix B). Each text is about the low enforcement officers' harassment of the Black Panther party student members in the first text, and of Marxist students in the second text. Names of persons, places, political bodies in the first text are replaced by Egyptian names in the second.(5) Being expository/narrative, the text grammar (macrostructure of the two texts) includes: situation (place, time character, initial event) (the first sentence), the problem (the second and the third sentences),

reaction to the problem (the fourth sentence), naming the text genre, purpose and evaluation (the last sentence).

2.3. Procedure:

Each student group was asked to read the text given to them. They were told that they could take their time in reading. Finishing reading, students of both groups were asked to write as much as they can on the text they read.

2.4. Data analysis:

In the light of the previous theoretical considerations, data of the present study are analyzed. The present study adopts qualitative and quantitative analyses of data. The coding scheme includes seven units: (1) microstructure (propositions), (2) macrostructure (top-level propositions), (3) inference types, (4) metadiscourse devices (5) word conceptionalization and associations, (6) distortions and (7) evaluations. The analysis provides examples of these units/response categories drawn from the texts compared. Further, frequency of categories in the analysed texts of both groups is calculated, displayed and discussed in the following section.

3. FINDINGS & DISCUSSION

3.1. Microstructure

Data in Table (1) make it plain that the number of recalled propositions from the original text in G_1 texts is significantly lower than the number of recalled propositions from the nativised version of the original text in G_2 texts. Investigating the hierarchical organization of propositions, it is found that the top propositions that enjoy high salience or prominence in the G_1 texts are: *bloody*, *encounter*, *police*, *Black Panther party*, *harassment*, *complain*, *driving privileges*. On the other hand, such propositions as *assess*, *seriousness*, *charges*, *determine*, *paranoia* and *discussion* are less salient in the same texts.

Table (1): Frequency and percentage of recalled propositions in the texts of the two groups.

Texts	No. of propositions per text	Total number of propositions	Total number of recalled propositions	Percentage %
G_1 texts	46	506	290	57
G_2 texts	46	506	405	80

This indicates that it is the introductory sentences that receive most of the readers' attention, and the propositions they include get the highest frequency through repetition and overlapping. Propositions of the rest of sentences vary in terms of occurrence times: the later the sentence order in the text, the less the proposition recall frequency is. The same applies to the propositions recalled in the G_2 texts. However, the number of recalled propositions from the medial sentences in the second text "the nativised" is greater, which

indicates that readers of the second text pay some attention to these sentences along with the introductory parts. Propositions like *clothing, printed, signs, losing, discussion* "enjoy" considerable occurrences, leading to an increase of the total number of percentage of recalled propositions in the two text groups. The figures given show that the microstructure of G2 texts is closer and more similar (in content) to the original text than G1 texts, whose low figures indicate a gap between the proposition content of these texts in comparison to that of the original text. This means that G2 readers' text representation at this level (microstructure) is significantly better.

3.2. Macrostructure:

Examination of the recalled propositions (Table 2) which constitute the microstructure of the readers' texts in the two groups leads to the study of macrostructure or the overall structure of texts and particularly the sections recalled. The texts are two reports. The report, as a genre, usually describes an incident, its development, different reactions to events, etc. Investigating the macrostructure of the current report, it is possibly divisible into four major sections: (1) situation including character, time, place and initial event, (2) problem being stated, not clearly stated or not mentioned, (3) reaction to problem, and (4) naming the text genre and purpose. As for situation categories, data exhibit that time, place and character propositions are best recalled in the two text groups, though absent in one of G_1 texts. The same applies to the initial event. Genre naming and purpose propositions are badly recalled in the two text groups, though slightly recalled better in G_2 texts. These results

show that most readers lack a genre schema of a report. Concerning the problem recall, data show that it is recalled best and well-stated in the many G_2 texts, while not clearly stated in many of G_1 texts. Finally, reaction to problem propositions are recalled better in G_2 than G_1 texts.

Table (2): Frequency of macrostructure elements recalled in the texts of the two groups.

Macro structure elements	Genre naming	purpose	Situation				Problem			Reaction to problem
			Character	Time	Place	Initial event	Stated	Not clearly stated	Not mentioned	
G_1 Texts										
1	-	-	+	+	+	+	-	-	+	+
2	-	-	+	+	+	+	-	+	-	+
3	+	+	+	+	+	+	-	+	-	-
4	-	-	+	+	+	+	-	+	-	-
5	+	-	+	+	+	+	+	-	-	-
6	-	+	+	+	+	+	+	-	-	-
7	-	-	-	-	-	-	-	-	+	+
8	-	-	+	+	+	+	-	+	-	-
9	+	-	+	+	+	+	-	+	-	-
10	-	+	+	+	+	+	-	-	-	+
11	-	-	+	+	+	+	+	+	-	-
Total	3	3	10	10	10	10	3	6	2	4
G_2 Texts										
1	+	+	+	+	+	+	+	-	-	-
2	-	-	+	+	+	+	-	+	-	-
3	+	-	+	+	+	+	+	-	-	+
4	+	+	+	+	+	+	+	-	-	+
5	-	+	+	+	+	+	+	-	-	-
6	-	-	+	+	+	+	+	-	-	+
7	-	-	+	+	+	+	-	+	-	+
8	-	+	+	+	+	+	+	-	-	-
9	-	-	+	+	+	+	+	-	-	-
10	+	+	+	+	+	+	+	-	-	+
11	-	-	+	+	+	+	+	-	-	+
Total	4	5	11	11	11	11	9	2	-	6

+ = Positive scoring - = Negative scoring

A glance at the data shows that the readers' genre schema is quasi absent, resulting in a lack of awareness of text grammar. The

structures of the current texts, the original and the nativised, look, to a large extent, like those of two stories including situation, problem, reaction to problem, etc. Readers thought they were reading stories, thus activating the story/grammar schema, which focuses attention on story elements. Yet, it seems that readers' story grammar schema is not adequate. The initial event, time, place and characters are recalled best, whereas the rest of the elements are not equally recalled. A possible explanation is that story grammar schema may be available, yet it is the "staging" or order of material presentation in the original and nativised texts that puts the situation categories at the beginning of the texts, making them easy to recall. Thematization and staging devices give prominence to the setting and the initial event, and consequently lead to a better recall and representation. Thematization, to Brown & Yule (1983), is a discourse rather than a sentence feature, and that what is put first is thought to refer to an important event while the following events are thought to be peripheral in informational value. The present data support this argument.

Examining the structure, including thematization and staging, of the two group texts shows that the first event is the one that activates the appropriate Marxist vs. police dispute schema in G_2 readers, fostering them to peruse the subsequent sections. The problem category, for instance, is clearly stated by most of the readers. On the other hand, the activation of the African American vs. police encounters/dispute schema has not been sufficient or

adequate to pursue further sections in G_1 texts. Most of G_1 texts have centered on the bloody encounters between the Black Panther party members and the police in 1969. The majority of these texts proceed to *the problem* section, yet *the problem* has not been clearly stated. Furthermore, the two text groups score similarly in "*reaction to problem*" category. However, G_2 texts score slightly higher. Thus, it is evident that, in constructing the textbase, i.e. the microstructure and macrostructure of the two text groups, G_1 readers have recalled a less proportion of propositions, and have had a weaker text schema than G_2 readers. A possible explanation is that G_2 readers, having read culturally familiar material, instantiated the appropriate schema, use top-down text processing strategies, better interact with and utilize textual, lexical and syntactic features as well. Consequently, they become freer from representing the text in a slow, word by word fashion than most G_1 readers who, though encounter identical textual, lexical and syntactic features, are more bound to the text. They spend most of their processing resources in decoding due to their unfamiliarity with the cultural meanings encoded in the text. This does not support the finding postulated by many studies that L_2 readers, though competent and have sufficient schemata, process text in a bottom-up fashion and spend more time in reading and rereading the text before recalling than L_1 readers (Nassaji, 2002).

In conclusion, results suggest that important materials in text grammar/structure are better represented, and the finding is consistent with the assumption that the top-level entities in a text are

best remembered. G_2 readers, due to the existence of appropriate schema, find it easier to order propositions in two ways: general to particular and preview to detail (where the general statements are followed by specifying and more detailed ones) than G_1 readers. The result has been a better representation of macrostructure by G_2 readers.

3.3. Metadiscourse devices:

Table (3) exhibits that the two groups score relatively the same in textual metadiscourse devices, whereas G_2 texts score higher in housing interpretive metadiscourse devices. Being reader-friendly and guiding readers towards a better representation and comprehension, metadiscourse devices are utilized as a means of conducting a dialogue between the writer and the reader. That G_1 scores higher in using textual devices goes counter to previous findings on G1 text structures (micro and macrostructures). Their texts have proved to be proportionally poorer and less organized than G_2 texts. Such a higher score of textual metadiscourse does not reflect or match the actual information structure displayed in G_1 texts. On the other hand, the low frequency of these devices in G_2 texts does not seem to correspond to the slightly better text-structure features they possess. This finding lends support to previous findings (e.g. Baturkmen 2002) which postulate that non-native speakers overuse and missuse metadiscourse devices more than the native speakers, who occasionally use them. More specifically, textual metadiscourse devices, applied relatively mechanically as they organize spatially materials in the text (Crismore 1983), do not involve so much reflective work on the part of the writer. Focussing,

pedagogically, on the cohesive devices rather than coherence, students find it easy to learn, overuse and sometimes misuse such textual metadiscourse devices. There might seem, therefore, that readers have a good schema in this respect.

Table (3): Metadiscourse devices in the two groups of texts.

Text	Examples of textual markers	No.	Examples of interpretive markers	No.
G_1	soon after, after that, also, consequently, although, after along discussion, for so, one of these…., as	10	as a response, as we all know, this report is about ….	3
G_2	moreover, as a result, also, until now, the first, or soon after, so, in addition especially, despite	10	present to us a question, this report indicates, in the end, for example, especially, in fact, the result was , we ask now, I'd ask …	

By contrast, data in Table (3) show that G_2 readers score higher in using interpretive metadiscourse devices than G_1 readers. Functioning at the attitudinal level that has to do with elucidating the importance rate of some propositions, and exposing the writer's attitudes towards some propositions, facts, etc. (Crismore, 1983), interpretive metadiscourse devices involve more processing work as they serve two functions: (1) code glosses providing explanation of text via further information and illustrative examples; and (2) illocution markers naming the writer's actions while writing (e.g. my question is ….) (Lee, 2002).

An explanation may be captured along the following lines: interpretive devices exhaust much processing resource, which could be more accessible to G_2 readers than G_1 ones. This is because the schema the formers have makes text proposition processing easier, leaving readers with enough processing resources which enable them

to better recall, make interpretive markers, present more elaborations, better communicate with the reader and have a room for a better unity of propositions (coherence). By contrast, lack of schema/adequate schema poses a processing burden on G_1 readers, though not impeding the use of mechanical textual devices. Interpretive devices indicate a higher sense of audience awareness than textual devices. Further, the interpretative devices in Table (3) elude more inferential work done by readers in text representation.

3.4. Inferences:

Table (4) illustrates that the total number of inferences made in G_2 texts is higher than that of G_1 texts. Schema selection inference scores the highest in both groups of text, being 5 and 9 in G_1 and G_2 texts respectively. Schema selection inferences, which select and activate the most appropriate schema (among many possible ones) for comprehending a text, bring to the text the requisite background knowledge. Reading the first two sentences in the two texts, G_2 readers, almost unanimously, select the schema of the "old" conflict between the Egyptian government and the Marxists in the seventies. Instantiating such a schema facilitates the text processing, filling in text gaps, providing many elaborations and predictions and connecting the various sections of the text. Many G_1 readers, on the other hand, have managed to select the schema of African Americans' struggle against discrimination, which aids them to draw more types of inferences. However, some of them fail to instantiate such a schema, leading to numerous distortions and modifications.

Table (4): Types and numbers of inferences drawn in the texts of the two groups.

Inference type	G_1 texts	No.	G_2 texts	No.
Bridging inferences	In response to this action, the Black Panther party members began to drive automobiles with the party signs glued to their car bumpers.	3	To put on clothing printed with the Marxist signs means a kind of challenge to the police.	5
Backward inferences	There were violent and bloody encounters between the police and the Black Panther party members. Law enforcement officers consequently, mistreat student members.	2	Marxist students wore clothing printed with Marxist signs to express their point of view after being badly treated by the police.	5
Evaluative inferences	The American government use these illegal means to demolish and weaken the different opposition parties.	3	These encounters were great evidence of lack of democracy.	7
Causal inferences	The problem happened when Black Panther students glued the party signs on their cars bumpers.	5	The college punished the Marxist students when they wore clothes printed with Marxist signs.	8
Schema selection inferences	As we know, there are continuous problems between the white and the black-skinned citizens in America.	5	There is an old and constant dispute between the police and Marxists.	9
Predictive inferences	They would suffer form losing their driving privileges.	3	Marxist students might also be deprived of some job opportunities after graduation.	8
Goal inferences	So the government, represented by low enforcement officers try to restrict the Blacks' freedom.	4	Marxists just wanted to express their opinion and defend their rights	7
Elaborative inferences	Black Panther party causes a lot of political and social problems to the American government.	3	In the long & serious discussion students show the harshness they face.	8
Character emotion inferences	Each party of the conflict had special reasons for feeling that they had the right to act that way.	5	Students were living in an atmosphere of worry.	7
Slot-filling inferences	From their name, we realize that they are black skinned.	2	The government usually took violent measures in such cases.	

It has been argued that texts vary in their potentials to generate inferences. Expository texts are thought to permit less space for drawing inferences than narrative texts. A possible reason is that well-organized expository or scientific texts primarily provide

knowledge, exempting the reader from recognizing the connections between text propositions and sections, and drawing inferences and conclusions. Narrative texts, by contrast, give room for drawing a wide range of inferences associated with every element of story grammar. The texts under discussion involve features of both types. Consequently, the number of inferences seems compatible with this fact yielding a multiplicity of inference types.

Data in Table (4) show that G_2 texts score significantly higher than G_1 texts in predictive (8 vs. 3), causal (8 vs. 5), goal (7 vs. 4) elaborative (8 vs. 3) and evaluative inferences (7 vs. 3). As mentioned previously, the successful schema selection made by G_2 readers makes it possible to draw many inferences that provide predictions, evaluations, elaborations, causal relationships, etc, whereas schema selection failure by a number of G_2 readers makes it difficult to draw many of the above inferences. Of particular importance, here, are elaborative, character emotion, predictive and causal inferences. Occurring higher in G_2 texts, these inferences elucidate that G_2 readers, equipped with the relevant schema, have been able to recall better and elaborate more, filling so many gaps in the texts. Such inferences might be termed “text-content inferences”. Of equal importance are bridging, slot-filling and backward inferences (might be termed text-structure inferences). Data in Table (4) display that the differences between the scores of the two groups in text-structure inferences (ranging from 2 vs. 4 to 3 vs. 5 in most categories) are not less significant than the differences in text

content inferences scored by the two groups, a finding supported by textbase findings discussed above. Overall organization of two text groups seems similar even in the existence of a relevant schema. An implication of these findings is that text schemata possessed by the members of the two groups are not quite distinct.

It has been argued by formal semanticists that meaning is primarily housed in words and, to a less extent, in sentences. When reading a text, readers stand passive as meaning is derived from the text. Schema theorists hold that a considerable amount of background knowledge is also housed in vocabulary. Knowledge of vocabulary entails knowledge of schema. Carrell (1984) emphasizes the significance of knowledge of the word network in which the word participates, and associated words and concepts. Examining the two text groups, readers make several lexical modifications, possibly schema driven. Data in Table (5) show that there is a discrepancy in the conceptualizations of the word "encounters" in the two text groups. G_1 readers' conceptualizations and associations center on the occurrence of some *problems, bad treatments, mistakes, aggression*, etc. G_2 readers' are *fight, war, conflict, quarrel, revolt, confrontation*, etc. The word *encounters* itself has been recalled with similar proportions (3) and (4) in the two text group respectively. Words replacing "encounters" in the two texts represent a "local text change" which can be attributed to semantic memory connections and lack of precision (Perfetti, 1985). The alternative items are closely related in semantic memory, a finding that is supporting the argument that it is the semantic features of words rather than their surface forms that are encoded. However, it

is evident that G_2 items house stronger and severer schema of *confrontation*. The words *fight, conflict* instantiate the schema of two parties, both armed, engaged in a bloody encounter or war. Words such as *aggression* imply violent, hostile sentiments, oppressive actions, etc, whereas words such as *confrontation*, *revolt* and *quarrel* indicate the existence of angry disagreement or opposition. On the other hand, G_1 text lexical alternatives have been restricted to *problems, bad treatment, mistakes* and *aggression* breeding less violent and severe implications. A possible explanation is that many G_1 readers' schema is naive, as mentioned previously, and does not allow full processing of the text. Consequently, G_1 readers' semantic memory is not well developed, and this justifies the limited number of alternatives to "encounters". On the contrary, G_2 readers' semantic memory is more organized and developed, giving room for readers to use further word associations and alternatives which they consider more relevant to express the *encounters* between the police and an opposition group.

Another support for the previous argument comes from other word associations. *harassment*, *grievance* and *complain* are associated in the two texts with "the government", although the latter does not occur in either the original or the nativised text. The two group readers associate the police with "the government". In Egyptian readers' schema one of "police" meanings/associations is "government", both being used interchangeably. This could not be the same in the American context. Thus, the Egyptian readers twist their native cultural schema extending it to a culturally distinct context/text.

Table (5) Lexical conceptualizations and associations in the texts of the two groups.

Word	Associations and conceptualizations	
	G_1 texts	G_2 texts
encounters	war, revolt, problems	war, conflict, quarrel, revolt, confrontation, fighting, protests, complain
harassment	harshness	bad treatment, aggression, mistakes
punctuated	took place, colored	took place, happened
grievances	problems	complaints, troubles
losing privileges	lose,	ban-forbid
series	continuous, a lot of	old conflict, long war
police	government, fighting Blacks, weakening oppositions, bad treating Blacks, restricting Blacks freedom.	defending the nation, treating people harshly, hate Marxists, taking violent measures, spreading an atmosphere of worry, keeping security
bloody	violent	violent, severe

3.6. Distortions

Results in Table (6) show that the number of distortions is higher in G_1 texts than in G_2 texts. Most of the distortions address the problem, purpose and reaction to problem categories. Distortions usually occur when there is a sort of mismatch between text information and readers' expectations. Text information matching reader's expectations is easily encoded in memory, filling in slots of the reader's schema with information from the text. The mismatched information is either missed/dropped or distorted. Encountering a text with no schema, naive schema or not well-developed schema,

G_1 readers find some information unmatching the existing schema. Consequently, readers, trying to fill textual gaps and recall, make faulty inferences. Such inferences fall when schema variables do not fall by default, a property of an active, appropriate schema. By contrast, the number of distortions in G_2 texts is extremely lower, supporting the above-mentioned argument: an active appropriate schema leads to right inferences and less distortion potentiality. Although G_2 texts are generally more elaborate than G_1 texts, the elaborations provided fall automatically in the empty slots the text fills in the readers' schema. Thus, distortions reflect readers' knowledge and language proficiency, the supremacy of top-down processes, etc. Distortions also may serve as evidence refuting the hypothesis that lack of schema fosters text-driven (bottom-up) processing. Readers, asked to recall, make faulty inferences and elaboration derived from their schemata twisting the text to conform to it, encoding some unique cultural meanings not necessarily existing in the source text.

Table (6): Type & frequencies of distortion in the texts of the two groups.

Distortion types	Problem distortions e.g.	Genre distortions e.g.	Reaction to problem distortions e.g.
G1 texts	The problem is caused by the traffic police when they threatened to deprive the Panther party members of some driving privileges	Study, Part of a report.	Finally, the professor accused the students of being responsible for violence.
Frequency	5	3	4
G2 texts	Some students went to the college wearing clothes printed with Marxist signs	Tale Passage Incident.	The lecturer tried to find a solution to the officers' problem.
Frequency	2	3	2

Finally, a glance at distortion examples in the two texts reveals that those of G_2 texts are not complete/severe distortions. They may

be termed partial distortions, whereas those of G_1 texts truly mirror complete, severe distortions, another line of support for schema arguments. Therefore, it is suggested that the differences between the two text groups, in this connection, are not only quantitative but also qualitative, both lending support for schema views. Some readers' distortions are so severe that their propositions are not based on the text, coming directly from their heads. Those readers leave the text aside and employ totally top-down techniques. Their texts include distorted propositions that have nothing to do with those of the original text. This is due to the inappropriate schema intrusion which causes distorted representation of text.

7. Evaluations:

Table (7) exhibits a highly significant difference between the two groups in the number of evaluations. G_2 readers score higher than G_1 readers. Via evaluations, readers have made judgements on the actions and events described. Evaluations illustrated in Table (7) are similar in function to elaborations and elaborative inferences, presenting intelligent guesses of what is not stated. Such a difference is plainly attributable to schema. Lack of (adequate) schema makes it difficult for G_1 readers to reflect and comment on the text events. As mentioned previously, in pursuit of text meaning, most of student's processing resources are exhausted. Evaluative comments show that, ideationally, G_2 readers have considerably assimilated the text before they can make judgements and evaluations on its content. Thus, evaluation is a higher stage of text representation which tops the rest of stages beginning with decoding, literal and inferential representations.

Table (7): Evaluations occurring in the two text groups.

G_1 texts No. & examples	G_2 texts: No. & examples
1. This is really a common problem in the whole world, especially the developed countries	1. I think that these people have the right to express themselves freely without any restrictions. 2. So this is a kind of tyranny. 3. This is an image of injustice. 4. To me, I think that the police have some right to do that. 5. They wore unsuitable clothing. 6. At Cairo University, there was a real voice calling us to stand by it.

4. CONCLUSION & IMPLICATIONS

In conclusion, findings consistently show that text representation and comprehension at all levels are primarily a product of a meaningful interaction between readers, schemata, and the text. The discrepancy between the two groups in constructing micro and macrostructures, drawing inferences, making distortions, using metadiscourse, making modifications and evolutions, etc. echoes the argument that readers' familiarity with the cultural content of the nativised text makes it easier to read and understand than the original text which is based on the less familiar target culture. Nevertheless, it should be noted that G_2 readers' access to cultural schema varies from one reader to the other. This lends support to the assumption that there is no uniform cultural schemata accessible to all community members, rather everyone of us possesses a "share" of a cultural schema: be it small or big. Text

representation of G_2 readers varies, accordingly, from one reader to the other at all levels: textbase construction, inferencing, evaluating, making distortions and conceptualizing words. The same is true of G_1 readers whose foreign/target culture schemata range from: no existing schema, naïve schema, to inappropriate, intrusive schema (Carrell, 1984). Text representation at the previous levels reflects how much of foreign schema each one possesses.

4.1. On cultural schema/awareness:

That results show an immature, inadequate and sometimes distorted, inappropriate target-culture schema possessed by Egyptian readers, makes the need for developing an awareness of target culture a priority. English, being the international lingua franca, is learned everywhere, giving rise to local Englishes and housing idiosyncratic cultural assumptions. Most of the teaching materials, especially at pre-university stage, are based on learners' native culture. The rationale is that, at this stage, teaching culture may pose a processing load on learners, which may impede learning. Other reasons cited are: (1) that using learners' cultural content would enhance a sense of familiarity and unalienation, and (2) that learners' awareness of native culture increases. However, due to globalization, communication, open media, immigration, travel and trade, developing an awareness of the target culture seems appropriate. Since language and culture are inseparable, authentic materials should be taught on all stages. Teaching culture should not be seen as a means of degrading the native culture. Studies show that developing an awareness of the target culture feeds positively into developing an equal awareness of the native culture, helping them

draw comparisons among cultures, enrich their cross cultural awareness, and breed ultimately a sense of tolerance and recognition of diversity.

Since culture has to do with the way people “live” their lives in a community, learners should be exposed to every aspect of life domains in the target culture. Based on a variety of sources and references, Tavares & Cavalcanti (1996: 19) propose a list of cultural topics worthy of teaching to foreign learners: social identity, social interaction, belief and behaviour, socio-political institutions, national history and geography, media, arts, and language variation. Asked some questions in the socio-political domain, for instance, on the American Congress, British flag, House of Lords, national anthem of US and UK, Egyptian learners surprisingly have little or no background knowledge on these issues. The same thing is true of wedding rituals in the US and UK: no (adequate) schemata exist.

Further research on how much foreign target culture Egyptian learners have on the previous domains is needed. The findings obtained would help identify the domains on which learners lack schema, and therefore, build such missing schema, using appropriate authentic cultural material and instruction methods. Likewise, domains on which learners do not have adequate schema would receive more attention so as to enhance learners’ background knowledge.

4.2. On developing schema:

4.2.1. Text-content schema:

The assumption, supported by present data, that appropriate text representation which leads to text comprehension is primarily determined by an interaction of text-based knowledge and reader-based knowledge. Text representation, therefore, involves a simultaneous employment of bottom-up (text-driven) and top-down (reader-driven) processing. Text-content schema has received the most pedagogical attention. Various instructural techniques have been developed to activate reader's schema on text content (Chia 2001, Pearson & Kamil, 1984, Carrell, 1987), Such prereading activities as questioning, previewing, semantic mapping etc. seem the most common ones. Previewing involves stimulating learners' predictions and inferences by providing them with some clues such as text tittle, illustrations, photographs, etc. and asking them to predict what the text would be about. Asking questions aims at identifying what readers know and what they do not know. Semantic mapping helps in organizing the associations and the conceptualizations generated in the readers' heads once they read a particular lexical item. For example, the word *police* schema has the following associations/map: law, order, power, prison etc. Learners are asked to provide their maps to check their *cultural well-formedness*, and supplement them by further knowledge from the text under study. The present study findings stress the need for (1) drawing such semantic maps which reflect the schema housed in every lexical item, and (2) revising and culturally checking them to correct and avoid possible errors and distortions.

4.2.2. Genre schema:

Results show that most readers, even G_2 readers, lack a genre schema. The text under investigation is a report i.e. an expository text. However, it encompasses a story, which in turn has a schema. As for report-structure schema, most if not all readers of both groups do not know what a report is. Even with the story schema embedded in the report, results show that story elements are not well-represented by many G_1 readers and by some G_2 readers. Therefore, developing a genre schema that helps learners know the definitive characteristics and rules of each genre, and how to read and write in the light of these rules proves necessary. Text representation is largely influenced by genre schema, since readers cognitively respond in a fashion tailoring each genre patterns.

4.2.3. Text structure/coherence schema:

Results also show that many readers from both groups do not have access to text-structure schema which involves information structure (hierarchical or network), propositional organization and staging, metadiscourse and cohesive devices. Examining readers' texts of both groups reveals that some propositions of the original text are dropped, reduced or left unaccounted for, creating considerable gaps in the information structure of their texts. Macrostructure, which has to do with the top-level propositions represented in the different sections of the text, has also been misrepresented by many readers, some of them are G_2 members. Learners should know the different divisions/text grammar typical of each genre. This would guide them in reading the text and therefore improve text representation. Present data also reveal that readers'

texts encompass a variety of metadiscourse markers, interpretive and textual. This indicates that they have a well-developed schema of metadiscourse, yet they are in need of enhancing knowledge on the correct, accurate use of such devices. While it is perfectly important for learners to possess a schema of metadiscourse devices, it is equally or even more important to create and enhance students' schema of coherence. Although coherence is an elusive concept, yet it can be captured by having access to text-structure knowledge which includes the previous points: macro structure, information structure, metadiscourse devices, etc. (Lee 2002).

4.3. Inference, evaluation, modification and distortion:

Present data display that inferencing is ultimately a top-down process. The study purpose and the task given to readers (recalling immediately after reading) do not help answer so many questions on inferencing, among which is "which inferences are drawn on line and which offline?" Further research is needed to explore such a vague issue. However, the present data support the assumption that the existence of an appropriate schema leads to drawing inferences of all types. The same is true of the rest of the cognitive processes: evaluation, modification and distortions. Data prove that their manipulation is highly determined by existence of schema, lack of schema, intrusive schema or naïve schema. Identifying which one a learner has helps explain which process is stimulated, and therefore develop the relevant technique to activate it for the purpose of better text representation.

Finally, studying readers' texts and comparing them to the original and nativised texts shed light on the way readers represent

these texts. The outcome of the comparison is a better understanding of how readers construct microstructure and macrostructure, draw inferences, make modifications, distortions and evaluations, and capture coherence. For the reader to represent a text which involves the previous stages, an interaction between reader's background knowledge (schema) and text-based knowledge (words, sentences, grammar etc.) must occur. Consequently, the schematic approach is quite relevant for any study focussing on the reader. The present study is no exception. Adopting the schematic approach in studying the reader's text would help understand the reader's text features and the cognitive processes associated with reading comprehension. Additionally, it would reveal which knowledge domains readers have schemata on (e.g. native cultural schema, metadiscourse schema etc.), and on which ones readers lack schemata (e.g. target-culture domains, genre, text structure, etc.). Consequently developing the appropriate teaching materials and techniques that accommodate readers' needs would be possible.

ENDNOTES

(1) The fourth inference type "involves drawing a conclusion based upon lack of knowledge". Anderson & Pearson point out that such a type takes the form of a logical inference. "IF x were true, I would know it were true. Since I do not know x to be true, it is probably false". The latter type is commonly referred to as strategic, non-automatic inference (Brown & Yule 1983, van Dijk 1985, Graesser & Zawan 1995).

(2) Graesser & Zwaan test their inference taxonomy against the positions of six theories of reading comprehension to examine findings regarding which of the six inferences is/are generated online (during reading) or offline (post-reading). The first theory "*explicit textbase*" (proposed by Kintsch: 1988 and applied to expository texts only) suggests that none of the six inferences is made online. The second one, the *minimalist hypothesis* (proposed by McKoon & Ratcliff, 1995), entails that in understanding narratives, the reader draws more strategic inferences (which achieve a locally coherent text) than automatic inferences (which are based on easily accessible information). Consequently, it is the causal antecedent inference that seems to be online. The rest are not needed to establish text local coherence. *The current-state selection strategy and the causal inference marker model* (proposed by Bloom *et al.*, 1990 and inspired by Kintsch & van Dijk's 1978 text-driven model) considers that causal coherence is achieved by causal antecedent and superordinate goal inferences. The fourth theory is the *constructionist model* (Graesser *et al.*, 1994). To constructivits, the reader constructs meaning by recourse to text, social interactions and perceptual input. Accordingly, the possible online inferences would be: causal antecedent, superordinate goal and character emotion inferences. The fifth theory is *prediction-substantiation model* (Bower *et al*., 1979). It is based on the assumption that comprehension is a process of prediction which affects interpretation of text clauses (top-down processing). Therefore, all inferences might be online except subordinate goal inferences. Finally, *the promiscuous inference generation* position assumes that all inferences are online "as long as the comprehended has the prerequisite world knowledge to furnish the inference."

(3) Graesser et al's theories discussed above are to be amalgamated. The former is text-driven whereas the latter is reader-driven. When integrated, the result is a model generating and elaborating various possible inferences.

(4) The first method used is cued recall e.g.

1. The farmer digs a hole.

After reading, the readers are given by shovel as a recall cue.

The second method is sentence verification which involves asking questions:

2. John slipped on his way home
3. He stayed for a week in hospital.
4. Was John hunt/injured due to his slipping?

On answering "yes", the reader draws an inference.

The third method is sentence reading time which comprises comparing reading times for a sentence when it is in an inference version versus an explicit control one:

5. a. John bought some stationary items. Inference version
   b. The sharpener did not work.
6. a. John bought a sharpener. Explicit control.
   b. The sharpener did not work.

In reading the first version, the reader is supposed to take more time than the second.

The fourth method is online question-answering methodology which includes scattering various questions about what will happen next i.e. predictive inferences.

The fifth method is recognition which consists of offering the reader a test word, then asking him whether the test word representing the inference occurred in the text: An example of a test word is "spoon" which does not occur in the text but it represents an inference:

7. He stirred the sugar:

The choice of task is largely determined by the study purposes.

(5) Encountering Egyptian names of place, movement, initial event creates a sense of familiarity with the text, though the incident described in the second text is not quite accurate historically, nor is it contemporary. However, the Egyptianization of the content surpasses/surmounts such shortcomings.

REFERENCES

Ainsworth, N. (1981). Oral Narratives of Bilingual Mexican American Adults Enrolled in Adult Basic Education (Research Project, NIE) East Lansing: Michigan State University, Department of English.

Anderson, R.C. (1977). Schema-directed Processes in Language Comprehension (Tech. Rep. No. 50) Urban; University of Illinois, Center for the Study of Reading.

Anderson, R.C. (1982). Allocation of attention during reading processing. A. Flammer & W. Kintsch, Discourse Processing. Amsterdam: North Holland.

Anderson, R.C. (1983). Role of the reader's schema during comprehension, learning and memory in R.C. Anderson, J. Osborn, & R. Tierney (Eds.) Learning to Read in American Schools. Hillsdale, NJ: L. Erlbuam.

Anderson, R.C. & Pearson, P.D. (1984). A schema-theoretic view of basic processes in reading comprehension. In D.D. Pearson ***et al.***, (eds.).

Anderson, R.C., Spiro, R.J. & Anderson, M.C. (1978). Schemata as scaffolding for the representation of information in connected speech. American Educational. Research Journal, 15, 433-440.

Balota, D., Flores d'Arcias G. & Rayner K. (1990). Comprehension Processes in Reading. Hillsdale NJ: Lawrence Erlbaum.

Baturkmen H. (2002). Clause relations and macro patterns: Cohesion, coherence and the writing of advanced TESOL students, Forum, 40(1): 40 (1): 50-56.

Brown, G. & Yule G. (1983). Discourse Analysis. Cambridge: Cambridge University Press.

Carrell, P.L. (1984). Schema theory and ESL reading: Classroom implications and applications, The Modern Language Journal 68(4): 332-343.

Carrell, P.L. (1987). Content and formal schemata in ESL reading, TESOL Quarterly, 21: 461-481.

Carrell, P.L. (1992). Awareness of text structure: Effects on recall, Language Learning. 42, 1-20.

Chafe, W.L. (1983). Integration and involvement: speaking, and oral literature, In D. Tannen (Ed.) Spoken and Written Language. Norwood, NJ Ablex.

Chou, C. (2000). Schema theory-based instructional design of asynchronous web-based language courses, In S. Young, J. Greer, H. Maurer & Y. Chee (Eds.) Proceedings of the International Conference on Computers in Education/International Conference Computer Assisted Instruction. 569-575, Taipei, Taiwan: National Tsing Hua University.

Collins, A., Brown J.S. & Larkin, K.M. (1980). Inference in text understanding. In R.J. Spiro, B.C. Bruce, & W.F. Brewer (Eds), Theoretical Issues in Reading Comprehension. Hillsdale, NJ: Lawrence Erlbaum.

Collins, A., Brown J.S., Larkin, K.M. & Pearson, D. (1984). A schema-theoretic view of basic processes in reading comprehension. In D. Pearson *et al.* (Eds.).

Cook-Gumperz, J., Cumperz, J. & Simons, H. (1981). School Home Ethnography Project (final report) Washington, D.C. National Institute of Education.

Crismore, A. (1983). Interpresonal and ideational metadiscourse in learning from text In H. Singer & T. Bean (Eds). Learning form Text: Explanation and Strategies. University of California: Learning from Text Project, (ERIC Document Reproduction Service No. ED. 239231.

Culler, J. (1975). Structuralist Poetics. Ithaca. NY: Cornell University Press.

de Beaugrande, R. (1980). Text, Discourse and Process. London: Longman.

Fletcher, C., Arthur, E. & Skeate, R. (1995). Top-down effects in a bottom-up model of narrative comprehension and recall. In C. Weaver, S. Mannes & C. Fletcher (Eds.).

Goldman, S. & Varma, S. (1995). CAPping the construction integration model of discourse comprehension. In C. Weaver, S. Mannes & C. Fletcher (Eds.).

Goodman, K.S. (1985). Unity in reading, In H. Singer & R. Ruddell (Eds.), Theoretical Models and Process of Reading (3rd ed.) (p. 813-840). Delware: International Reading Association.

Graesser, A.C. & Zwaan, R.A. (1995). Inference generation and the structure of situation models. In C. Weaver, S. Mannes and C. Fletcher (Eds.). Discourse Comprehension: Essays in Honor of Walter Kintsch. Hillsdale, N.J. Erlbaum.

Graesser, A.C., Singer, M. & Trabasso, T. (1994). Constructing inferences during narrative text comprehension. Psychological Review, 101, 375-395.

Greeno, J. (1995). Understanding concepts activity. In C. Weaver, S. Mannes & C. Fletcher (Eds.).

Gumperz, J. (1981). Conversational inference and classroom learning. In J. Green & C. Wallat (Eds.) Ethnography and Language in Educational Settings. Norwood, N.J.: Ablex.

Guthrie, L. & Hall, W. (1984). Ethnographic approaches to reading research. In D. Pearson *et al.* Handbook of Reading Research. New York & London: Longman.

Halliday, M.A.K. & Hasan, R. (1976). Cohesion in English. London: Longman.

Hudson, R.A. (1990). Sociolinguistics. Cambridge: Cambridge University Press.

Iser, W. (1978). The Act of Reading: A Theory of Aesthetic Response. Johns Hopkins University Press: Baltimore.

Jauss, H.R. (1982). Toward an Aesthetic of Reception. University of Minnesota Press: Minneapolis.

Johnson-Laird, P.N. (1983). Mental Models. Toward a Theory of Inference, Language and Consciousness. Cambridge, MA: Harvard University Press.

Keenan, J. & Jennings, T. (1995). Priming of inference concepts in the construction-integration model, In C. Weaver, S. Mannes & C. Flectcher (Eds.).

Keenan, J., Potts G., Golding J. & Jennings, T. (1990). Which elaborative inferences are drawn during reading? A question of metaodologies, In D. Balota, G. Flores d'Arcias & K. Rayner (Eds.).

Kintsch, W. & van Dijk, T.A. (1993). Toward a model of text comprehension and production. Psychological Review, 85, 363-394.

Kintsch, W. (1988). The role of knowledge in discourse comprehension; A construction integration model. Psychological Review, 95, 163-182.

Kintsch, W. (1993). Information accretion and reduction in text processing: Inferences. Discourse Processes, 16, 193-202.

Laberge, D. & Samuels, S.J. (1985). Toward a theory of automatic information processing in reading, In H. Singer & R. Ruddell (Eds.).

Lakoff, G. & Johnson, H. (2002). Why cognitive linguistics require embodied realism, Cognitive Linguistics. 13(3): 245-263.

Langacker, R.W. (1987). Foundations of Cognitive Grammar. Vol. I: Theoretical Prerequisites. Stanford: University of Stanford Press.

Langacker, R.W. (1991). Foundations of Cognitive Grammar. Vol. II. Descriptive Application. Stanford: University of Stanford Press.

Lee, I. (2002). Helping students develop coherence in writing, Forum, 40(3): 32-39.

Leech, G.N. (1974). Semantics. Penguin Books.

Makoon, G. & Ratcliff, R. (1990). Textual inference: Models and measures, In. D. Balota, G. Flores d' Arcias & K. Rayner (Eds.).

Malcolm, G. & F. Sharifian (2005). Something old, something new, something borrowed, something blue: Australian

Aboriginal students' schematic repertoire, J. of Multilingual and Multicultural Development, 26(6): 512-521.

Mandler, J.M. (1984). Stories, Scripts and Scenes; Aspects of Schema Theory. Hillsdale, NJ: Lawrence Erlbaum.

McKoon, G. & Ratcliff, R. (1995). The minimalist hypothesis: Directions for Research, In C. Weaver, S. Mannes & C. Flectcher (Eds.)

Meyer, B. & Rice E. (1984). The structure of text. In D. Pearson *et al.* (Eds.).

Minsky M. (1975). A framework for representing knowledge, In P. Winston (Ed.). The Psychology of Computer Vision, New York: McGraw Hill.

Nassaji, H. (2002). Schema theory and knowledge-based processes in second language reading comprehension: A need for alternative perspectives. Language Learning 52(2): 439-481.

Palmer, F.R. (1981). Semantics. Cambridge: Cambridge University Press.

Pearson, D., Barr, R., Kamil, M. & Mosenthal, P. (1984). A Handbook of Reading Research. New York: Longman.

Perfetti, C. (1985). Reading Ability. Oxford University Press.

Perfetti, C. Anne Britt, M. (1995). Where do propositions come from? In C. Weaver, S. Mannes & C. Fletcher (Eds.).

Rogers-Zegarra, N. & Singer, H. (1985). Anglo and Chicano comprehension of ethnic stories. In H. Singer & R. Ruddell, (Eds.).

Rosch, E. (1973). Natural categories. Cognitive Psychology, 4: 328-50.

Rosenblatt, L.M. (1978). The Reader, the Text, the Poem. Carbodal: Southern Illionis University Press.

Ruddell, R. & Speaker, J.R.R. (1985). An interactive reading process: A model. In H. Singer & R. Ruddell (Eds.).

Theoretical Models and Processes of Reading (3rd ed.) Delaware: International Reading Association.

Rumelhart, D. (1977). Understanding and summarizing brief stories. In D. Laberge & S.J. Samuels (Eds.), Basic Processes in Reading: Perception and Comprehension. Hillsdale, NJ: Lawrence Erlbaum.

Rumelhart, D. (1980). Schemata: The building blocks of cognition. In. R. Sprio, b. Bruce & W. Brewer (Eds.). Theoretical Issues in Reading Comprehension: Perspectives from Cognitive Psychology, Linguistics, Artificial Intelligence, and Education. Hillsdale, NJ: Lawrence Erlbaum.

Rumelhart, D. (1985). Toward an interactive model of reading. In H. Singer & R. Ruddell (Eds.). Theoretical Models and Processes of Reading (3rd ed.), (722-750), Delaware: International Reading Association.

Samuels, S. & Kamil, M. (1984). Models of the reading process, In D. Pearson *et al.* (Eds.).

Sanford, A. (1990). On the nature of text-driven inference, In D. Balota, C. Flores d'Arcias & K. Rayner (Eds.).

Schank, R.C. & Abelson, R.P. (1977). Scripts, Plans, Goals and Understanding: An Inquiry into Human Knowledge Structures. Hillsdale, NJ. Lawrence Erlbaum.

Schmalhofer, F. (1995). The acquisition of knowledge from text and example situations: An extension to the construction-integration model. In C. Weaver, S. Mannes & C. Fletcher (Eds.).

Sharifian, F. (2004). Cultural conceptualizations in English words: A study of Aboriginal children in Berth. Language and Education, 19(1): 74-88.

Smith, F. (1994). Understanding Reading: A Psycholinguistic Analysis of Reading and Learning to Read. Hillsdale, N.J.: Lawrence Erlbaum.

Spiro, R.J. (1980). Schema Theory and Reading Comprehension (Tech. Rep. No. 191) Urbana: University of Illinois, Center for the Study of Reading.

Stanovich, K. (1980). Toward an interactive-compensatory model of individual differences in the development of reading fluency, Reading Research Quarterly, 15, 32-71.

Steffenson, M., Joag-Dev, C. & Anderson, R.C. (1979). A cross-cultural perspective on reading comprehension. Reading Research Quarterly 15, 10-29.

Szentagotai, A.; Schnur, J. ; Digiuseppe, R. Macavei, B., Kallay, E. & David, D. (2005). The organization and the nature of irrational beliefs: Schemas or appraisal? Journal of Cognitive and Behavioural Psychotherapies, 5(2): 139-158.

Tannen, D. (1980). A comparative analysis of oral narrative strategies: Athenian Greek and American English, In W.L. Chafe (Ed.), The Pear Stories: Cognitive Cultural and Linguistic Aspects of Narrative Productions. Norwood, NJ: Ablex.

Tapiero I & Denhiere, G. (1995). Simulating recall and recognition by using Kintsch's construction integration model, In C. Weaver, S. Mannes & C. Flecher (Eds.).

Tavares, R. & Cavalcanti, I. (1996). Developing cultural awareness in EFL classrooms. Forum, 34(3-4): 18-23.

Thorndyke, P.W. (1977). Cognitive structure in comprehension and memory of narrative discourse. Cognitive Psychology, 9, 77-110.

van Den Broek, P.(1990). The causal inference marker. Towards a process model of inference generation in text comprehension. In D. Balota, G. Flores d'Arcias & K. Rayener (Eds.).

van Dijk, T.A. (1972). Some Aspects of Text Grammar; A Study in Theoretical Poetics and Linguistics. The Hague: Mouton.

van Dijk, T.A. (1977a). Knowledge frames, macrostructures and discourse comprehension, In M. Just & C. Carpenter (Eds.) Cognitive Processes in Comprehension (pp. 2-32). Hillsdale, NJ: Lawrence Erlbaum.

van Dijk, T.A. (1977b). Text and Content: Explorations in the Semantics and Pragmatics of Discourse. London: Longman.

van Dijk, T.A. (1995). On macrostructures, mental models, and other inventions: A brief personal history of the Kintsch-van Dijk Theory, In C. Weaver, S. Mannes, & C. Fletcher (Eds,) Discourse Comprehension: Essays in Honor of Walter Kintsch (pp. 383-410). Hillsdale : Erlbaum.

van Dijk, T.A. & Kintsch, W. (1983). Strategies of Discourse Comprehension. New York: Academic Express.

van Dijk, T.A. & Kintsch, W. (1985). Cognitive psychology and discourse: Recalling and summarizing stories. In H. Singer & R. Ruddell (Eds.). Theoretical Models and Processes of Reading (3rd ed.) (pp. 794-812). Delaware: International Reading Association.

Vonk, W. & Noordman L. (1990) In D. Balota, G. Flores d'Arcias & K. Rayner (Eds.).

Wales, K. (1988). A Dictionary of Stylistics. Longman.

Wallace, P. (1992). A proposed reconciliation of the conservative and liberal approaches to instructional design. Australian Journal of Educational Technology, 8(1): 13-26.

Warren, W.H.; Nichoas, D.W. & Trabaso, T. (1979). Event chains and inferences in understanding narratives. In R.O. Freedle (Ed.), New Directions in Discourse Processing. Norwood, N.J. Ablex.

Weaner, S., Mannes, S. & Fletcher, C. Eds. (1995). Discourse Comprehension: Essays in Honor of Walter Kintch. Hillsdale, N.J.: Earlbaum.

Wellek, R. & Warren, A. (1962). Theory of Literature (3rd ed.). New York: Harcourt, Brace & World.

Yule, G. (1985). The Study of Language. Cambridge: Cambridge University Press.

APPENDIX

A. The original text:

A series of violent, encounters between police and Black Panther Party members punctuated the early summer days of 1969. Soon after, a group of black students I teach at California State College. Los Angeles, who were members of the Panther Party, began to complain of continuous harassment by law enforcement officers. Among their many grievances, they complained about receiving so many traffic citations that some were in danger of losing their driving privileges. During one lengthy discussion, we realized that all of them drove au to mobiles with Panther Party sings glued to their bumpers. This is a report of a study that I undertook to assess the seriousness of their charges and to determine whether we were hearing the voice of paranoia or reality.

b. The natived text:

A series of violent, bloody encounters between police and Marxists punctuated the early days of 1971. Soon after, a group of Marxist students I teach at Faculty of Arts Cairo University, began to complain of continuous harassment by police. Among their many grievances, they complained about receiving so many warnings that some were in danger of being prohibited from exercising their student rights in college. During one lengthy discussion, we realized that all of them were wearing clothing printed with Marxist signs. This is a report of a study that I undertook to assess the seriousness of their charges and to determine whether we were hearing the voice of paranoia or reality.