

Mersin Üniversitesi
Sosyal Bilimler Enstitüsü
İngiliz Dili ve Edebiyatı Anabilim Dalı

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THE EFFECT OF CAUSAL RELATIONSHIP
ON COHESION AND RECALL: A RESEARCH
ON THE TEXT PROCESSING OF PRIMARY SCHOOL STUDENTS

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YÜKSEK LİSANS TEZİ

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Mayıs, 2002

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Mersin Üniversitesi Sosyal Bilimler Enstitüsü Müdürlüğü'ne

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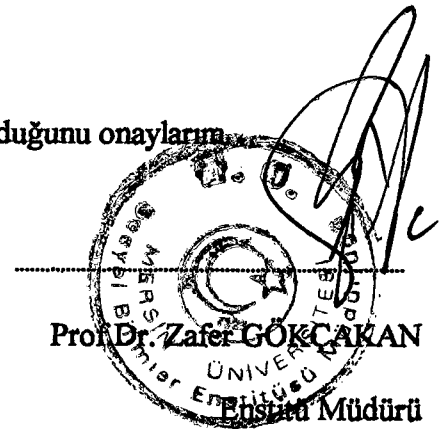
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INTRODUCTION

Various studies have been made about comprehension of narratives, causality in texts, and recall of texts. The studies on narratives holds an important place among studies on first-language learning and text comprehension. The reason is that, narrative text type is the first rhetorical structure that an individual meets (first orally, then in written form) and the success of a child in comprehension of a narrative is an encouraging step in his/her getting into the long-lasting studies on text comprehension since it is essential in all kinds of learning.

There are many different perspectives for studying text comprehension, such as how comprehension takes place, what factors effect the process, what use the reader makes from the read material, how well the comprehended and stored material can be retrieved when necessary, and so on. Each of these topics have related subtopics. The present research has taken one of the variables from these wide range of factors: the effect of causality and causal chain membership of story propositions in comprehension of narratives. The purpose of the researcher is to attract attention once more to the importance of the quality of reading materials in first language learning as a first step in the entire process of learning and education.

This study deals with the synthesis of related studies in the light of the study by Trabasso, Secco, & van den Broek (1984). In this research, the effect of causal relations in a narrative text on comprehension and recall of elementary school children is studied.

Purpose and Significance of the Study

When the subject is first language learning, there are many factors worth to be discussed. Many studies have been done related to different aspects of first language learning in terms of improving learning materials and training first language teachers. However, the application of these studies is not sufficient because of various factors.

First language learning involves acquisition of language skills to help the child develop an independent personality capable of expressing himself/herself as a social being. This process includes the text comprehension process and therefore the reading comprehension process. The child needs to be provided with sufficient learning material which satisfy the textuality standards and which are representatives of their styles.

The aim of this study is to approach this problem by analysing the effects of causal chain on comprehension and recall of the reading material. The study which is taken as a sample for this study is done on narratives and it could well be adopted for expository texts. However, after searching the textbooks which were used in a particular Turkish elementary state school for science of nature and social science courses, it was quite hard to find a group of texts on a particular topic which satisfied the coherent text structure requirements. This is only a very specific, but a striking example of the situation that the importance attached to the structure and content of reading materials in textbooks is insufficient in Turkey.

The present study was continued in the light of the research by Trabasso, Secco & van den Broek (1984). The effect of causal network membership of story statements (or

propositions) on construction of the cohesion-coherence relation of a text and its recall by students in a Turkish state primary school will be analysed.

It is hoped that the study will emphasize once more the importance of the quality of reading materials in text comprehension (not only for narratives but also for expository texts).

Research Questions

1. Is there a significant difference between the immediate recall total scores and the delayed recall totals of the students related to the given narrative?
2. Is there a significant difference between the students' recall protocol scores of the *causal* story statements and *dead-end* statements?
 - 2.1. Is there a significant difference between the causal story statements and the dead-end statements of the students' *immediate* recall protocols?
 - 2.2. Is there a significant difference between the causal story statements and the dead-end statements of the students' *delayed* recall protocols?
3. Is there a significant difference among the students' total recall scores of propositions from different story grammar categories?
 - 3.1. Is there a significant difference among the students' recall of propositions from different story grammar categories in their *immediate* recall protocols?

- 3.2. Is there a significant difference among the students' recall of propositions from different story grammar categories in their *delayed* recall protocols?
4. Is there a relation between the number of causal connections of a story statement and the students' total recall scores related to that statement?

Limitations

The study has the following limitations:

1. the protocols collected from from 57 5th grade students chosen from İleri İlköğretim Okulu, a state school in Mersin, in the year 2001-2002;
2. a total of 3 class hours (45 min. each); 1 hour for reading the tale, 1 hour for writing the immediate recall protocols, and 1 hour for writing the delayed recall protocols;
3. a Turkish tale chosen from Oğuzkan (2000);
4. the data gathered from the recall protocols of the students.

Definitions

Cohesion: Relationship among a chain of utterances in a text provided by the situation that the interpretation of a linguistic element in the text depends on another element present in the text (conjunctions, references, etc.) (de Beaugrande & Dresler, 1981).

Causal chain (or network): The representation of causal relations between story events in a story, where causal chain shows story events, one following the other, and causal network shows multiple connections among story events, which do not necessarily follow one another (van den Broek, 1984).

Discourse: One or a chain of utterances or sentences following one another, related to one another, having a beginning and an end, differing in the structure of the language used according to the purpose of the speaker or the writer.

Macrostructure: The surface structure of a text composed of macro propositions which are the main ideas, or the gist of a text.

Microstructure: The deep structure of a text composed of micro propositions which are the details in a text, not the gist, or the main idea.

Recall: The retrieval of a piece of information stored in mind previously.

Story grammars: The representation of the contents in a story, not alike the 'grammar' proposed by linguists. A set of hierarchically organised components –such as setting, theme, plot, attempt, outcome, etc- for narrative discourse (Brown & Yule, 1983: 119).

CHAPTER I

REVIEW OF LITERATURE

1.1. Text, standards of textuality

'Text' has been defined in various ways by linguists. De Beaugrande and Dressler define text as a communicative occurrence (1981). Halliday and Hasan (1976) define text as "actualized meaning potential"; in other words it is the verbal record of a communicative event.

In order that a text serves as a device for communication and in order to call a verbal record 'text', it should satisfy the requirements of a 'text', the *standards of textuality*, proposed by de Beugrande and Dressler (1981). These standards are used to determine whether a chain of utterances will be called a *text* or not:

a) *Cohesion* is a relationship among the utterances or propositions of a text provided by the situation that the interpretation of a linguistic element in a text is dependent on another element in the text. It is the procedure binding the text components together grammatically on the surface, i.e. with actual words we see or hear in the text. The use of *reference* and *junction* is an example of cohesive devices in a text.

b) *Coherence* is a conceptual relationship showing that the interpretation of an element in the text depends on some factors outside the text, such as *world knowledge*

of the listener or the reader. For example, in order that a newspaper article about economy makes sense to a reader or a hearer, he/she should rely on his/her world knowledge about economy.

c) *Intentionality* is the principle related to the attitude of the text presenter, having the intention of communication. The text presenter should have the attention of communicating something through his/her text. Some discontinuities or shifts in a spoken or written text do not disturb the communication process if the cause is apparent. For example, the speech of a speaker having incomplete sentences because of hesitation or excitement may still be comprehended by its hearer and therefore accepted to be a cohesive and coherent text.

d) *Acceptability* is the principle which requires that a sequence of sentences be acceptable to the intended reader or hearer in order to qualify as a text. For example, a text about law or medicine fulfilling other standards of textuality may not be comprehensible for a comprehender because of the topic which he/she has no knowledge about and may not be acceptable as a text serving a communicative act.

e) *Situationality* is the principle concerning the factors that make a text relevant to the real setting it occurs. For example, a “no parking” sign in the middle of a forest without a road in it will make no sense to its readers.

f) *Informativeness* is the the extent to which a text conveys *new information* which is comprehensible by the reader or listener. A text should have *new information* for the comprehender in order to have a communicative function. A text in which all information is known to the reader will not be informative for the reader.

g) *Intertextuality* is the mutual relevance of separate texts. In other words, a text may make sense only if there is another related text. For example, an episode of a story may make sense only if the reader has read the previous one.

1.2. Discourse and text processing

Reading comprehension is searched in the light of the *top-down* and *bottom-up* processing theories (McCormic, 1988). Top-down processing is reader-oriented processing of the text. The theory states that reading comprehension is reader's relating new experience to the already-known, and is a matter of bringing meaning to print, not extracting meaning from print (Smith, as cited in McCormic, 1988 : 106-107). *Schemata*, which implies that the comprehender activates schemas, frames, or scripts present in the mind to comprehend a text, is an example for top-down processing. Bottom-up, or text-oriented, theories of reading suggest that reading is a text-driven, or data-driven process (van Dijk and Kintsch, 1983), and requires language skills, conceptual skills, and cognitive skills (McCormic, 1988 : 104-108). Cohesion is a bottom-up type of processing meaning that the reader builds a meaningful whole in mind using what is given in the text such as the word choice (lexical cohesion), or reference. *Interactive theories* suggest that reading comprehension process is both reader- and text-oriented. As Beck states, reading process implies interacting the present knowledge of the reader with the content of the processed text (in McCormic, 1988:107). During reading, top-down and bottom-up processes operate simultaneously at different levels of analysis; they work to pull the various fragments of knowledge and information into a coherent whole.

Considering human language, *comprehension*, which can be defined as the act of grasping a piece of information mentally, takes place in two ways: through listening and reading; and these processes are called *listening comprehension* and *reading comprehension* respectively. The processed material in both situations is meant to be a written or an oral *text*; therefore the process is a *text comprehension process*.

Text is processed by comprehenders and stored in mind in *macrostructures*, a term proposed by van Dijk (1980). A macrostructure is the global meaning, the gist of discourse, formed using three *macrorules*: *selection-deletion*, *generalization*, and *construction*.

Selection-deletion rule implies the selection of relevant propositions, elimination of irrelevant propositions, and deletion of repeated information. *Generalization* rule entails the conversion of a set of terms propositions into a more general term or proposition, replacing them with a superordinate proposition. *Construction* rule concerns the construction of one most general proposition, which covers the gist of the whole text. These macrorules make possible for readers to summarize the text they read or hear and store the gist of the text in mind.

1.3. Coherence, cohesion, and inferences

Text comprehension includes the mental processes through which the comprehender tries to work out meaningful units out of an oral or a written text. Cohesion and coherence are the most significant relationships providing the comprehender find meaningful units out of a text. If the relation can not be obtained, text comprehension is

unsuccessful and the reader can not be informed as much as he/she should be about the text.

1.3.1. Cohesion

Beaugrande and Dressler (1981) define *cohesion* -which is a text-oriented (bottom-up) type of text processing- as the well-organized sequence of text components by using grammatically dependent linguistic connectives.

There are four categories of cohesion in English as distinguished by Halliday and Hasan (1976); *reference, substitution, ellipsis, conjuncton, and lexical cohesion.*

a) *Reference* is a relation maintained by mentioning something given in another place in the text; backwards (anaphoric) or forwards (cataphoric).

b) *Substitution* is the replacement of a word, a group of words or a sentence by a 'dummy' word. The replacing word has no meaning on its own, but carries the meaning of the replaced one (such as the use of pronouns, or the word 'one/ones' in place of a noun in order to avoid repetition) in a text.

c) *Ellipsis* can also be called 'substitution by zero'. In this case there is an omission (e.g. "I didn't lose the keys, but you did Ø." which means "I didn't lose the keys, but you did lose them.")

d) *Junction* is the use of linking words which can be classified into four types as *conjunction* (and-type linking words), *disjunction* (or-type linking words), *contrajunction*

(but-type linking words), and *subordination* (although, since, while, after, before, when, if, etc.). Junctions can be grouped into four groups according to the types of *relationships* they provide: *adversative* (but, however, on the other hand, etc), *additive* (and, or, in addition, similarly, etc), *causal* (so, for this reason, therefore, consequently, etc), *temporal* (then, after that, at last, finally, etc).

e) *Lexical cohesion* is the relation provided by the word choice used in the text. It can be classified in five groups as *repetition*, *synonymy*, *hyponymy*, *metonymy*, and *antonymy*.

Haliday and Hasan emphasize that the presence of explicit cohesive markers is what provides *texture* and that it is the underlying semantic relation that has actually the cohesive power (1976: 29).

1.3.2. Coherence

Coherence is a kind of connection which is provided by elements outside the text such as world knowledge of the reader/hearer. The dependence of comprehension on the reader shows coherence to be a reader-oriented, or top-down type of text-processing. Coherence does not exist in language but in people's reconstruction of thoughts. People interpret the meaning of a text making sense of what they hear and read and using the stored knowledge (de Beaugrande, & Dressler, 1981: 84). Coherence is the final representation of the integrated meaning of text. Therefore a text may be cohesive but still incoherent, and a non-text. Coherence provides an interpretation of a text which cannot be made only by looking at the surface elements, i.e. the cohesive devices.

The following paragraph, an example provided by Enkvist (1978:110) illustrates a text which seems to be cohesive but incoherent:

I bought a Ford. A car in which President Wilson rode down the Champs Elysées was black. Black English has been widely discussed. The discussions between the presidents ended last week. A week has seven days. Every day I feed my cat. Cats have four legs. The cat is on the mat. Mat has three letters.

Enkvist (cited in Brown & Yule, 1983: 197) states that there are some connections in the text such as *Ford-car*, *black-Black*, *my cat-cats*, therefore that there is a 'semblance' of cohesion. However these connections are not satisfactory and the text is still not coherent. The reader is more likely to provide a coherent 'picture' of the events and bind them together rather than working on verbal connections alone. This example is a sample for the situation that texts may be cohesive but yet incoherent, not providing enough connections for the reader to comprehend a meaningful whole.

1.3.3. Inferences

If clear relationships between causes and effects of events are found, coherence can be observed easily in a text. However, if these relations can not be found, *bridging inferences* must be referred to, meaning that the reader or the listener tries to maintain links among discourse ideas, working from a current proposition to a prior proposition somewhere back in the text, but not by linking a number of propositions one after the other. Van den Broek (1984:557) explains that the information which is not explicitly stated in the text but activated during reading is called inference, also stating that there is a disagreement about the type of activation.

Inferences are classified according to Singer (1984) as follows:

a) *Elaborative inferences*: As van Dijk & Kintsch (1983) state, elaborative inferences are a type of inference which linguists are not determined about the role of. Elaborative inferences occur when the reader applies his/her own knowledge related to the topic of the text, or to connect the text and the related items of knowledge (51). Elaborative inferences are not essential for the comprehension process but they may produce a tighter integration between the text and the reader's own knowledge structure and result in a more effective learning.

Consider the following example from Singer (1984:488) :

- (i) *The dentist pulled the tooth painlessly. The patient liked the new method.*
(explicit)
- (ii) *The tooth was pulled painlessly. The dentist used a new method.* (bridging)
- (iii) *The tooth was pulled painlessly. The patient liked the new method.*
(elaborative)

In (i), the dentist is stated explicitly. However, in (ii) the comprehender has to build a bridging inference that a dentist pulled the tooth to complete the missing link between these propositions. In (iii) an elaborative inference about a dentist can be built by the reader, but the coherence does not depend on this inference since the next sentence is related to the patient, but not the dentist.

b) *Bridging inferences*: These are the type of inferences that provide essential information for the comprehension of a part of the text. If the reader/hearer fails to build the bridging inference, the comprehension is incomplete, or unsuccessful.

Consider the same example given for elaborative inferences.

The tooth was pulled painlessly. The dentist used a new method.

These statements would be understood if the bridging inference

The tooth was pulled by a dentist.

is built by the reader to complete the missing link among these propositions (example from Singer, 1984: 488).

c) *Causal bridging inferences* are major components of inferential activities during reading. They provide coherence between the focal statements to their antecedents (backward causal inferences) or to the upcoming events (forward causal inferences). Backward causal inferences are necessary to maintain coherence between the focal statement and the antecedents, but forward inferences are not required for maintaining coherence; generating a forward inference generally is not required for maintaining coherence (van den Broek, 1984: 570).

For example:

Laurie left early for the birthday party. She spent an hour shopping at the mall.

In the above example provided by Schank & Abelson (1977), the relationship between the sentences was based on the reader's inference that *Laurie was motivated to buy a birthday present*, indicating a motivation, i.e. a causal relationship.

1.4. Text processing and text types: narratives

Text types ranging from headlines to a group of sentences and are classified as *argumentative, descriptive and narrative texts*.

There is no doubt that each rhetorical text type has its own function in the comprehension process. The comprehension of a narrative, which is the first text type a child meets in oral form from his parents, involves acquiring knowledge about everything related to human, about history, etc. To acquire this knowledge, the individual events in the story must be understood, then organized and stored in a memory representation (Trabasso, Secco and van den Broek, 1984).

Narratives are relatively more important than other rhetorical structures due to the fact that the first rhetorical structure children meet are tales or stories which are introduced in oral form. In this stage, children are involved in text comprehension activities for the first time. This comes to mean that text comprehension skills of children can be improved by making their narrative comprehension process more effective.

Keçik (1991:1) states that although a child develops an awareness of oral forms of language and certain text types such as narratives before the literacy period, the child

has to deal with other types of texts and learn about the differences between oral and written forms of language when he starts school.

In order to facilitate this development, the primary school education has to provide the child with reading materials that are good representatives of their types along with emphasizing acquisition of good reading skills. This, however, can only be achieved if the choice of reading materials and techniques of teaching reading are based on the findings of text linguistic research (Keçik, 1991: 1).

We can observe that sometimes the requirement stated above is not always satisfied when we talk about reading materials used in schools. Although it is not always the case that a textbook is prepared taking the principles put forward by researchers of linguistics into consideration, researchers have been and are studying on the understanding and improvement of comprehension and learning processes.

1.5. Inferences in narratives

Backward and forward causal inferences are grouped according to the type of connection they provide during reading of narrative text as follows (based on van den Broek, 1990):

a) *Backward causal inferences*: Causal relations between the focal statement and events that are in short- term memory from previous cycles are identified by the help of *connecting inferences*. When textual information that is no longer activated is reactivated (from long-term memory), a *reinstatement* occurs. When the reader accesses background knowledge to connect two events, to connect unmentioned antecedent to focal

event, *elaborative inferences* take place. An example for backward causal inferences is given below (from Singer, Halldorson, Lear, & Andrusiak, 1992).

(i) *Dorothy poured water on fire.*

(ii) *The fire went out.*

The causal explanation of the causal event in (ii) requires the reader's referring to his/her knowledge that fills in the missing information, applying an elaborative causal inference:

Water extinguishes fire.

b) *Forward causal inferences*: The reader uses his/her own knowledge to make *predictions* about future events. The reader may anticipate a causal role for the event that is currently being read, and maintain *activation* of this event. Consider the following example (based on McKoon & Ratcliff, 1989):

While shooting a film, the actress accidentally fell out the 14th floor window.

The target inference (a forward causal inference; a prediction) which would possibly be made by the reader is:

The actress died.

c) *Instrument inferences* concern the inference of instruments used in the actions in the text. For example:

The worker drove the nail. The tool was small for the task. (the instrument can be inferred to be a 'hammer' by the comprehender).

d) *Thematic inferences*: Information in discourse is usually organized around themes and thematic inference constitutes the recognition of the theme by the reader/hearer. In narratives, themes are usually based on goals (Mandler & Johnson, 1977). Recent studies imply that thematic superordinate goals are generated during the reading of narratives. For example, naming a word related to a superordinate goal was faster than for words related to subordinate goals in a study by Long & Golding (1993).

1.6. Causal relations in a narrative

The situation that an event described in one clause of a text causes an event in another clause brings about the terms *causal chain* (Black & Bower, 1980; Omanson, 1982; Schank & Abelson, 1977) or *causal network* (Graesser, 1981; Graesser & Clark, 1985; Trabasso et al., 1984; Trabasso & van den Broek, 1985). *Causal chain* proposes a flow of events on a chain, one following another, where each event seems to be causally connected only to the preceding and the following events, but not the other events in the text. Statements not involved in the causal chain are *dead-end* statements, not contributing to the coherence of the text or the flow of the story. In *causal networks*, each event in a text is related to other events in the text which together led to its occurrence. This is not possible in the causal chains causing a limitation for the causal chain theories. Causal networks may help to present a text in more details than in a causal chain by revealing the causal connections among events in the text that do not follow each other sequentially but are

distant to each other in textual representation (van den Broek, 1984). Another deficiency of causal chain theories is that the causal relations are identified on intuitive grounds rather than on a set of explicit criteria.

In *causal networks*, the events are the result of a combination of antecedents rather than only one antecedent (Graesser, 1981; Graesser, & Clark, 1985; Trabasso et al., 1984; Trabasso & van den Broek, 1984). More formal and systematic methods are being used increasingly to label the causal relations in a text. An example for such methods is (cf. Trabasso et al., 1984, 1989; van den Broek 1990a) the one in which the researcher finds out the potential causes, consisting of events which are *temporally prior* to the event and *active* at the time that the event occurs. Temporal priority is not sufficient for an antecedent to be active at the time the event occurs. Consider the following examples (van den Broek, 1984: 544):

- i. a. *The porcelain vase fell out of the window.*
 - b. *Two weeks later the vase broke.*
- ii. a. *Sheila dropped the check in the mailbox.*
 - b. *Half an hour later she received a call from the bank.*
- iii. a. *The boy was throwing the ball against the wall of the house.*
 - b. *Accidentally, he threw the ball at the bedroom window.*
 - c. *With a loud sound the window broke in pieces.*

In i(a), statement (a) is no more active at the time the event given in i(b). ii(b) is not active yet at the time ii(b) occurs. Similarly, iii(a) is not active at the time iii(c)

occurs and iii(b) is more recent to iii(c) and is active at the time iii(c) occurs, therefore only iii(b) is active at the time iii(c) happens.

In the same method for identifying causal relations, researchers search to determine which candidates for causes of an event are *necessary and sufficient in the circumstances* of the story event to occur: an event A is necessary for event B such that if event A does not happen then B does not happen; also an event A is sufficient for an event B if A occurs, B is likely to follow.

The final step in the abovementioned method for identifying causal relations is putting these connections together on a causal network where each node stands for a main clause and each arc for a causal relation.

A sample story by van den Broek (1984:543) is given in Table 1 and the causal chain and causal network are demonstrated in Figure 1:

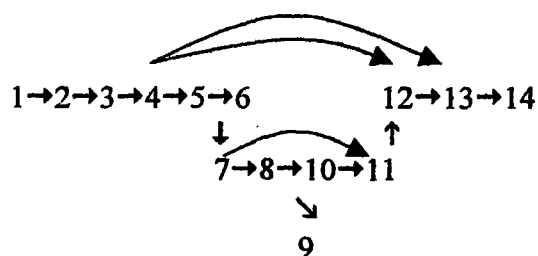
**TABLE 1 - Sample narrative and story grammar categories
(van den Broek, 1984:545)**

Story grammar category	Statement number	Statement
S	1	One day, Brian was looking through the newspaper,
IE	2	He saw an ad for some fancy CD players.
IR	3	He really liked the way they looked.
G	4	Brian decided he wanted to buy one.
A	5	He called the store for the price of a nice model.
O	6	He did not have enough money.
G	7	He decided to work for a paper route.
A	8	For months he got up early
O	9	so that he had his afternoons free
A	10	and delivered newspapers.
O	11	He quickly earned the \$300 that he needed.
A	12	On his first day off, he went to the store.
O	13	He bought the CD player that he had wanted for so long.
C	14	He was so happy that he immediately organized a party.

Story grammar categories: Setting (S), Initiating Event (IE), Internal Response(IR), Goal (G), Attempt(A), Outcome(O), Consequence(C)

1→2→3→4→5→6→7→8→10→11→12→13→14

↓
9



**Figure 1 - Causal chain (top) and causal network (bottom) representations
of the sample narrative (van den Broek, 1984:545)**

1.7. Story grammars

The term *story grammar* was first proposed by Rumelhart (1975), who defined the syntactic and semantic components of a story. The syntactic component consisted of categorization of story events and the rewrite rules for combining these events. The semantic component contained the temporal, contiguous, and causal relations between categories. There are other story grammars proposed by various linguists and they show differences in categorization of story components. Rumelhart's syntactic rules and their semantic interpretation rules are given below in Table 1. Syntactic interpretation rules (given in *CAPITAL ITALICS* in the second line of each rule) indicate the kind of relation that the following story categories in brackets are combined to one another. The asterisk (*) shows repeating units of the same kind. A (+) sign forms two items as a sequence. A (|) sign is to separate mutually exclusive alternatives.

TABLE 2 - 1.Syntactic Rules and Semantic Interpretation Rules of Rumelhart's Story Grammar

<p>(1) Story \rightarrow Setting + Episode \Rightarrow ALLOW (Setting, Episode)</p>
<p>(2) Setting \rightarrow (State)* \Rightarrow AND (State, state, ...)</p>
<p>(3) Episode \rightarrow Event + Reaction \Rightarrow INITIATE(Event, Reaction)</p>
<p>(4) Event \rightarrow {Episode Chage-of-state Action Event+ Event} \Rightarrow CAUSE (Event₁, Event₂) or ALLOW (Event₁, Event₂)</p>
<p>(5) Reaction \rightarrow Internal Response + Overt Response \Rightarrow MOTIVATE (Internal Response, Overt Response)</p>
<p>(6) Internal response \rightarrow {Emotion Desire}</p>
<p>(7) Overt Response \rightarrow {Action(Attempt)*} \Rightarrow THEN (Attempt₁, Attempt₂, ...)</p>
<p>(8) Atempt \rightarrow Plan + Application \Rightarrow MOTIVATE (Plan, Application)</p>
<p>(9) Application \rightarrow (Preaction)* + Action + Consequence \Rightarrow ALLOW (AND (Preaction, Preaction, ...), {CAUSE INITIATE ALLOW } (Action, Consequence))</p>
<p>(10) Preaction \rightarrow Subgoal + (Attempt)* \Rightarrow MOTIVATE (Subgoal, THEN (Attempt₁, Attempt₂, ...))</p>
<p>(11) Consequence \rightarrow {Reaction Event}</p>

a) Semantic relationships in a story (Rumelhart, 1975: 220):

AND : A simple conjunctive predicate of any number of arguments.

ALLOW : The relationship between an extent to which made possible, but which did not directly cause a second event. Thus for example, going top the store **ALLOWS** but does not cause me to buy some bread.

INITIATE : The relationship between an external event and the willful reaction of an anthropomorphized being to that event. Thus for example, an angry lion escaping from a cage in front of me **INITIATES** my being afraid and running for safety.

MOTIVATE : The relationship between an internal response and the actions resulting from that internal response. Thus for example, my being afraid **MOTIVATES** my running to safety.

CAUSE : The relationship between two events in which the first is the physical cause of the second. Thus for example, the baseball striking the bat **CAUSES** the baseball flying towards the outfield.

THEN : The relationship which holds among a tempoirally sequenced set of events. The first argument occurs prior in time to the second, the second in prior to the third, etc.

b) Syntactic categories in a story (Rumelhart, 1975: 222):

Action : An activity engaged in by an animate being or a natural force.

Application : The process of attempting to carry out some plan for obtaining a desire.

Attempt : The formulation of a plan and application of the plan for obtaining a desire.

Change-of-state : An event consisting only of some object changing from one state to another.

Consequence : The outcome of performing an action for the purpose of obtaining some particular state of the world.

Desire : An internal response in which one wants and will thus probably try to obtain some particular state of the world.

Emotion : An internal response which consists of the expression of feelings.

Event : A change of state or action or the causing of a change of state or action.

Internal Response : The mental response of an animate being to an external event.

Overt Response : The willful reaction of a willful being to an internal response.

Plan : The creating of a subgoal which if achieved will accomplish a desired end.

Preaction : An activity which must be carried out in order to enable one to carry out a planned action.

Reaction : The response of a willful being to a prior event.

Setting : The introduction to the characters and conditions of the characters in a story.

State : A property or condition of an object a stable relationship among a set of objects.

Story : A kind of structured discourse which centers around the reactions of one or more protagonists to events in the story.

Sobgoal : A goal developed in a service of a higher more central goal.

Taking the definitions stated above as a base, the following rules taken from Table 1 can be explained as below:

$$\left\{ \begin{array}{l} (1) \text{ Story} \rightarrow \text{Setting} + \text{Episode} \\ \Rightarrow \text{ALLOW}(\text{Setting}, \text{Episode}) \end{array} \right.$$

⇒ A story consists of a setting and episode(s). The setting allows the episode.

Episode is the whole part remaining from the setting.

$$\left\{ \begin{array}{l} (2) \text{ Setting} \rightarrow (\text{State})^* \\ \Rightarrow \text{AND}(\text{State}, \text{state}, \dots) \end{array} \right.$$

⇒ Setting consists of state(s) which convey information about the place and time of the story, and the protagonists.

$$\left\{ \begin{array}{l} (3) \text{ Episode} \rightarrow \text{Event} + \text{Reaction} \\ \Rightarrow \text{INITIATE}(\text{Event}, \text{Reaction}) \end{array} \right.$$

⇒ An episode consists of an event and a reaction. The event initiates the reaction.

The grammatical analyses of story constituents differ in various grammatical analyses of story texts since theorists have different definitions of what constitutes the basic unit of analysis in the text (van den Broek, 1984:542). Text is decomposed into *propositions* in some analytic techniques (e.g. Kintsch, & van Dijk, 1978), *clauses* in some studies (e.g. Trabasso, van den Broek, & Suh, 1989), *sentences* in some of them (e.g. Kintsch, 1988). Trabasso used the generic terms *statement* and *event*. The similarities related to categories are more common than the differences and in one of these studies, from Stein and Glenn (1979) the story categories identified are *setting*, *initiating event*, *internal response*, *attempt*, *direct consequence* and *reaction*.

The categories used by Stein and Glenn can be explained as follows (Nezworski, Stein, & Trabasso, 1982:196) :

The story starts with a *Setting*, which contains information about time and location of the story, and the protagonists in the story. The remaining part of the story is the *Episode*. Episode includes five categories and the relations among them. *Initiating Event* is the proposition which puts the train of actions in the episode into motion. It contains events or actions which evoke an *Internal Response* in the protagonist, which is the next major category consisting of affective or emotional responses, goals, desires, thoughts or cognitions. The wish of the protagonist to satisfy the goals motivates the protagonist to make an *Attempt*, which involves the overt actions of the protagonist. The attempt results in *Direct Consequence*, including the events indicating whether the protagonist achieved the goal or not. The direct consequence initiates or causes a *Reaction* on the part of the protagonist or other characters, conveying information about feelings, thoughts, behaviour most often related to the protagonist and also to the other characters.

1.8. Understanding Stories

Story grammars are related to the schematic knowledge which help the reader or the listener to generate expectations about what types of information should occur in a text. The function of such expectations is guiding comprehension, retrieval, and production of text (Şen, 1990:26).

If all parts, all categories in a story are present, but the information presented in the story structure is inconsistent with what the comprehender expected, he/she will probably try to make inferences related to the reasons of this unexpected situation. If proper answers to the questions are inferred, they are to be included in the story representation. Otherwise, the reader will not be able to construct or recall information from the original sequence. This is due to the condition that both the text structure and the text content effect the memory, which is measured by story recall (Baker & Stein, 1981; Mandler, 1978, 1981; Stein & Trabasso, 1981; Thorndyke, 1977 as cited in Şen, 1990 : 27).

1.9. Studies related to recall of narratives

The *recall* of a text is remembering the listened or read material by activating the memory representations. The representation of the text in the memory after listening or reading resembles a coherent structure rather than an unorganised list (Bartlett, 1932). The recall rate of a text shows how well a text is comprehended and stored in mind and therefore is important in measuring the efficiency of the reading done by the reader.

The comprehension of a narrative, which is the first text type a child meets in oral form from his parents, involves acquiring knowledge about everything related to human, about history, etc. To acquire this knowledge, the individual events in the story must be understood, then organized and stored in a memory representation (Trabasso, Secco and van den Broek, 1984).

In a study by Trabasso, Secco, & van den Broek (1984), it is stated that the causal network in a narrative text is important in its recall. It is explained that statements which are in the causal network, and are therefore causal statements, are recalled at a higher level than statements which are not in the causal network and which are therefore 'dead-end' statements. Then this hypothesis is proved to be true by data analysis of recall protocols from elementary school students. According to the findings of the research, the causal statements tend to be recalled at higher levels than dead-end statements. The same study shows that the story grammar categories show differences in recall as previously stated previously by Mandler & Johnson, 1977; Mandler, Scribner, Cole, & de Forest, 1980; Nezworski, Stein, & Trabasso, 1982; Stein & Glenn, 1979. Also, initiating events, outcomes, and goals were found to play a more prominent role in the representation of the text than others such as attempts, internal responses and consequences. Besides, the number of causal connections that an event has to other events is found to be a small factor in increasing recall compared to whether or not an event is in the causal chain.

In the abovementioned study which pioneered the present research, Trabasso, Secco and van den Broek (1984) made a correlation study about the text comprehension and recall skills of elementary school children in relation with the causal network in narrative texts and cognitive development level of the children. The results of the study show that: (1) causal statements, or propositions, in a narrative text are recalled better than dead-end statements after reading and after a certain time; (2) narrative texts with high percentage of causal connections are recalled by students in higher levels than texts with lower levels of causal connections; (3) students in fifth grade recall a narrative text much better than students in first grade; (4) the recall levels of story statements from different story grammar categories are different; (5) statements with high number of causal

connections with other statements show tendency to be recalled better than statements with low number of causal connections.

Structure of a story versus its content was analysed in a research by Nezworski, Stein, & Trabasso (1982). The influence of content was studied in comparison with the results from previous researches which were about the structure of the story, i.e. related to the effect of the story grammar categories. The researchers state that the story events are interpreted by the comprehender in terms of the goals of the protagonist and that an event's position in the hierarchy depends on its relationship to the superordinate goal, with an assumed relationship between the hierarchical level of an event and its recall probability. The added story propositions were searched to be among the most frequently recalled items. Also, subjects were chosen among kindergarten and 3rd grade children, as were in previous studies, based on the assumption that developmental differences may occur in inferring superordinate goals, contributing to age differences in recall. The studies relevant to story structure showed that certain story grammar categories were recalled better than others. In this study, it was illustrated that if proposition content was changed in categories, no significant difference was observed in the recall of different story grammar categories.

Van den Broek (1984) discusses about comprehension and remembrance of narrative texts in terms of causal relations, story grammar categories, and inferences. The concluding remarks of this study are parallel to the ones from the study of Trabasso, Secco, and van den Broek (1984). He also mentions the presence of semantic reference and causal implication in the network of events in a memory representation. He states that many aspects of comprehension process have not yet been fully understood.

Black & Bower (1980) and Omanson (1982) examined the implication for event memory of causal paths through the story. The problem with their approach is the use of intuitive definitions of causation, the lack of explicit and logical criteria for deciding whether or not a causal relation exists between two events, and the absence of criteria for starting and ending a causal chain (Trabasso, Secco, & van den Broek, 1984).

Mackie (1980) states that an analysis of all possible causal relation is more likely to form networks rather than linear orders. Causes are frequently disjunctions of conjunctions of sufficient conditions rather than single causes. According to Schank (1975) “pathways that do not continue and that do not lead to goal satisfaction are regarded as *dead-end chains*”.

Black & Bern (1981) made an experimental study on subjects related to cued recall. Subjects recalled a story proposition better in cued recall if the given two sentences were causally related than when they were not. Also subjects were more likely to combine two sentences into one during recall when they were causally related.

Keenan, Baillet, & Brown (1984) made an experimental study in which subjects read two-sentence paragraphs, where the first sentence specified a cause for the event in the second sentence. Each paragraph had four versions which had the same second sentences but differed in causal relatedness of the two sentences. Although there was referential coherence, reading times for second sentences increased as causal relatedness decreased. Recognition and recall memory for the causes was poorest for the most and least related causes and best for causes of intermediate levels of relatedness.

Long, Seely, & Oppy (1996) conducted a series of experiments to show the importance of backgrounded causal information on comprehension and to show that there will be a local coherence break in the absence of causal information. In the experiments, subjects read surprise-ending stories. Some participants received information about the story ending before reading while others did not. The participants receiving information were found to spend more time on reading for using their information to explain the actions and they recalled more ideas from the story than did participants with no prior knowledge. This study is an example of the studies conducted for evaluating the constructionist model of inferential processing.

In a study, Mandler, Scribner, Cole and De Forest (1980) have found virtually identical patterns of recall in American and Liberian school children (in Şen, 1990: 31). Due to this finding, Mandler et al. (1980) suggested that at least one type of story schemata may be universal (in Şen, 1990: 31).

Broek, Lorch Linderholm, & Gustafson (2001) studied on the effects of readers' goals on inference generation and memory for texts. The study involved expository texts and undergraduate university students. However, the results can relate to comprehension of narratives as well. In the study, it was found out that readers with a study goal produced more coherence building (backward/explanatory and forward/predictive inferences) while readers with an entertainment goal produced more associations and evaluations. The researchers concluded that reading goals of readers influence their standards of coherence.

Fletcher & Bloom (1988) conducted a study on undergraduate university students using simple narrative texts. The results of the study showed that the memorability

of a text segment is affected by the number of causal links it has to the rest of the text and also on whether it lies along a causal chain connecting the opening of the text to its final outcome.

In one of the studies by van den Broek (1989), it was revealed that children from different age groups rated story propositions as more important if they had more *interepisodic* relations (relations among episodes of a story) than *intraepisodic* relations (relations within an episode).

In a descriptive study by Rickheit, Schnotz, & Strohner (1985), *context* for inferences were classified (26). Five types of context were distinguished as *cultural context*, *situational context*, *medium context*, *verbal context* and *personal context*.

Cultural context entails that the cultural conventions and conventions of communication influence both knowledge and inference. If these conventions are not considered, misconceptions will arise (Dore & McDermott, 1982). *Situational context* suggests that the listener's or reader's aims and perspectives influence the way they interpret a text they read. *Medium context* covers the findings that reading or hearing texts facilitate better achievement. *Verbal context* is about particular linguistic properties of the text being effective on its comprehension. *Personal context* includes knowledge, attitudes, and emotional factors of the recipient and is said to have a significant role on comprehension.

1.10. Studies in Turkey related to text comprehension and recall of narratives

Çakır (1995) studied the effect of teaching macrorules to children on their comprehension of text. The findings of the study revealed that comprehension of texts becomes more efficient when macrorules are taught to children. The strategies of constructing macrostructure can be taught and therefore influences the comprehension, the representation and storing of the text in mind. This finding is significant implying that skills of the reader effect the new learning processes and comprehension (and therefore the representation and recall of a narrative or an expository text) will be more successful.

Keçik (1991) conducted a research on text processing of elementary school children using expository text type. The findings showed that age, as well as the organization of the text (the quality of reading materials aimed at school children) has an important factor in children's text comprehension and production. Şen (1990) also studied narrative text type and reached similar conclusions.

Şen (1990) studied the narrative text processing and production in young children, analysing sample narrative retellings of elementary school children.

Ruhi (1991) studied written text production in Turkish, using narrative retellings from university students. Ruhi claimed in this study that focusing is a valid construct in analysing the written text production process.

CHAPTER II

METHOD

2.1. Sample Group

For this study, two 5th grade classes with totally 66 students were randomly chosen from a state school, İleri İlköğretim Okulu in Mersin, Turkey. The individual differences of these students in text processing due to their social backgrounds etc. were not taken into consideration. These students read the chosen tale and wrote an immediate and a delayed recall protocol. The students who completed both immediate and delayed recall protocols were finally 57 and the ones who did not complete the writing session or who did not attend both protocols were eliminated. These 57 5th grade students who wrote both recall protocols and who completed to write the tale in these protocols were determined as the sample group of the study.

2.2. Materials

The reading material was a Turkish tale, "Akıllı Evlat" chosen from Oğuzkan (2000). To enable the research, the story was edited by the researcher. Before making changes on the chosen tale, the studies from Stein and Glenn (1979) and van den Broek (1984) were taken as models and sample story diagrams were analysed in details to search for the method for parsing the story into propositions (and also for finding story categories, for finding causal relations between propositions and for drawing the causal network diagram).

To edit the story, the main course of events was kept constant and sentences and clauses which did not contribute to the story events were omitted. The speeches were transformed into reported speech in order to make the story shorter and also to make the propositions clearer for the preparation of the causal network. Also one part of the story was omitted without effecting the pathway to the final outcome of the story (see Appendix I for the final version of the story).

2.3. Process

The copies of the final version of the story were distributed to the students of the chosen classes. The students were informed that they could read the story as many times as they wished during one class hour (45 minutes) and then they would write the story on a piece of paper in as much detail as they could remember. The students read the story and after the stories were taken away from them they were given one more class hour to write the first recall protocols. The recall protocols were collected from a total of 66 students. A few students did not complete the protocols so their papers were taken out of consideration. Students were asked to write the second recall protocols 5 days later. After counting the papers of students who completed both recall protocols, a total of 114 protocols written by 57 students remained for the evaluation. (An example of these protocols can be seen in Appendix II).

2.4. Analysis of the Data

2.4.1. Numbering and categorizing story propositions

The propositions in the final version were numbered including one predicate and its argument for each number. There were 49 propositions in the final version. Each proposition was given story categories according to the categorizations by Stein and Glenn (1979) (Appendix III).

While categorizing the events, the content of the story event and the relations between these events had to be taken into consideration. In this process, Rumelhart's definitions of syntactic story categories were referred to and the categories which Stein and Glenn (1979) used in their study were applied to the story events. Some examples of the categorization are given below:

-The first 3 propositions of the story were categorized as *Setting* statements, as these propositions provide background information for the story introducing the characters of the story (Stein & Glenn ,1979).

- | | |
|---|-----------|
| 1. Bir zamanlar bir adam varmış. (Once there was a man.) | (Setting) |
| 2. Bu adam çok zenginmiş. (He was very rich.) | (Setting) |
| 3. Zengin adamın iki tane de oğlu varmış.
(The rich man had two sons.) | (Setting) |

-4th and 5th propositions were categorized as *Internal Response* statements, containing some *thoughts* of the old father who is a protagonist in the story. These thoughts are introduced by the verbs ‘fark etmiş’ (noticed) and ‘düşünmüş’ (thought) in the story.

4. Zengin adam artık iyice yaşlandığını fark etmiş. (The old man realized that he got rather old.) (Internal Response)

5. Bu yüzden de servetini, ölmeden önce oğulları arasında nasıl paylaşacağını düşünmüş. (Therefore he thought about how he would distribute his wealth between his sons before he was dead.) (Internal Response)

-6th- 11th propositions were categorized as *Internal Plan* as they include a *mental plan* of an application, i.e. the old father *thinks of the way* he could distribute his wealth to his sons fairly. The plan is introduced through the verbs ‘karar vermiş’ (decided), ‘...ni söyleyecekmış’ (= söylemeye karar vermiş = decided to tell), ‘bırakacakmış’(= bırakmaya karar vermiş = decided to give away). These propositions were not categorized as internal response since there is something more than the thought related to a state or a situation; the plan of a process which is carried out soon in the story.

6. Oğullarını yanına çağırmaya, (*He decided to call his sons*) (Internal Plan)

7. ikisine de birer kese altın vermeye karar vermiş. (and he decided to give a case of gold to each of them.) (Internal Plan)

8. Onlara üç yıl süre verecek, (He would let them for a period of three years) (Internal Plan)

9. bu bir kese altınla, istedikleri yere gidip istediklerini yapmalarını söyleyecekmiş. (and tell them to go wherever they like and do whatever they wish using this case of gold.) (Internal Plan)
10. Oğulları geri döndüğünde hangisinin yaptığı işi daha çok beğenirse tüm servetini ona bırakacakmış. (He would give away his wealth to the son who would do the best job.) (Internal Plan)
11. İkisinin de yaptığı işi beğenirse servetini oğulları arasında eşit olarak paylaşacakmış. (He would distribute his wealth between his sons if he liked what both sons did.) (Internal Plan)

-12th and 13th propositions were categorized as *Attempts* which show the process of carrying out a mental plan, i.e. an 'attempt' to apply the 'plan'. The application is introduced through the verbs 'emretmiş' (ordered) and 'gelmiş' (came) which show physical actions.

12. Adamlarına oğullarını çağırmasını emretmiş. (He ordered his men to call his sons.) (Attempt)
13. Oğulları gelmiş. (His sons came.) (Attempt)

-The reason for *not* categorizing 13th proposition as a *Consequence* is that, the father is making an *Attempt* carrying out his own plan in 12 and 13, but no resulting event takes place after his action. However, in 14 and 15, it is stated that the father tells his sons about his plan, which means that his wish about telling his plan became true. Therefore 14 and 15 were categorized as *Consequences*.

14. Adam kararını onlara da açıklamış. (He told them about his plan.) (Consequence)
15. İkisine de birer kese altın vermiş. (He gave a case of gold to each of them.) (Consequence)

- 16th, 17th and 18th propositions are categorized as *Reaction*, which indicates that the propositions include the reaction of the sons toward their father's wish, i.e. toward the application (given in 14-15) of the plan (in 6-11).

2.4.2. Preparing syntactic, semantic diagram and causal network diagram

Both semantic and syntactic story categories depicted by Rumelhart(1975) were shown on a diagram (Figure 1). Rumelhart's story grammar shows a linear relation where each proposition seems to be related to only the preceding and the following proposition or chain of propositions. Therefore, after showing syntactic and semantic relations according to Rumelhart's story grammar, the causal network was formed according to the method given by Trabasso, Secco, and van den Broek (1984) (Figure 2). The causal and dead-end propositions of the tale and the proposition(s) that each proposition was causally related to were shown on the diagram. The schema of syntactic and semantic relations was used in order to the verify the causal network diagram.

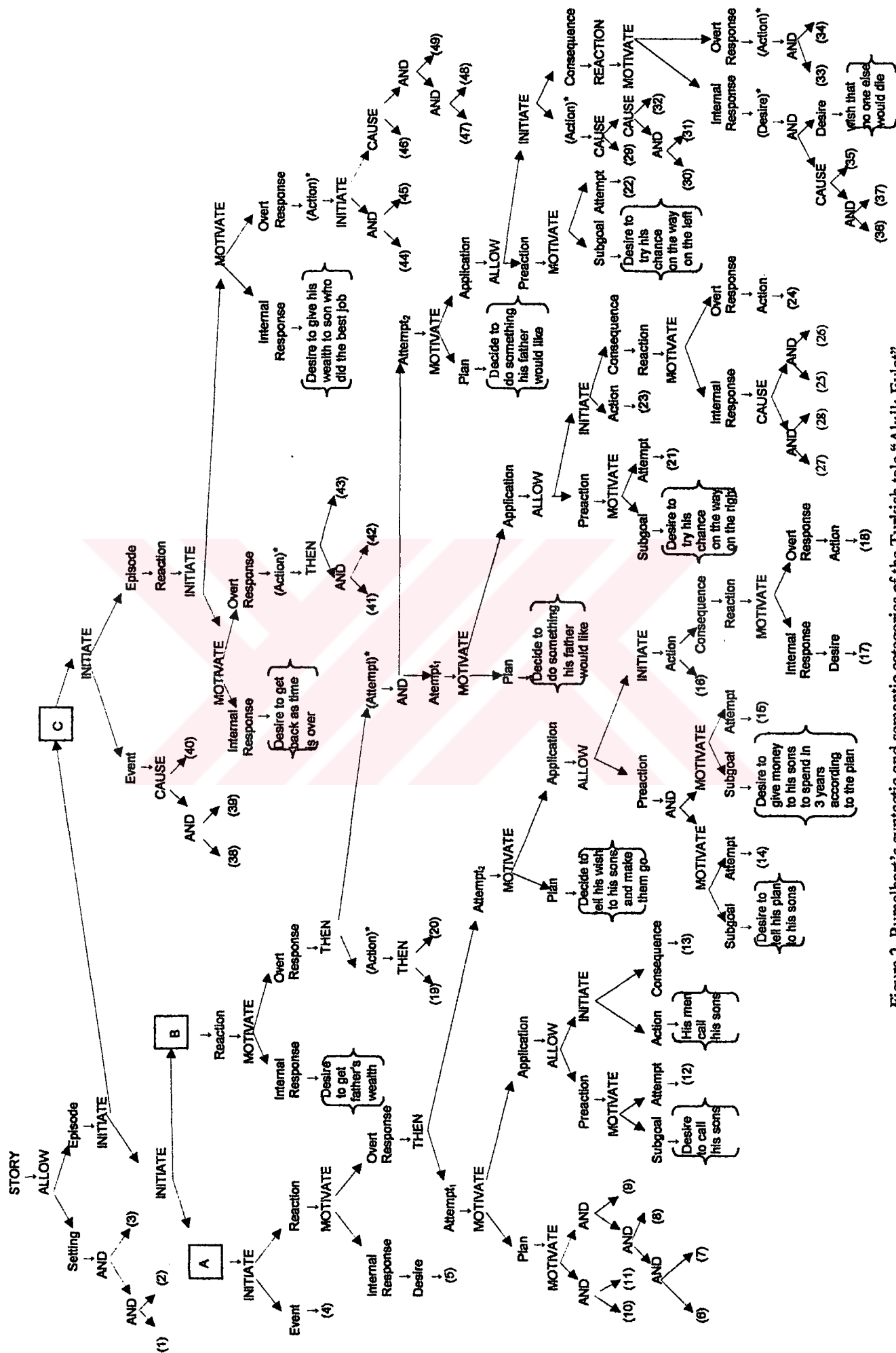


Figure 2. Rumelhart's syntactic and semantic categories of the Turkish tale "Akilî Evlat".

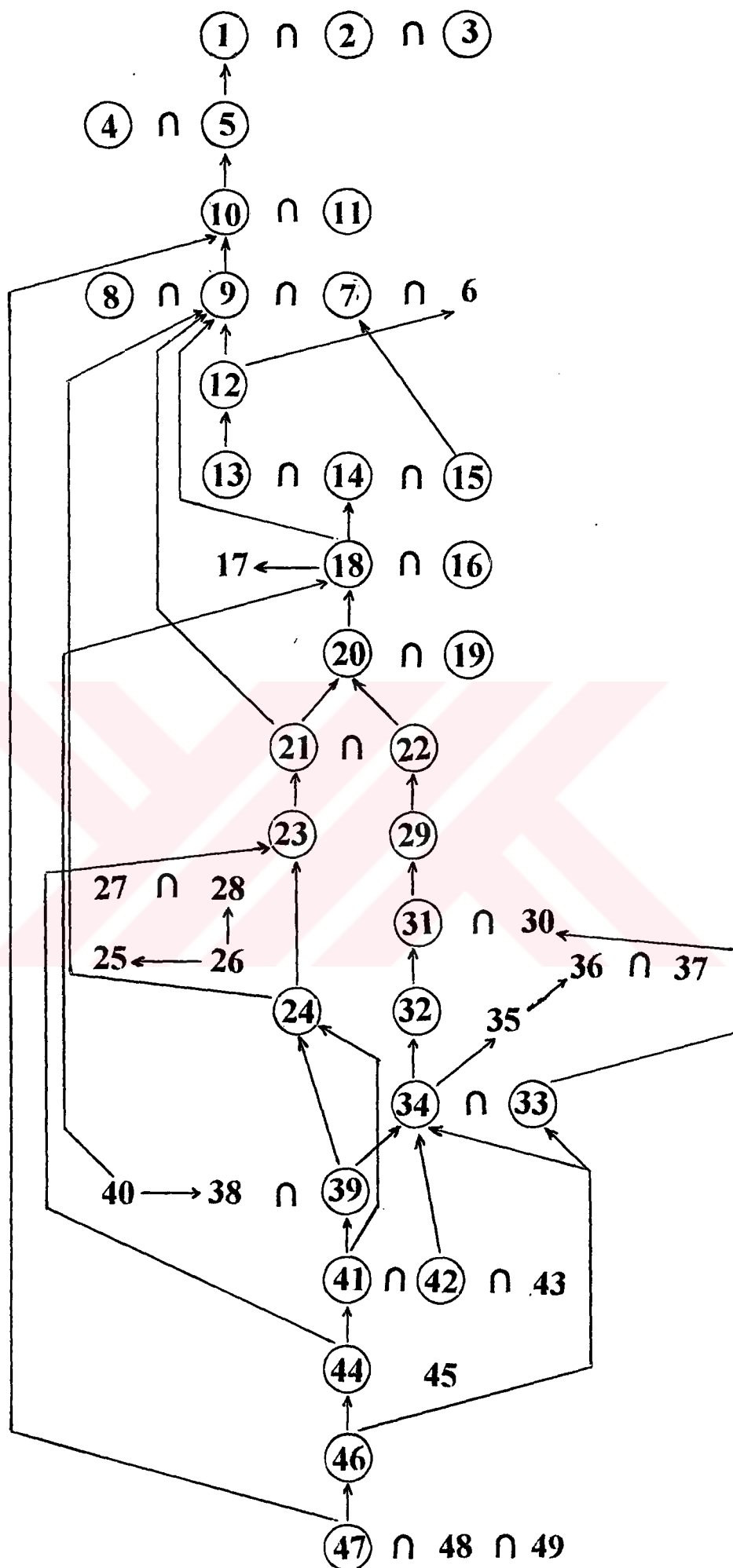


Figure 3. Causal Network Diagram of the Turkish Tale "Akıllı Evlat"

...we sketch what features of a theory of causation seem to be needed in order to have formal criteria for judging the existence of a causal relation between two events. The definitions and criteria are drawn from writings on causation by legal theorists (Hart & Honore, 1959) and by philosophers (Mackie, 1980). ... first, the event relations for each story are found on judgemental and intuitive grounds. Then they are tested using the logical criteria of necessity and sufficiency. Then all the events are represented into a causal network ... given the causal network, a causal chain of the story is found using criteria for opening, continuing and closing the chain (Trabasso, Secco, & van den Broek, 1984: 84).

As stated above, since this method consists of intuitive determination of causal relations, after applying the method given by Trabasso, Secco and van den Broek, the researcher consulted the determination of some good readers so as to eliminate the effects of the intuitive part of the method. These readers were asked to read the tale and summarize it so as to find out which parts were essential for the story and which parts were to be forgotten. Then this data was also used as an aid for the preparation of causal network diagram and determining the dead-end statements.

2.4.3. Scoring the protocols

Written protocols were read and the recalled sentences were marked on a score table in terms of full points (2 pts.), half points (1 pt.), and zero points (0 pts.). A proposition was marked 2 points if it was recalled completely. A proposition which was recalled incompletely was given 1 point. A proposition which was not written in the recall protocol at all was given 0 points. At the end of the chart, the *total* score, the score of

causal propositions, the score of *dead-end propositions*, and the scores of each *story grammar category* were calculated. ¹

A group of propositions exhibited some difference in their recall by children. Propositions 7-11 are Internal Plan statements. However, they were not always included in the protocols as Internal Plans.

7. ikisine de birer kese altın *vermeye karar vermiş*. (and he *decided to give* a case of gold to each of them.) (Internal Plan)
8. Onlara üç yıl süre *verecek*, (He *would give* them a period of three years) (Internal Plan)
9. bu bir kese altınla, istedikleri yere gidip istediklerini *yapmalarını söyleyecekmiş*. (and (*would*) *tell* them to go wherever they liked and do whatever they wished using this case of gold.) (Internal Plan)
10. Oğulları geri döndüğünde hangisinin yaptığı işi daha çok beğenirse tüm servetini ona *birakacakmış*. (He *would give away* his wealth to the son who would do the best job.) (Internal Plan)
11. İkisinin de yaptığı işi beğenirse servetini oğulları arasında eşit olarak *paylaştıracakmış*. (He *would distribute* his wealth between his sons if he liked what both sons did.) (Internal Plan)

¹ An example for score charts of recalled propositions is given in Appendix III. The number and percentage of students who recalled the propositions is given in Appendices IV, V, VI, VII.

These propositions were recalled either as Internal plans or Consequences. That is to say, some participants did not state that the father *planned* to do something (i.e. to tell his sons a plan about the distribution of his wealth), but that the father *did* it (i.e. told the plan). They included these propositions in their protocols as if they were given in the story as shown below:

7. İkisine de birer kese altın vereceğini *söylemiş*. (He *told* his sons that he would give a case of gold to each of them.) (Consequence)
8. Onlara üç yıl süre *vermiş*. (He *gave* them a period of three years.) (Consequence)
9. Bu bir kese altınla istedikleri yere gidip istediklerini yapmalarını *söylemiş*. (He *told* them *to go* wherever they liked and *do* whatever they wished) (Consequence)
10. Oğulları geri döndüğünde hangisinin yaptığı işi daha çok beğenirse tüm servetini ona bırakacağını *söylemiş*. (He *told* them that he *would give away* his wealth to the one who did the best job.) (Consequence)
11. İkisinin de yaptığı işi beğenirse servetini oğulları arasında eşit olarak *paylaşacağını belirtmiş*. (He *stated that he would distribute* his wealth between his sons equally if he liked what both sons did.) (Consequence)

In the given tale, the father's telling his sons about the plan, i.e. the Consequence, is given in one proposition:

14. Adam kararını onlara da açıklamış. (The man explained them his plan as well.) (Consequence)

Normally, the students were expected to write only one proposition (14th proposition) as a Consequence in this part of the story and take only 2 points for this consequence statement. However, if a student wrote 7th-11th propositions as Consequences, he/she got 10 points for the same Consequence and none for the Internal Plan category. This effected the score distribution among categories.

For the students who wrote the Internal Plans as Consequences, the total score of Consequence category in the recall protocol was calculated including the scores of 7th-11th propositions. Therefore, while calculating the total score of Internal Plan category for the same participant, these scores were not included. ²

If the same participant also included 14th proposition in his/her recall protocol as well as writing propositions 7-11 as Consequences (instead of Internal Plans), the score for 14th proposition was omitted from the score chart to prevent calculating the score for the same Consequence proposition twice.

Some examples for this situation is below:

Example 1:

Story proposition:

8. Onlara üç yıl süre *vereceğini* (söyleyecekti). ((He would tell that) he *would give* them a period of three years.) (Internal Plan)

² (The scores of 8th-11th and 14th propositions were given in Appendix V. In order not to ignore this kind of recall, the total scores were calculated from the table in Appendix V and added to both the participant's score chart and the table in Appendices IV, V, VI, VII.)

Recalled proposition (sample nb.11/ 1st recall):

8.Babası üç yıllık süre *vermiş*. (His father *gave* them a period of three years.)

(Consequence)

From this kind of a recall, this student was given 2 points for the 8th proposition (under the “as a consequence” column).

Example 2:

Story propositions:

8.Onlara üç yıl süre *verecek*, (He *would give* them a period of three years) (Internal Plan)

9.bu bir kese altınla istedikleri yere gidip istediklerini yapmalarını *söyleyecekmiş*. (He *would tell* them to go wherever they liked and do whatever they wished using this case of gold.) (Internal Plan)

10.Oğulları geri döndüğünde hangisinin yaptığı işi daha çok beğenirse servetini ona *verecekmiş*. (When his sons returned, he *would give* his wealth to the one who did the best job.) (Internal Plan)

Recalled proposition (sample nb.18 / 1st recall):

8.oğullarına üç yıl mühlet *vereceğini* ((*He told that*) he would give his sons a period of three years.) (Consequence)

9.bu üç yılda bu altınlarla istediği yere *gideceğini*, istediği zaman *harcayacağını* *söylemiş*. (and *he told* that they would go wherever they liked and spend it whenever they wanted.) (Consequence)

10. Hangisinin işini daha çok beğenirse servetini ona bırakacağını söylemiş.

(He told that he would give away his wealth to the son who did the best job.) (Consequence)

This student was given 2 points for each of these proposition in her recall, although these propositions were not in the same category with the given story propositions.

Correctness of a recalled proposition and the scoring was not decided by the sameness of the recalled propositions with the propositions in the story, but by the parallelism of the event or happening stated in the recalled proposition with the ones in the story. The reason is that, the purpose of this research was not to have the students write down exactly the same sentence as if they had memorized it or to test their writing ability, but to find out whether the students remembered what happened or what was told in the story.

The recalled propositions also showed differences in the manner of expression. Students used different styles to express what they remembered about the events in the story. The students

- a. wrote some propositions in their own words without changing the meaning and the way of expression; or
- b. parsed some propositions into shorter and less complex ones; or
- c. completed a missing proposition which may take place in the sequential order of story events but not stated among the given propositions; or

- d. wrote a summarizing proposition in place of a group of propositions;or
- e. made unacceptable departures from the story events, or caused loss in meaning.

These situations are illustrated below by examples from recall protocols of students.

2.4.4. Examples from recalled propositions and their evaluation

- a. **Writing propositions with no change in the meaning or the way of expression**

Example 1:

The first four statements of the given tale are as shown below:

1. Bir zamanlar bir adam varmış. (Once there was a man.)
2. Bu adam çok zenginmiş. (He was very rich.)
3. Adamın iki tane de oğlu varmış. (The man had two sons.)
4. Zengin adam artık iyice yaşlandığını fark etmiş. (The rich man realized that he got rather old.)

Statements from the recall protocol of a student (sample nb.1; 1st recall):

1. Bir adam varmış. (There was an old man.)
2. Bu adam çok zenginmiş. (This man was very rich.)
3. Bu adamın iki tane oğlu varmış. (This man had two sons.)
4. Bu adam çok yaşlandığını farketmiş. (This man realized that he got very old.)

The student wrote the proposition with almost exactly the same words. These type of recall statements were graded with 2 full points each.

Example 2:

4th proposition is given in the tale as shown below:

4.Zengin adam artık iyice yaşlandığını fark etmiş. (The old man realized that he got rather old.)

Statement from the recall protocol of a student (sample nb.4; 1st recall):

4.Adam bir gün düşünmüş demiş ki ne de olsa bir gün öleceğim. (The man thought to himself “after all, I will die one day.”)

The participant used different words to talk about the man’s recognising his getting old in the recall in Example 2. However, the event proposed tells the same event stated in the given statement from the tale. Therefore this recall proposition was graded 2 points. Recalled propositions which had similar ways of expressing story events were graded 2 full points.

Example 3:

Propositions given in the tale:

30.Orada yaşayan halktan bu suyun sürekli etrafına zarar verdiğini duymuş. (he *heard* from the people living there *that* this river *harmed* its surrounding.)

31.Birçok anne ve babanın bu suda öldüğünü, ((he learned) *that* many fathers and mothers *died* in this river)

32.bu yüzden de birçok çocuğun *yetim kaldığını öğrenmiş.* (and he learned *that many children were orphaned* because of this.)

Statements from the recall protocol of a student (sample nb.6; 1st recall):

30.Bu nehir köye *zarar veriyormuş.* (This river *harmed* the village.)

31.Anneler babalar hep bu nehirde *ölüyormuş.* (Mothers and fathers *died* in this river.)

32.birçok çocuk *yetim kalmış.* (Many children *were orphaned.*)

In Example 3, instead of telling that the situation near the river was *reported* to the boy by the villagers, the student chose to tell the events directly without mentioning the villagers. Here, the events in the given text were correctly stated, although the way of expression was different; therefore the propositions were graded 2 points each.

b. Parsing propositions into simpler ones

Example 4:

Proposition in the given tale:

29.Küçük kardeş ise azgın bir nehrin kıyısına gelmiş. ((and) the younger brother arrived at the edge of a violent river.)

Statements from the recall protocol of a student (sample nb.13; 1st recall):

29.a.Küçük oğlan ise bir kıyıya gelmiş. (And the younger brother arrived at a shore.)

b.O kıyıda azgın sular varmış. (There was a violent stream at that shore.)

In Example 4, the participant has written two sentences shorter and simpler than the one in the given text. The event told in these two sentences are the same as the ones told in proposition number 29. They both represent the same story event. This kind of recalled propositions were also graded 2 points.

c. Completing a missing proposition

Example 5:

Proposition in the given tale:

5.Bu yüzden de servetini ölmeden önce oğulları arasında nasıl paylaşacağını düşünmüş. (Therefore he thought about how he would distribute his wealth between his sons.)

Statements from the recall protocol of a student (sample nb.2/ 1st recall):

5.Adam servetini hangi oğluna vereceğini düşünüyormuş. (The man thought about which son he would give away his wealth to.)

5.a. *Aklına birşeyler gelmiş. (Something came to his mind.)*

In Example5, the participant has completed the missing proposition that is in the logical sequencing of story events but not verbally given in the story. This kind of a proposition received no points since it did not take place in the score table, although it is correct.

d. Writing a summarizing proposition in place of a group of propositions

Example 6:

Proposition in the given tale:

19.İki kardeş birlikte giderken (while going together)

20.bir yol ayrımına gelmişler. (they came to a crosscut.)

21.Büyük kardeş sağdaki, (The elder brother (went) to the (road)on the right)

22.küçük kardeş soldaki yoldan gitmiş. (the younger brother went to the road on the left.)

Statements from the recall protocol of a student (participant nb.28/ 2nd recall):

19.

20.

21.

22.

Bir süre beraber gittikten sonra
yolları ayrılmış.

(After travelling together for some time, their ways seperated.)

In Example 6, the student summarised the four propositions with a superordinate proposition without any loss of meaning and any unacceptable departures from the story events. All four propositions on the score chart of this participant received 2 full points.

e. Unacceptable departures from the story events, or examples of meaning loss

Example 7:

Proposition in the given tale:

21. Büyük kardeş sağdaki, (The elder brother (went) to the (road) on the right)

22. küçük kardeş soldaki yoldan gitmiş. (the younger brother went to the road on the left.)

Statements from the recall protocol of a student (sample nb.20/ 2nd recall):

21. } İki oğlan da soldaki yoldan gitmiş.
22. } (Both boys went to the way on the left.)

The student did not reveal the situation that the two boys in the story went in different directions to search for their chance in different places. If the situation had not been as in propositions 21 and 22, the boys would not have met different occasions. The *necessity and sufficiency* condition was destroyed by the student causing an important loss of meaning. Therefore 21st and 22nd propositions from the recall protocol of participant number 20 were scored 0(zero) points.

Example 8:

Proposition in the given tale:

45. İhtiyar baba anlatılanları dinledikten sonra (The old father, after listening to what was told,)

46. en çok küçük oğlunun yaptığı işi beğendiğini belirtmiş. (stated that he liked what his younger son did.)

47.Servetini küçük oğluna bırakacağını, (He told that he would leave his wealth to his younger son)

48.ve yetim kalan çocuklara da küçük oğlunun babalık yapacağını anlatmış.
(and explained that his younger son would be the father of the orphaned children.)

Statements from the recall protocol of a student (sample nb.5/ 1st recall):

45. (no recall)

46.Babası ençok küçük oğlunun yaptığı işi beğenmiş. (Their father liked the job his younger son did best)

47.Servetini ona vererek ((He decided) to give his wealth to him)

48.erkek çocuklara da babalık etmeye karar vermişti. (and he decided to be the father of the orphaned children.)

The student wrote no recalled proposition for proposition number 45 and received zero points for this proposition. 46th and 47th propositions were recalled correctly, though without using the words “belirtmiş” (stated), “anlatmış” (explained) which indicate the presence of reported speech. These propositions were graded 2 points. The story event in 48th proposition was not recalled correctly by the student. The old father was told to be the father of the children by the participant; but according to the story it is the younger brother who would be the father of these children. Therefore 48th recall proposition received zero points in the scoring table.

Example 9:

Proposition in the given tale:

- 36.Böylece hem bu çocuklara iyilik yapmış, (Thus(he thought that they would do these children a favour)
- 37.hem de memlekete faydalı insanlar kazandırmış olacaklarını düşünüyormuş.
(and he thought that they would bring up useful people for the country.)

Statements from the recall protocol of a student (sample nb.7/ 1st recall):

- 36.Bunları yapınca hem memlekete faydalı olmuş (Doing this, he was useful for the country)
- 37.hem de oraya yeni insanlar gelmiş. (and also new people came there.)

The first proposition seems to be misunderstood by the student and the other is unrelated to the given story event. These propositions do not show correspondence to the ones in the story. Therefore they were given zero points.

2.4.5. Statistical Analysis of Recall Scores

To make the statistical analysis of numerical data gathered from this study, StatView 4.02 (Abacus Concepts, Inc., 1992-93) statistical package program was used.

To answer the first research question of this research, t-test for dependent groups was used as the data consisted of repeated measures. The initial total scores were used since the number of propositions (of which the recall scores were to be compared) were equal.

To answer the second research question, the total scores of causal statement recall scores and dead-end statement recall scores were transformed into T-standard scores where the arithmetic Mean is 50 and standard deviation is 10, because the number of propositions in each group were not equal (and therefore the recall scores could not be compared).

To answer the third research question, after transforming category scores into T-standard scores where the arithmetic Mean is 50 and standard deviation is 10, Blocked One-way ANOVA was used for comparing scores of story grammar categories.

To test the recall of participants from different sexes, independent t-test was used.

For comparing the number of students who recalled and who did not recall each story statement, Chi square was used since the data consisted of categorical data.

CHAPTER III

FINDINGS AND DISCUSSION

To answer the first research question of this research, after the calculation of total scores from all participants for each recall protocols, t-test for dependent groups was done since the data consisted of repeated measures. The results are shown in Table 3.

The total scores of causal and dead-end propositions were transformed into T-scores as the propositions in each group varied in number and could not be compared this way.

In Table 3, the significant differences between the total scores of immediate and delayed recall, and between the dead-end statement scores of immediate and delayed recall reveal that the story propositions were recalled better in immediate recall than in delayed recall.

According to the results in Table 3, the recall rate of propositions in the causal chain of the tale is almost equal in immediate and delayed recall. However, the recall scores of dead-end propositions decrease in the delayed recall in comparison to immediate recall. This indicates that the recall rate of causal propositions is higher than that of dead-end propositions, therefore are recalled better than dead-end propositions. This is consistent with the findings of Trabasso, Secco, & van den Broek (1984). Causal connections was found to be an important factor in recall of narratives.

TABLE 3. Results of t-test for Dependent Groups, for Total Scores of Immediate and Delayed Recall of Dead-end and Causal Propositions

	\bar{x}	S	t	p
Immediate, causal	50.684	6.373	1.333	0.1879
Delayed, causal	49.842	7.466		
Immediate dead-end	12.281	5.957	3.168	0.0025*
Delayed dead-end	10.842	5.554		
Immediate, Total	63.000	10.447	3.504	0.0009*
Delayed, Total	60.684	11.767		

TABLE 4. Results of t-test for Dependent Groups, for Total Scores of Story Grammar Categories in Immediate and Delayed Recall of Dead-end and Causal Propositions

	\bar{x}	S	t	p
Immediate, Setting	5.719	0.796	1.272	0.2870
Delayed, Setting	5.579	0.823		
Immediate, Int. Response	6.561	2.345	-0.532	0.5969
Delayed, Int. Response	6.684	2.156		
Immediate, Int. Plan	9.193	3.875	3.133	0.0028*
Delayed, Int. Plan	8.000	4.027		
Immediate, Attempt	6.491	1.525	-0.148	0.8830
Delayed, Attempt	6.526	1.441		
Immediate, Consequence	17.298	2.777	1.805	0.0765
Delayed, Consequence	16.649	3.085		
Immediate, Reaction	11.474	3.279	0.467	0.6422
Delayed, Reaction	11.298	2.994		
Immediate, Initiating Event	5.404	2.103	2.167	0.0345*
Delayed, Initiating Event	4.877	2.036		

Table 4 shows the immediate and delayed recall score for story grammar categories (see Appendix I for categories). Internal Plan and Initiating Event are the categories which have a lower score in the delayed recall than in the immediate recall. Other categories do not show a significant difference between immediate and delayed recall scores. The decrease in the recall rate of Internal Plan category confirms the findings of Stein and

Glenn (1979) about that dead-end events are usually Internal Plans and that the recall of these propositions decrease in delayed recall.

To answer the second research question of the research, the total scores of all participants related to causal statements and dead-end statements were added. The sums of causal statement recall scores and dead-end statement recall scores were transformed into T-standard scores as the number of causal statements in the tale were not equal to the number of dead-end propositions, and then another t-test for dependent groups was done. The results are shown in Table 5 below.

TABLE 5: Results of t-test for Dependent Groups, Comparing Causal Statement Recall Scores and Dead-End Statement Recall Scores both for Immediate and Delayed Recall

	\bar{x}	S	t	p
Immediate, causal, T	50.000	10.000	-0.0010000	>.05
Immediate, dead-end, T	49.999	10.001		
Delayed, causal, T	50.000	10.000	0.0000042	>.05
Delayed, dead-end, T	50.000	10.000		

Table 5 shows that there is no significant difference between causal statement recall scores and dead-end recall scores in both immediate recall and delayed recall. This is contrary to the expectation raised by Hypothesis 2. This finding can be explained by referring to the study by Nezworski, Stein, & Trabasso (1982). The researchers state that not only the category of the proposition but also the content of it effects its recall rate. The study does not include the variable of dead-end statements, but the content of the

propositions, in general, were changed during reconstruction into clauses which are most causally connected to the central goal of the protagonists. Also, the cultural context (Richeit, Schnotz, & Strohner, 1985), the cultural conventions seem to be an important and affective factor for comprehension and recall. The structure of a Turkish tale is well-known to almost all Turkish readers. Besides, the topic of the tale, a father and children with youngest one as the cleverest is a well-known topic. The influence of what reader knows influences comprehension of new information. The situation can be connected to this finding also.

To answer the third research question of the study, after transforming total scores of each category into T-standard scores, Blocked One-way ANOVA was done for total recall scores of story grammar categories. Table 6 shows the ANOVA results for immediate recall. Table 5 shows the ANOVA results for delayed recall.

TABLE 6 : Results of the ANOVA test for Dependent Groups, for Recall of Story Grammar Categories in Immediate Recall

SV	SS	df	MS	F	p
Subjects	13164.251	56	235.076	0.0000028	0.999
Categories (immediate recall)	0.001	6	0.0002233		
Error	26045.147	336	77.515		

**TABLE 7 : Results of the ANOVA test for Dependent Groups for Recall of Story
Grammar Categories in Delayed Recall**

SV	SS	df	MS	F	p
Subjects	17030.722	56	304.120	0.00000068	0.999
Categories (delayed recall)	0.00027	6	0.000045		
Error	22159.523	336	65.951		

Table 6 and Table 7 indicate that none of the categories show a significant difference compared to others in both immediate and delayed recall. The same discussion about the findings relevant to the second hypothesis can be continued here. The factors of cultural context for inferences and content of story propositions were probably effective on the results although they were not intended to be tested in this study, since the reconstruction of the story entailed the same kind of sentence construction and same kind of reduction of sentence elements.

Considering that propositions 7-11 were written as if they were Consequences (i.e. actions which *happened* in the story) instead of Internal Plans (i.e. *plans* of actions), the total scores of these propositions were recalculated and added to the total scores of Consequence category. Also, the scoring of proposition number 14 changed due to the change of evaluation for propositions 7-11. The scores of propositions calculated both as Internal Plans and Consequences are shown in Table 7 and 8.

**TABLE 8 : Total Scores of Propositions 7-11 as Internal Plans and as Consequences in
Immediate Recall**

1 st recall	As 'Int. Plan'			As 'Consequence'		Final Total		
	Prop.	2pts.	1pt.	Opts.	2pts.	1pt.	2pts.	1pt.
7	41	0	15	1	0	44	0	15
8	30	0	14	13	0	43	0	14
9	16	5	27	4	5	20	10	27
10	31	0	22	4	0	35	0	22
11	20	0	36	1	0	21	0	36
14	50	2	5			44	1	12

**TABLE 9 : Total Scores of Propositions 7-11 as Internal Plans and as Consequences in
Delayed Recall**

2 nd recall	As 'Int. Plan'			As 'Consequence'		Final Total		
	Prop.	2pts.	1pt.	Opts.	2pts.	1pt.	2pts.	1pt.
7	40	0	15	2	0	42	0	15
8	29	0	17	11	0	40	0	17
9	15	7	26	4	5	19	12	26
10	31	0	20	5	1	36	1	20
11	14	0	43	0	0	14	0	43
14	54	0	3			46	1	10

After this calculation, Blocked One-way ANOVA was applied again. The results, as shown in Table 10 and Table 11 show that there was no significant difference among the recall scores of different story grammar categories (both in immediate and delayed recall).

TABLE 10 : Results of the Second ANOVA Test for Dependent Groups, for Recall of Story Grammar Categories in Immediate Recall

SV	SS	df	MS	F	p
Subjects	12379.515	56	221.063	0.00003353	>.05
Categories (delayed recall)	0.002	6	0.0002677		
Error	26829.265	336	79.849		

TABLE 11 : Results of the Second ANOVA Test for Dependent Groups, for Recall of Story Grammar Categories in Delayed Recall

SV	SS	df	MS	F	p
Subjects	16422.172	56	293.253	0.000008148	>.05
Categories (delayed recall)	0.0004889	6	0.000045		
Error	22768.598	336	67.764		

Following this, a descriptive analysis was made using the T-standard scores of categories to show the categories ordered from the highest recalled category to the lowest recalled, although there was no significant difference among the recall scores. Table 12 and 13 show the descriptive analysis results.

TABLE 12 : Descriptive Analysis: Immediate Recall Story Grammar Categories: Arithmetic Means from Highest Recalled Category to Lowest Recalled

	\bar{x}	S
Im. S T	50.004	10.004
Im. IR T	50.002	10.001
Im. A T	50.001	10.000
Im. IP T	50.001	10.000
Im. R T	49.999	10.001
Im. IE T	49.998	10.001
Im. C T	49.998	10.001

TABLE 13 : Descriptive Analysis: Delayed Recall Story Grammar Categories; Arithmetic Means from Highest Recalled Category to Lowest Recalled

	\bar{x}	S
Del. A T	50.002	9.997
Del. IR T	50.001	10.002
Del. R T	50.001	9.999
Del. IE T	50.001	10.000
Del. IP T	50.000	9.999
Del. S T	49.999	9.995
Del. C T	49.999	9.999

Tables 12 and 13 were intended to show the recall ratings of categories although related findings indicate no significant difference among scores. The sequencing is not significant and meaningful in terms of being in accordance with related studies from Stein and Glenn (1979).

The results about categories seem to be related to the findings of Nezworski, Stein, & Trabasso (1982) reporting that the content of each story proposition is a factor effecting the recall rate of that proposition. That is to say, when the event in the proposition is related to the superordinate goals of the protagonist, the proposition is recalled better than the propositions related to subordinate goals. Therefore, if story propositions contain events related to superordinate goals, they are recalled at equal rates, independent of their story grammar categories, contrary to the findings of Stien and Glenn (1979). The given tale was not prepared to test such a hypothesis but most of the content of story propositions but it is clear that the story events are related to the superordinate goals of the protagonists, i.e. the sons' wish to get their father's wealth.

To check the results of the first, second and third hypotheses using another demographic data, the scores of male and female participants were compared.

First, t-test for independent groups was done for immediate and delayed recall scores of female and male participants. Table 14 shows the results.

Table 14 : Results of t-test for Independent Groups, for the Total Scores of Male and Female Participants
(0→Female, 1→Male)

	sex	N	\bar{x}	S	t	p
Immediate, causal	0	26	56.731	6.428	2.927	0.0050*
	1	31	50.839	8.403		
Delayed, causal	0	26	55.385	7.627	2.683	0.0096*
	1	31	49.387	9.003		
Immediate, dead-end	0	26	10.385	3.453	1.623	0.1104
	1	31	8.710	4.205		
Delayed, dead-end	0	26	9.846	2.989	2.302	0.0252*
	1	31	7.484	4.456		
Immediate, Total	0	26	67.115	9.004	2.898	0.0054*
	1	31	59.548	10.449		
Delayed, Total	0	26	65.231	9.395	2.834	0.0064*
	1	31	56.871	12.328		

Table 14 shows that there are significant differences between female and male participants' recall scores except for immediate recall dead-end scores. Therefore, taking the probability into consideration that the difference in the recall of male and female participants could have effected the results, and assuming that there could be a significant difference between the causal and dead-end recall scores of female participants, another paired t-test was done for the recall scores (Tables 14 and 15). A t-test for

dependent groups was done for each of the immediate and delayed recall scores of both male and female participants. Tables 15 and 16 show the results for the t-test.

TABLE 15 : Results of t-test for Dependent Groups for the Immediate and Delayed Recall Scores of Female Participants

	\bar{x}	S	t	p
Immediate, causal, T	52.588	8.416	-0.074	0.9416
Immediate, dead-end, T	52.450	10.582		
Delayed, causal, T	52.593	8.833	0.275	0.7853
Delayed, dead-end, T	53.019	9.063		
Immediate, total	67.113	9.004	2.219	0.0358
Delayed, total	65.231	9.395		

TABLE 16 : Results of t-test for Dependent Groups for the Immediate and Delayed Recall Scores of Male Participants

	\bar{x}	S	t	p
Immediate, causal, T	47.671	10.851	0.057	0.9548
Immediate, dead-end, T	47.794	9.061		
Delayed, causal, T	47.667	10.549	-0.226	0.8230
Delayed, dead-end, T	47.284	10.167		
Immediate, total	59.548	10.449	2.697	0.0114*
Delayed, total	56.871	12.328		

In Tables 15 and 16, the only significant difference is the difference between immediate total recall scores and delayed total recall scores of male participants, which is consistent with the findings related to research question 1.

Next, Blocked One-way ANOVA was applied for total recall scores of story grammar categories of female and male participants. The results are shown in Tables 17, 18, 19, and 20.

TABLE 17 : Results of the ANOVA test for Dependent Groups for Recall of Story Grammar Categories in Immediate Recall of Female Participants

SV	SS	df	MS	F	p
Subjects	16422.172	56	210.483	0.185	0.9808
Categories (delayed recall)	0.0004889	6	0.000045		
Error	22768.598	174	67.764		

TABLE 18 : Results of the ANOVA test for Dependent Groups for Recall of Story Grammar Categories in Delayed Recall of Female Participants

SV	SS	df	MS	F	p
Subjects	16422.172	56	293.253	0.000008148	>.05
Categories (delayed recall)	0.0004889	6	0.000045		
Error	22768.598	336	67.764		

TABLE 19 : Results of the ANOVA test for Dependent Groups for Recall of Story Grammar Categories in Immediate Recall of Male Participants

SV	SS	df	MS	F	p
Subjects	16422.172	56	293.253	0.000008148	>.05
Categories (delayed recall)	0.0004889	6	0.000045		
Error	22768.598	336	67.764		

TABLE 20 : Results of the ANOVA test for Dependent Groups for Recall of Story Grammar Categories in Delayed Recall of Male Participants

SV	SS	df	MS	F	p
Subjects	16422.172	56	293.253	0.000008148	>.05
Categories (delayed recall)	0.0004889	6	0.000045		
Error	22768.598	336	67.764		

Tables 17-20 showed that there was still no significant difference among the recall scores related to different story grammar categories, although some differences were observed in recall scores of male and female participants.

Following this, Chi square was applied for categorical data, to see if there is a significant difference between the number of students who recalled each proposition and the total number of students who recalled incompletely or did not recall at all. The results (as shown in Table 21) revealed that 8 dead-end propositions out of 17, which are propositions numbered 6, 17, 30, 35, 36, 37, 45, and 49 showed a significant difference in recall compared to causal propositions and other dead-end propositions (19, 25, 26, 27, 28, 38, 40, 43, and 48). The frequencies for propositions numbered 6, 17, 30, 35, 36, 37, 45, and 49, the number of students who recalled the proposition were greater than the number of students who did not, implying that these dead end propositions were remembered less than the remaining propositions during writing recall protocols.

TABLE 21 : Chi-Square Results for Recall Frequencies of Propositions

Prop.nb.	Category	# Stds recalling	# Stds not recalling	χ^2	p
1	Setting	57	0	57.00	<0.005*
2	Setting	56	1	53.07	<0.005*
3	Setting	50	7	32.44	<0.005*
4	Internal Response	51	6	35.53	<0.005*
5	Internal Response	47	10	24.02	<0.005*
6	Internal Plan	10	47	24.02	<0.005*
7	Internal Plan	42	15	12.79	<0.005*
8	Internal Plan	43	14	14.75	<0.005*
9	Internal Plan	20	37	5.7	<0.050*
10	Internal Plan	35	22	2.96	>0.050
11	Internal Plan	21	36	3.95	<0.050*
12	Attempt	51	6	35.53	<0.005*
13	Attempt	26	31	0.44	>0.050
14	Consequence	50	7	32.44	<0.005*
15	Consequence	31	26	0.44	>0.050
16	Reaction	37	20	5.07	<0.050*
17	Reaction	19	38	6.33	<0.050*
18	Reaction	43	14	14.75	<0.005*
19	Initiating Event	23	34	2.12	>0.050
20	Initiating Event	23	34	2.12	>0.050
21	Attempt	56	1	53.07	<0.005*
22	Attempt	55	2	49.28	<0.005*
23	Consequence	52	5	38.75	<0.005*
24	Consequence	54	3	45.63	<0.005*
25	Internal Response	28	29	0.02	>0.05
26	Internal Plan	30	27	0.16	>0.05
27	Internal Plan	27	30	0.16	>0.05
28	Internal Plan	26	31	0.44	>0.05
29	Consequence	57	0	57.00	<0.005*
30	Consequence	21	36	3.95	<0.05*
31	Consequence	53	4	42.12	<0.005*
32	Consequence	45	12	19.10	<0.005*
33	Reaction	48	9	26.68	<0.005*
34	Reaction	42	15	12.79	<0.005*
35	Internal Response	15	42	12.79	<0.005*
36	Internal Response	4	53	42.12	<0.005*
37	Internal Response	2	55	49.28	<0.005*
38	Initiating Event	29	28	0.02	>0.05
39	Initiating Event	46	11	21.49	<0.005*
40	Internal Response	32	25	0.43	>0.05
41	Consequence	34	23	2.12	>0.05
42	Consequence	33	24	1.42	>0.05
43	Reaction	25	32	0.43	>0.05
44	Reaction	42	15	12.79	<0.005*
45	Initiating Event	4	53	42.12	<0.005*
46	Consequence	48	9	26.68	<0.005*
47	Reaction	44	13	16.86	<0.005*
48	Reaction	23	34	2.12	>0.05
49	Reaction	19	38	6.33	<0.05*

To answer the fourth research question of the present research, summary protocols were taken from 10 adult readers chosen randomly among teachers of English in Mersin University-Department of Foreign Languages. The propositions commonly included in their summaries were found out and the total immediate recall score of each proposition included in summary protocols were written next to it. Then the total scores of all propositions in the story were sequenced from the highest, to the lowest (see Appendix IV, VI, and VII for total recall rates of propositions). The number of propositions included in the summaries and their total recall scores from all students are given in Table 22.

**TABLE 22: Propositions Included in Summaries and Their Total Recall Scores
by All Students**

Prop.nb.	Tot.		Prop.nb.	Tot.
1	114		25	110
2	112		26	64
3	100		29	114
4	103		31	106
5	95		32	92
7	82		33	96
10	70		34	89
12	103		39	92
18	86		41	84
20	102		42	83
21	112		44	85
22	110		46	96
23	108		47	89

The propositions included in the summaries were found out among the highest rated propositions in immediate recall of students. This indicates that the propositions which were rated important among story propositions can well be included in summaries as well as getting the highest scores in recall protocols. This is most probably

because of their being rated important by both group of readers -students and teachers-, due to their relation to other story propositions and being essential in telling the story. The number of causal connections of propositions are not controlled by the researcher before the procedure, since the main research question was about recall of causal propositions compared to dead-end propositions. However, the causal connection density of propositions brings about their being essential for telling the story as properly as possible, without missing any important events as well as avoiding unnecessary details (longer than a synopsis of the tale, but shorter than a recall protocol of the whole tale).

The scores listed in Table 22 show that the summary protocols from adults generally included 26 propositions out of 49 covering the ones with highest recall scores. (or at least above the average of 46 points, which is the half of the highest score any participant would get from this rating). This shows that the majority of subjects rated these 26 propositions important in telling the main course of events in the story. That is to say, these propositions have a greater number of causal connections with other propositions than the remaining propositions in the tale. Thus, the answer to the fourth research question of the present research was answered: the more causal connections a proposition has with other propositions, the more it is to be recalled by readers.

CHAPTER IV

CONCLUSION

The present research aimed at analysing the effect of causal relations in a narrative text on comprehension and recall of a narrative by 5th grade students of a state elementary school in Turkey.

The research by Trabasso, Secco, & van den Broek (1984) was taken as a sample for the study and the researcher tried to find out whether causal relations in a chosen narrative affected the students' recall. It had been found out in previous studies that recall rates related to a narrative text decreased in later recall processes. The purpose in this research was to see if the same findings would be valid for the application of a similar reading-recalling process of elementary students in Turkey. Another point to be answered was whether the recall rates of causal story propositions and dead-end propositions in the given Turkish tale showed difference in a writing session immediately after reading it and in another session 5 days after reading it. The results of the sample study by Trabasso, Secco, & van den Broek revealed that story grammar categories were not recalled at the same level by elementary school children. On the other hand, the causal chain membership of a story proposition, that is to say, the number of causes leading a story event given in a proposition and the number of consequences arising from it was found to be a factor effecting the importance rating of the proposition and therefore its recall.

According to the statistical findings related to the first research question, students in the sampling group were more successful in recalling the tale in the immediate

recall than in the delayed recall. This is consistent with the expectation that, as time passes, information is subject to being forgotten. Causal story statements were recalled equally in immediate and delayed recall while dead-end statements were recalled less in delayed recall than in immediate recall. The loss in the recall of dead-end statements signal that the decrease in the total recall scores in delayed recall is due to the decrease in the recall rate of dead-end propositions. In sum, in the given narrative text, causal statements maintained their recall rate in later recall sessions while dead-end statements were recalled less as time passed.

The findings related to the second research question of this study did not contain any significant differences between the recall rates of causal and dead-end story statements in immediate and delayed recall, which is contrary to the findings of Stein and Glenn (1979). Also, the findings related to the third research question related to the recall rates of story grammar categories revealed that no difference in recall rates was observed among categories of the narrative text.

In the study by Stein and Glenn (1979) as well as many other studies referred to in Chapter 1, causal statements were recalled better than dead-end statements in recall (both immediate and delayed) after reading. In addition, the categories showed difference in their recall rates. Settings, initiating events and consequences were retrieved most frequently while internal responses and reactions were least frequently recalled categories. However, in the present study, findings were contrary to these findings but similar to those of Nezworski, Stein, & Trabasso (1982). The content in each proposition which was recalled successfully by a majority of students consisted of events which were clearly related to the major goal of protagonists; i.e. the sons' wish to get all the wealth.

The studies on the effects of inference and causality on comprehension and recall proved up to now that a proposition can be recalled by the comprehender better if it is related to a major goal of the protagonists in narratives, and also if it is found to be important by the reader for connecting the opening of a text to its final outcome. The present results agree with the findings of these studies. In the reconstruction of the story, the number of propositions was decreased by omitting the sentences or clauses containing irrelevant information except the ones which were left in the tale as dead-end propositions. Therefore, the content of the propositions were reduced in number containing the ones related to the main course of events and the actions which covered protagonists' actions to maintain their goals.

The study did not initially focus on the effects of contents of propositions independent from their category. However, although it was not a controlled condition, content of propositions seem to have affected their recall rate.

A conclusion which is to be drawn out of this result is that the content, as an important factor in comprehension process, can also be controlled for the reading comprehension classes of elementary schools to provide a more efficient comprehension. In addition, further studies can be done in Turkey related to the influence of proposition content on the comprehension and recall of the same proposition as the subject is not studied comprehensively.

There are other factors similarly affecting the variation in findings from expected results, such as the cultural context. As Rickheit, Schnotz, & Strohner (1985) pointed out, cultural conventions and conventions of communication play an important role

in the comprehension process. The situation is similar to the fact that an event is interpreted in different ways by comprehenders from different cultures. The 43rd proposition (İkisi de babalarının elini öpmüş. / They both kissed their father's hand.) which was considered as a dead-end initially, was recalled by a number of students -although not by the majority- since the story event was a cultural convention known by all Turkish people and children. Similarly, the structure and the topic of the tale is a cultural convention. The structure reflects that of a classical Turkish tale and is known to the students. Also, a father having two or three sons and the youngest son being the cleverest at the end of the tale is a common topic for Turkish tales. This condition seems to have affected the comprehension and recall processes.

A question may arise related to whether students should be provided with reading materials including narratives from the native culture or foreign cultures for a better comprehension process. The objective of a reading process can be thought of as both improving reading comprehension skills and acquiring new information. Therefore, it would not probably be the most suitable method to gather narrative texts of which the textual pattern and the topic belong to the native culture. Rather, children might be provided with reading materials chosen from various cultures for the purpose of exercising the inference processes. On the other hand, cultural elements which would be impossible to grasp for someone foreign to that culture should be introduced carefully, such that the reading comprehension process is not prevented due to lack of background knowledge. These points may be the subject of further studies.

Another item which can be under discussion at this point is the intention of the reader. The students which were in the sampling group were not told to read the tale for

entertainment, but that they would have to write down about it soon. Therefore, they had to read the tale by making inferences and trying to keep everything in mind. This brings about the argument that the intention of the reader effects the comprehension and recall of it (van den Broek, Lorch, Linderholm, & Gustafson, 2001).

The purpose in a reading process may be merely entertainment. When reading is done for learning, the recall rate becomes important, and so do the effects contributing to the result. The readers reading a narrative for entertainment would spend less time on it, not trying as hard as the readers reading the same story for the purpose of learning. The number of inferences that readers are involved in tend to be higher in the situation in which readers read to learn than the number of inferences in the case of reading for entertainment. If the students in the sampling group of the present research had been informed to read the text for entertainment (but not about the writing session), the results would probably have changed.

In general, students have to read plenty of texts for the purpose of learning. The texts which are read are to be carefully chosen or prepared, since (especially in elementary schools) the easiness of making inferences, and connecting the parts of a text to construct a unit will improve efficiency of reading and therefore learning.

Sometimes the aim of reading comprehension classes makes a trade-off such that the aim is not learning or acquiring any more, but memorizing, due to the instructions given during the reading comprehension classes. Students can be instructed in such a way that they will not feel the obligation to hold everything in mind until they are asked to retrieve what they have read in a later time. Rather, the reading process is to be a guided

study in which students read narratives in order to learn how to read them. In many cases, it can be seen that the aim of a native language class becomes answering the comprehension questions in textbooks prepared for reading comprehension.

Thinking in another way, the effect of intensions of reading can be studied in Turkish language classrooms to test the effects of instructing students for the reading comprehension classes, or the intention of students.

A similar study might be done with a larger group of students, using a story having controlled content of propositions. Also the students might take a reading comprehension test before the study, to eliminate the individual differences in reading comprehension. If similar studies are conducted, they may shed light more comprehensively upon the effect of causal connections, proposition content, cultural context, or intentions of readers on the comprehension and recall of narratives. The present findings can be considered important as the findings of a study which has not been done so far in Turkey. Relations between the current findings and the effect of the quality of reading materials prepared for students can be searched for and it may be concluded from present findings that if narratives (and expository texts as well) which are intended to be reading materials for textbooks, can be prepared taking causal relations, content of proposition, and cultural context into consideration, reading comprehension classes might be more efficient.

ÖZET

“Metindeki Neden-Sonuç İlişkisi Zincirinin Bağdaşıklık ve Hatırlamaya Etkisi: Öğrencilerin Öykü İşleme Süreçleri Üzerine Bir Araştırma” başlıklı bu çalışmada, Trabasso, Secco ve van den Broek (1984) tarafından yapılmış çalışma ve Rumelhart(1975)’in öykü grameri kategorileri esas alınarak, seçilen bir Türk masalındaki neden-sonuç ilişki ağının ve öykü grameri kategorilerinin, bir Türk devlet ilkokulunun 5. sınıf öğrencilerinin metni anımsamalarına nasıl etki ettiği araştırılmıştır.

Bu bağlamda yanıtlanacak sorular şunlardır: (1) Öğrencilerin ilk ve ikinci anımsama puanları arasında anlamlı bir fark var mıdır? (2) Öyküde nedensel önermeler ve ‘çıkılmaz’ önermelerin (dead-end proposition) anımsama puanları arasında anlamlı bir fark var mıdır? (3) Öykü içinde farklı öykü grameri kategorilerinin anımsama düzeyleri arasında anlamlı bir fark var mıdır? (4) Önermelerin öykü içindeki diğer önermelerle arasındaki nedensel bağlantı sayısı ile anımsama puanları arasında bir ilişki var mıdır?

Araştırmanın 1. bölümünde çalışmanın temelindeki kuramsal altyapı tanıtılmış, bu alandaki çalışmalara değinilmiştir.

2. bölümde araştırma yöntemi anlatılmıştır. Araştırma için kullanılacak olan masal, araştırmanın yapılmasına olanak tanıyacak biçimde araştırmacı tarafından yeniden yapılandırılmıştır. Örneklem grubu olarak seçilen ve bir Türk devlet ilkokulunun 5. sınıfında öğrenim gören 57 öğrenciden bu verilen masalı okumaları istenmiş; okumadan hemen sonra ve 5 gün sonra olmak üzere, öğrencilerden anımsadıklarını yazdıkları yazılı protokoller alınmıştır. Öğrencilerden alınan yazılı protokoller araştırmanın verilerini oluşturmuştur.

3. bölümde yapılan çalışmanın sonuçları tartışılmıştır. Yazılı protokollerden toplanan verinin analizi sonucunda, ilk anımsamanın ikinci anımsamadan daha başarılı olduğu yönünde anlamlı bir fark görülmüştür. Ayrıca bu farkın 'çıkılmaz' önerme (dead-end propositions)'lerin anımsanma düzeyindeki düşüşten kaynaklandığı gözlemlenmiştir. Buna karşılık, öyküdeki neden-sonuç ilişkisi zinciri içinde yer alan ve almayan önermelerin anımsanması arasında 0.05 anlamlılık düzeyinde bir fark gözlemlenmemiştir. Aynı şekilde, önermelerin farklı öykü grameri kategorilerinde yer almasının da anımsanma düzeylerinde anlamlı bir fark yarattığı gözlemlenmemiştir. Öyküdeki önermelerin diğer önermelerle arasındaki nedensel bağlantı sayısının da önermelerin anımsanması üzerinde olumlu etkiye sahip olduğu gözlemlenmiştir.

4. bölümde araştırma sonuçları ile ilgili çıkarımlar tartışılmış, gelecek çalışmalar için öneriler sunulmuştur.

SUMMARY

Following the study by Trabasso, Secco and van den Broek(1984) and referring to story grammar categories of Rumelhart(1975) and Stein and Glenn (1979), the purpose of this study entitled “The Effect of Causal Relationship on Cohesion and Recall: A Research on the Text Processing of Primary School Children” is to search the extent to which the causal network and the story grammar categories in a sample Turkish tale effects the recall of the text by 5th grade students of a Turkish state primary school.

The questions to be answered are: (1) Is there a significant difference between the immediate and delayed recall scores of students? (2) Is there a significant difference between the recall scores of causal and dead-end propositions in the given tale? (3) Is there a significant difference among the recall scores of different story grammar categories? (4) Is there a relation between the number of causal connections of a story statement and the total recall scores of that statement?

In Chapter 1, the theoretical background of the problem was introduced and related literature was referred to.

In Chapter 2, research method was given. The sample tale was reconstructed by the researcher to make the research possible. 57 students from the 5th grade classes of a Turkish state primary school were asked to read the tale; then two written recall protocols were collected from the students: one immediately after reading and one 5 days later. The written protocols constituted the data of the research.

delayed recall scores. Also, the difference between the recall scores was found to be due to the decrease in recall scores of dead-end propositions. On the other hand, no significant difference was seen between recall scores of causal and dead-end propositions in each recall. There was not any significant difference among the recall scores of different story grammar categories. It was also concluded that the number of causal connections that a proposition had with other propositions in a story effected its recall rate.



BIBLIOGRAPHY

- Abacus Concepts, Inc. 1992-1993. StatView 4.02.
- Bartlett, F.C. 1932. *Remembering: A study in experimental and social psychology*.
Cambridge: Cambridge University Press.
- Black, J.B., & Bern, H. 1981. Causal coherence and memory for events in narratives.
Journal of Verbal Learning and Verbal Behavior, 20, 267-275.
- Black, J.B., & Bower, G.H. 1980. Story understanding as problem solving. *Poetics*, 9, 223-250.
- Bobrow, S. & Bower, G.H. 1969. Comprehension and recall of sentences. *Journal of Experimental Psychology*, 80, 455-461.
- Brown, G., & Yule, G. 1983. *Discourse Analysis*. Cambridge: Cambridge University Press.
- Çakır, Ö. 1995. *Büyükölçekli Kuralların Öğretiminin Okuduğunu Anlamaya Etkisi*.
Unpublished Doctoral Dissertation. Hacettepe University, Ankara.
- de Beaugrande, R., & Dressler, W.U. 1981. *Introduction to Text Linguistics*. London: Longman.
- Dore, J. & McDermott, R.P. 1982. Linguistic indeterminacy and social context in utterance interpretation. *Language*, 58, 374-398.
- Enkvist, N.E. 1978. Coherence, pseudo-coherence, and non-coherence. In J-O Östman (ed.) . *Cohesion and Semantics*. Åbo, Finland: Åbo Akademi Foundation.
- Fletcher, C.R. & Bloom, C.P. 1988. Causal reasoning in the comprehension of simple narrative texts. *Journal of Memory and Language*, 27, 235-244.

- Graesser, A.C. 1981. *Prose comprehension beyond the word*. New York & Berlin: Springer-Verlag.
- Graesser, A.C., & Clark, L.F. 1985. *The structures and procedures of implicit knowledge*. Norwood, NJ: Ablex.
- Haliday, M.A.K., & Hasan, R. 1976. *Cohesion in English*. London: Longman.
- Hart, H.L.A., & Honore, A.M. 1959. *Causation in the law*. Oxford: Clarendon Press.
- Keçik, İ. 1991. *Text Processing Skills of Elementary School Children: A Study Based on Expository Text Type*. Unpublished Doctoral Dissertation. Hacettepe University, Ankara.
- Keenan, J.M., Baillet, S.D., & Brown, P. 1984. The effects of causal cohesion and memory. *Journal of Verbal Learning and Verbal Behavior*, 23, 115-126.
- Kintsch, W. 1988. The role of knowledge in discourse comprehension: A construction-integration model. *Psychological Review*, 95(2), 163-183.
- Kintsch, W. and van Dijk, T. 1978. Toward a model of text comprehension and production. *Psychological Review*, 85, 363-394.
- Kintsch, W. and van Dijk, T. 1983. *Strategies of discourse Comprehension*. California: Academic Press.
- Long, D.L., Seely, M.R., & Oppy, B.J. 1996. The availability of causal information during reading. *Discourse Processes*, 22, 145-170.
- Long, D.L., & Golding, J.M. 1993. Superordinate goal inferences. Are they automatically generated during comprehension? *Discourse Processes*, 16, 55-73.
- Mackie, J.L. 1980. *The cement of the universe: A study of causation*. Oxford: Clarendon Press.
- Mandler, J.M., & Johnson, N.S. 1977. Remembrance of things parsed: Story structure and recall. *Cognitive Psychology*, 9, 111-151.

- Mandler, J.M., Scribner, S., Cole, M., & De Forest, M. 1980. Cross-cultural invariance in story recall. *Child Development*, **51**, 19-26.
- McCormic, T. 1988. *Theories of Reading in Dialogue: An Interdisciplinary Study*. New York: University Press of America.
- McKoon, G., & Ratcliff, R. 1980. Priming in item recognition: The organization of propositions in memory for text. *Journal of Verbal Learning and Verbal Behavior*, **19**, 369-386.
- McKoon, G., & Ratcliff, R. 1989. Semantic associations and elaborative inferences. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, **15**, 326-338.
- Nezworski, T., Stein, N.L., & Trabasso, T. 1982. Story structure versus content in children's recall. *Journal of Verbal Learning and Verbal Behavior*, **19**, 369-386.
- Oğuzkan, F. 2000. *Çocuk Edebiyatı*. (6th ed.). Ankara: Anı Yayıncılık.
- Omanson, N.C. 1982. The relation between centrality and story category variation. *Journal of Verbal Learning and Verbal Behaviour*, **21**, 326-337.
- Richeit, G., Schnotz, W., & Strohner, H. 1985. The concept of inference in discourse comprehension. In G. Rickheit, & H. Strohner (Eds.) *Inferences in Text Processing*. North-Holland: Elsevier Science Publishers. B.V.
- Ruhi, Ş. 1991. *Written Text Production in Turkish*. Unpublished Doctoral Dissertation. Hacettepe University: Ankara.
- Rumelhart, D.E. 1975. Notes on a schema for stories. In D.G. Bobrow & A. Collins (eds.), *Representation and understanding: Studies in cognitive science*. New York: Academic Press.

- Schank, R.C. 1975. The structure of episodes in memory. In D.G. Bobrow & A. Collins (Eds.), *Representation and Understanding: Studies in cognitive science*. New York: Academic Press.
- Schank, R.C., & Abelson, R. 1977. *Scripts, plans, and goals*. Hillsdale, NJ: Erlbaum.
- Singer, M. 1984. Discourse inference process. In M.A. Gernsbacher (ed.), *Handbook of Psycholinguistics*. California: Academic Press.
- Singer, M., Halldorson, M., Lear, J.C., & Andrusiak, P. 1992. Validation of causal bridging inferences in discourse understanding. *Journal of Memory and Language*, 31, 507-524.
- Stein, N., & Glenn, C. 1979. "An analysis of story comprehension on elementary school children" in R.O. Freedle (ed.), *New Directions in Discourse Processing*. Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Şen, M. 1990. Narrative Text Processing and Production in Young Children. Unpublished Master Thesis. Uludağ University : Bursa.
- Trabasso, T., Secco, T., & van den Broek, P. 1984. Causal Cohesion and story coherence. In H. Mandl, N. Stein, & T. Trabasso (eds.), *Learning and Comprehension of text*. Hillsdale, N.J.: Lawrence Erlbaum Associates.
- Trabasso, T., & Sperry, L.L. 1985. Causal relatedness and importance of story events. *Journal of Memory and Language*, 24, 595-911.
- Trabasso, T., & van den Broek, P. 1985. Causal thinking and the representation of narrative events. *Journal of Memory and Language*, 24, 612-630.
- Trabasso, T., van den Broek, P., & Suh, S.Y. 1989. Logical necessity and transitivity of causal relations in stories. *Discourse Processes*, 12, 1-25.

- van den Broek, P.W. 1984. Comprehension and memory of narrative texts. In M.A. Gernsbacher (ed.), *Handbook of Psycholinguistics*. California: Academic Press.
- van den Broek, P.W. 1989. Causal reasoning and inference making in judging the importance of story statements. *Child Development*, 60, 286-297.
- van den Broek, P.W. 1990. The causal inference maker: Towards a process model of inference generation in text comprehension. In D.A. Balota, G.B. Flores d'Arcais, K. Rayner (Eds.), *Comprehension Processes in Reading* (pp.423-445). Hillsdale, NJ: Erlbaum.
- van den Broek, P.W. 1990a. Causal inferences ,in the comprehension of narrative texts.In A.C. Graesser & G.H. Bower (Eds.). *The psychology of learning and motivation: Inferences and text comprehension*.(Vol. 25, pp. 175-194). San Diego, CA: Academic Press.
- van den Broek, P.W, Lorch, R.F., Linderholm, T., & Gustafson, M. 2001.The effects of readers' goals on inference generation and memory for texts. *Memory & Cognition*, 29 (8), 1081-1087.
- van Dijk, T.A. 1980. *Macrostructures*. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- van Dijk, T.A., & Kintsch, W. 1983. *Strategies of Discourse Comprehension*. London: Academic Press.

APPENDIX I

(The story "Akıllı Evlat": Parsed into propositions, numbered, and categorised)

AKILLI EVLAT

1. Bir zamanlar bir adam varmış.....(Setting)
2. Bu adam çok zenginmiş(Setting)
3. Adamın iki tane de oğlu varmış.....(Setting)
4. Zengin adam artık iyice yaşlandığını fark etmiş.....(Internal Response)
5. Bu yüzden de servetini, ölmeden önce oğulları arasında nasıl paylaşacağını düşünmüş.(Internal Response)
6. Oğullarını yanına çağırma,(Internal Plan)
7. İkisine de birer kese altın vermeye karar vermiş.....(Internal Plan)
8. Onlara, üç yıl süre verecek, (Internal Plan)
9. bu bir kese altınla, istedikleri yere gidip istediklerini yapmalarını söyleyecekti..... (Internal Plan)
10. Oğulları geri döndüğünde hangisinin yaptığı işi daha çok beğenirse tüm servetini ona bırakacaktı.....(Internal Plan)
11. ikisinin de yaptığı işi beğenirse servetini oğulları arasında eşit olarak paylaşacaktı.(Internal Plan)
12. Adamlarına oğullarını çağırmasını emretmiş.(Attempt)
13. Oğulları gelmiş. (Attempt)
14. Adam kararını onlara da açıklamış..... (Consequence)
15. İkisine de birer kese altın vermiş.(Consequence)
16. Bunun üzerine iki genç atlarına binmiş (Reaction)
17. ve babalarının isteğini yerine getirmek için(Reaction)

18. hemen yola çıkmışlar.(Reaction)
19. İki kardeş birlikte giderken(Initiating Event)
20. bir yol ayırımına gelmişler.....(Initiating Event)
21. Büyük kardeş sağdaki, (Attempt)
22. küçük kardeş de soldaki yoldan gitmiş.(Attempt)
23. Büyük oğlan, insanların çalışmadan bile bolluk içinde yaşadıkları bir yere varmış. (Consequence)
24. Orada, çok ucuza 100 tane deve satın almış. (Consequence)
25. Bu develerin her biri aslında birer kese altın edermiş.....(Internal Response)
26. O da babasının yanına döndüğünde bunları satıp zengin olmayı istiyormuş.(Internal Plan)
27. Babasının bu fikri beğeneceğine(Internal Plan)
28. ve serveti kendisine vereceğine inaniyormuş.(Internal Plan)
29. Küçük kardeş ise azgın bir nehrin kıyısına gelmiş.(Consequence)
30. Orada yaşayan halktan, bu suyun sürekli etrafına zarar verdiğini duymuş..... (Consequence)
31. Birçok anne ve babanın bu suda öldüğünü,.....(Consequence)
32. bu yüzden de birçok çocuğun yetim kaldığını öğrenmiş. (Consequence)
33. Küçük oğlan bu suyun üstüne köprüler yaptırmış.....(Reaction)
34. Yetim kalan 40 erkek çocuğu da toplayıp yanına almış. (Reaction)
35. Babası malları kime bırakırsa, bu çocukların da onun evlatları olmasını istiyormuş.....(Internal Response)
36. Böylece hem bu çocuklara iyilik yapmış.....(Internal Response)

37. hem de memlekete faydalı insanlar kazandırmış olacaklarını düşünüyormuş.....(Internal Response)
38. Böylece günler, aylar geçmiş(Initiating Event)
39. ve üç yıllık süre dolmuş.(Initiating Event)
40. İhtiyar baba bu üç yılda oğullarını çok özlemiş.(Internal Response)
41. Sonunda arkasında 100 deve ile birlikte büyük oğlan, (Consequence)
42. ve 40 erkek çocuk ile birlikte küçük oğlan babalarının yanına gelmiş.....(Consequence)
43. İkisi de babalarının elini öpmüş..... (Reaction)
44. ve bu üç yıl boyunca neler yaptıklarını babalarına anlatmışlar.....(Reaction)
- 45..İhtiyar baba anlatılanları dinledikten sonra(Initiating Event)
- 46..en çok küçük oğlunun yaptığı işi beğendiğini belirtmiş..... (Consequence)
- 47..Servetini küçük oğluna bırakacağını,.....(Reaction)
- ve yetim kalan çocuklara da küçük oğlunun babalık yapacağını anlatmış.....(Reaction)
49. Büyük oğlunun, develeri ile onun vereceği işleri yapacağını söylemiş.....(Reaction)

APPENDIX II

An example for of the racall protocols of students
(Sample Number:1 ; Immediate Recall Protocol)

AKILLI EVLAT

Bir adam varmış. Bu adam çok zenginmiş. Bu adamın iki tane oğlu varmış. Bu adam çok yaşlandığını farketmiş. Mirasını oğulları arasında paylaştırmaya karar vermiş. Bunun için de onlara iki kese altın ve üç yıl süre verecekmış.

Adamlarına oğullarını çağırmasını emretmiş. Oğulları geldiğinde fikrini onlarada açıklamış. Çocuklarına birer kese altın vermiş ve çocukları bunun üzerine atlarına binip yola çıkmışlar. Yolun sonunda bir ayırım varmış. Büyük oğlan sağdaki yola, küçük oğlan soldaki yola gitmiş.

Büyük oğlan bolluk içinde yaşayan, herşeyin çok ucuz olduğu bir yere varmış, ve elindeki altınlarla100 deve almış. Aslında bu develerin bir tanesi bir kese altın edermiş. Ülkesine döndüğünde bu develeri satıp zengin olacağını ve babasının da bu fikriçok beğeneceğini düşünmüş.

Küçük oğlan ise azgın bir nehre varmış. Bu nehir hep etrafındakilere su fişkirtarak zarar veriyormuş.hatta bu 40 çocuğun yetim kalmasına sebep olmuş. Küçük oğlan bu 40 çocuğu toplayıp onlara babalık yapmayı düşünüyormuş.

Böylece aradan 3 yıl geçmiş. Babası da çocuklarını çok özlemiş. Çocuklar 3 yıl içinde neler yaptıklarını babasına anlatmış. Babası en çok küçük çocuğun yaptıklarını beğenmiş. Mirasını ona bırakmış.büyük oğlan ise 100 devesi ile ona hizmet edecekmış.

APPENDIX III

AN EXAMPLE FOR SCORE CHARTS OF RECALLED PROPOSITIONS IN IMMEDIATE AND DELAYED RECALL PROTOCOLS

1st recall

Sbj.Nb.		16		34		Total	
Name		17		35		Dead-end	
Surname		18		36		Causal	
1		19		37			
2		20		38		S	
3		21		39		IR	
4		23		40		IP	
5		22		41		A	
6		24		42		C	
7		25		43		R	
8		26		44		IE	
9		27		45			
10		28		46			
11		29		47			
12		30		48			
13		31		49			
14		32					
15		33					

2nd recall

Sbj.Nb.		16		34		Total	
Name		17		35		Dead-end	
Surname		18		36		Causal	
1		19		37			
2		20		38		S	
3		21		39		IR	
4		23		40		IP	
5		22		41		A	
6		24		42		C	
7		25		43		R	
8		26		44		IE	
9		27		45			
10		28		46			
11		29		47			
12		30		48			
13		31		49			
14		32					
15		33					

PENDIX IV

NUMBER AND PERCENTAGE OF STUDENTS WHO RECALLED EACH PROPOSITION IN IMMEDIATE AND DELAYED RECALL

number and percentage of students who recalled the propositions													
propositions	immediate recall						delayed recall						
	2p	%	1p	%	0p	%	2p	%	1p	%	0p	%	
Setting	57	100		0		0	57	100		0		0	
Setting	56	98		0	1	1.8	53	93		0	4	7	
Setting	50	88		0	7	12	50	88		0	7	12	
internal response	51	89	1	1.8	5	8.8	53	93	2	3.5	2	3.5	
internal response	47	82	1	1.8	9	16	50	88		0	9	16	
internal plan	10	18		0	47	82	8	14	1	1.8	48	84	
internal plan	42	74		0	15	0	42	74		0	15	26	
internal plan	43	75		0	14	25	40	70		0	17	30	
internal plan	20	35	10	18	27	47	19	33	12	21	26	46	
internal plan	35	61		0	22	39	36	63	1	1.8	20	35	
internal plan	21	37		0	26	46	14	25		0	43	75	
Attempt	51	89	1	1.8	5	8.8	55	96		0	2	3.5	
Attempt	26	46		0	31	54	27	47		0	30	53	
consequence	50	88	2	3.5	5	8.8	54	95		0	3	5.3	
consequence	31	54		0	26	46	31	54		0	26	46	
reaction	37	65		0	20	35	28	49	1	1.8	28	49	
reaction	19	33		0	38	67	15	26	1	1.8	41	72	
reaction	43	75		0	14	25	49	86		0	8	14	
initiating event	23	40		0	34	60	22	39		0	35	61	
initiating event	51	89		0	6	11	49	86		0	8	14	
attempt	56	98		0	1	1.8	55	96		0	2	3.5	
attempt	55	96		0	2	3.5	55	96		0	2	3.5	
consequence	52	91	4	7	1	1.8	49	86	6	11	2	3.5	
consequence	54	95	2	3.5	1	1.8	54	95	3	5.3		0	
internal response	28	49	11	19	18	32	26	46	10	18	21	37	
internal plan	30	53	4	7	23	40	20	35	2	3.5	35	61	
internal plan	27	47		0	32	56	16	28		0	41	72	
internal plan	26	46		0	31	54	25	44		0	32	56	
consequence	57	100		0		0	56	98		0	1	1.8	
consequence	21	37		0	36	63	12	21	1	1.8	44	77	
consequence	53	93		0	4	7	48	84	2	3.5	7	12	
consequence	45	79	2	3.5	10	18	43	75	2	3.5	12	21	
reaction	48	84		0	9	16	44	77	1	1.8	12	21	
reaction	42	74	5	8.8	10	18	38	67	3	5.3	16	28	
internal response	15	26		0	38	67	12	21	11	19	34	60	
internal response	4	7		0	53	93		0	1	1.8	56	98	
internal response	2	3.5		0	55	96	2	3.5	1	1.8	54	95	
initiating event	29	51		0	28	49	27	47		0	30	53	
initiating event	46	81		0	11	19	40	70		0	17	30	
internal response	32	56		0	25	44	35	61		0	22	39	
consequence	34	60	16	28	7	12	32	56	21	37	4	7	
consequence	33	58	17	30	7	12	31	54	21	37	5	8.8	
reaction	25	44	1	1.8	31	54	26	46	1	1.8	30	53	
reaction	42	74	1	1.8	14	25	47	82	1	1.8	9	16	
initiating event	4	7		0	53	93	1	1.8		0	56	98	
consequence	48	84		0	9	16	45	79		0	12	21	
reaction	44	77	1	1.8	12	21	48	84		0	9	16	
reaction	23	40	1	1.8	33	58	20	35	8	14	29	51	
reaction	19	33	6	11	32	56	21	37	5	8.8	31	54	
reaction	19	33	6	11	32	56	21	37	5	8.8	31	54	

APPENDIX V

NUMBER AND PERCENTAGE OF STUDENTS WHO RECALLED EACH PROPOSITION ,
FROM HIGHEST TO LOWEST, IN IMMEDIATE RECALL

number and percentage of students who recalled the propositions													
propositions		immediate recall						delayed recall					
nb.	Category	2p	%	1p	%	0p	%	2p	%	1p	%	0p	%
1	setting	57	100		0		0	57	100		0		0
29	consequence	57	100		0		0	56	98		0	1	1.8
2	setting	56	98		0	1	1.8	53	93		0	4	7
21	attempt	56	98		0	1	1.8	55	96		0	2	3.5
22	attempt	55	96		0	2	3.5	55	96		0	2	3.5
24	consequence	54	95	2	3.5	1	1.8	54	95	3	5.3		0
31	consequence	53	93		0	4	7	48	84	2	3.5	7	12
23	consequence	52	91	4	7	1	1.8	49	86	6	11	2	3.5
4	internal response	51	89	1	1.8	5	8.8	53	93	2	3.5	2	3.5
12	Attempt	51	89	1	1.8	5	8.8	55	96		0	2	3.5
20	initiating event	51	89		0	6	11	49	86		0	8	14
3	setting	50	88		0	7	12	50	88		0	7	12
14	consequence	50	88	2	3.5	5	8.8	54	95		0	3	5.3
33	reaction	48	84		0	9	16	44	77	1	1.8	12	21
46	consequence	48	84		0	9	16	45	79		0	12	21
5	internal response	47	82	1	1.8	9	16	50	88		0	9	16
39	initiating event	46	81		0	11	19	40	70		0	17	30
32	consequence	45	79	2	3.5	10	18	43	75	2	3.5	12	21
47	reaction	44	77	1	1.8	12	21	48	84		0	9	16
8	internal plan	43	75		0	14	25	40	70		0	17	30
18	reaction	43	75		0	14	25	49	86		0	8	14
7	internal plan	42	74		0	15	0	42	74		0	15	26
34	reaction	42	74	5	8.8	10	18	38	67	3	5.3	16	28
44	reaction	42	74	1	1.8	14	25	47	82	1	1.8	9	16
16	reaction	37	65		0	20	35	28	49	1	1.8	28	49
10	internal plan	35	61		0	22	39	36	63	1	1.8	20	35
41	consequence	34	60	16	28	7	12	32	56	21	37	4	7
42	consequence	33	58	17	30	7	12	31	54	21	37	5	8.8
40	internal response	32	56		0	25	44	35	61		0	22	39
15	consequence	31	54		0	26	46	31	54		0	26	46
26	internal plan	30	53	4	7	23	40	20	35	2	3.5	35	61
38	initiating event	29	51		0	28	49	27	47		0	30	53
25	internal response	28	49	11	19	18	32	26	46	10	18	21	37
27	internal plan	27	47		0	32	56	16	28		0	41	72
13	Attempt	26	46		0	31	54	27	47		0	30	53
28	internal plan	26	46		0	31	54	25	44		0	32	56
43	reaction	25	44	1	1.8	31	54	26	46	1	1.8	30	53
19	initiating event	23	40		0	34	60	22	39		0	35	61
48	reaction	23	40	1	1.8	33	58	20	35	8	14	29	51
11	internal plan	21	37		0	26	46	14	25		0	43	75
30	consequence	21	37		0	36	63	12	21	1	1.8	44	77
9	internal plan	20	35	10	18	27	47	19	33	12	21	26	46
17	reaction	19	33		0	38	67	15	26	1	1.8	41	72
49	reaction	19	33	6	11	32	56	21	37	5	8.8	31	54
35	internal response	15	26		0	38	67	12	21	11	19	34	60
6	internal plan	10	18		0	47	82	8	14	1	1.8	48	84
36	internal response	4	7		0	53	93		0	1	1.8	56	98
45	initiating event	4	7		0	53	93	1	1.8		0	56	98
37	internal response	2	3.5		0	55	96	2	3.5	1	1.8	54	95

PPENDIX VI

NUMBER AND PERCENTAGE OF STUDENTS WHO RECALLED EACH PROPOSITION, FROM HIGHEST TO LOWEST, IN DELAYED RECALL

number and percentage of students who recalled the propositions													
propositions	immediate recall						delayed recall						
	2p	%	1p	%	0p	%	2p	%	1p	%	0p	%	
Setting	57	100		0		0	57	100		0		0	
consequence	57	100		0		0	56	98		0	1	1.8	
Attempt	51	89	1	1.8	5	8.8	55	96		0	2	3.5	
attempt	56	98		0	1	1.8	55	96		0	2	3.5	
attempt	55	96		0	2	3.5	55	96		0	2	3.5	
consequence	50	88	2	3.5	5	8.8	54	95		0	3	5.3	
consequence	54	95	2	3.5	1	1.8	54	95	3	5.3		0	
Setting	56	98		0	1	1.8	53	93		0	4	7	
internal response	51	89	1	1.8	5	8.8	53	93	2	3.5	2	3.5	
Setting	50	88		0	7	12	50	88		0	7	12	
internal response	47	82	1	1.8	9	16	50	88		0	9	16	
reaction	43	75		0	14	25	49	86		0	8	14	
initiating event	51	89		0	6	11	49	86		0	8	14	
consequence	52	91	4	7	1	1.8	49	86	6	11	2	3.5	
consequence	53	93		0	4	7	48	84	2	3.5	7	12	
reaction	44	77	1	1.8	12	21	48	84		0	9	16	
reaction	42	74	1	1.8	14	25	47	82	1	1.8	9	16	
consequence	48	84		0	9	16	45	79		0	12	21	
reaction	48	84		0	9	16	44	77	1	1.8	12	21	
consequence	45	79	2	3.5	10	18	43	75	2	3.5	12	21	
internal plan	42	74		0	15	0	42	74		0	15	26	
internal plan	43	75		0	14	25	40	70		0	17	30	
initiating event	46	81		0	11	19	40	70		0	17	30	
reaction	42	74	5	8.8	10	18	38	67	3	5.3	16	28	
internal plan	35	61		0	22	39	36	63	1	1.8	20	35	
internal response	32	56		0	25	44	35	61		0	22	39	
consequence	34	60	16	28	7	12	32	56	21	37	4	7	
consequence	31	54		0	26	46	31	54		0	26	46	
consequence	33	58	17	30	7	12	31	54	21	37	5	8.8	
reaction	37	65		0	20	35	28	49	1	1.8	28	49	
Attempt	26	46		0	31	54	27	47		0	30	53	
initiating event	29	51		0	28	49	27	47		0	30	53	
internal response	28	49	11	19	18	32	26	46	10	18	21	37	
reaction	25	44	1	1.8	31	54	26	46	1	1.8	30	53	
internal plan	26	46		0	31	54	25	44		0	32	56	
initiating event	23	40		0	34	60	22	39		0	35	61	
reaction	19	33	6	11	32	56	21	37	5	8.8	31	54	
internal plan	30	53	4	7	23	40	20	35	2	3.5	35	61	
reaction	23	40	1	1.8	33	58	20	35	8	14	29	51	
internal plan	20	35	10	18	27	47	19	33	12	21	26	46	
internal plan	27	47		0	32	56	16	28		0	41	72	
reaction	19	33		0	38	67	15	26	1	1.8	41	72	
internal plan	21	37		0	26	46	14	25		0	43	75	
consequence	21	37		0	36	63	12	21	1	1.8	44	77	
internal response	15	26		0	38	67	12	21	11	19	34	60	
internal plan	10	18		0	47	82	8	14	1	1.8	48	84	
internal response	2	3.5		0	55	96	2	3.5	1	1.8	54	95	
initiating event	4	7		0	53	93	1	1.8		0	56	98	
internal response	4	7		0	53	93		0	1	1.8	56	98	

APPENDIX VII

TOTAL SCORES OF EACH PARTICIPANT

TOTAL SCORES OF SUBJECTS								
Subject nb.	Total scores		Subject nb.	Total scores		Subject nb.	Total scores	
	1st	2nd		1st	2nd		1st	2nd
1	62	61	26	85	61	26	85	85
2	66	58	9	84	58	9	84	79
3	78	72	46	80	72	4	68	76
4	68	76	3	78	76	46	80	76
5	70	70	42	76	70	7	75	75
6	66	68	7	75	68	52	71	74
7	75	75	32	74	75	32	74	73
8	46	41	33	74	41	37	72	73
9	84	79	38	74	79	3	78	72
10	62	58	29	72	58	50	70	71
11	59	44	37	72	44	5	70	70
12	71	70	45	72	70	12	71	70
13	66	60	12	71	60	28	62	70
14	46	39	52	71	39	38	74	70
15	69	66	5	70	66	42	76	70
16	68	53	50	70	53	33	74	69
17	54	49	15	69	49	54	69	69
18	62	66	54	69	66	6	66	68
19	51	46	4	68	46	27	61	68
20	37	34	16	68	34	29	72	68
21	60	65	53	68	65	45	72	67
22	65	59	24	67	59	15	69	66
23	48	49	2	66	49	18	62	66
24	67	66	6	66	66	24	67	66
25	59	54	13	66	54	57	63	66
26	85	85	22	65	85	21	60	65
27	61	68	30	64	68	53	68	65
28	62	70	39	63	70	43	63	64
29	72	68	43	63	68	1	62	61
30	64	57	57	63	57	34	57	61
31	56	60	1	62	60	13	66	60
32	74	73	10	62	73	31	56	60
33	74	69	18	62	69	22	65	59
34	57	61	28	62	61	36	60	59
35	56	56	27	61	56	2	66	58
36	60	59	21	60	59	10	62	58
37	72	73	36	60	73	44	59	58
38	74	70	11	59	70	30	64	57
39	63	55	25	59	55	35	56	56
40	56	48	44	59	48	49	50	56
41	39	40	47	59	40	39	63	55
42	76	70	34	57	70	55	54	55
43	63	64	31	56	64	25	59	54
44	59	58	35	56	58	16	68	53
45	72	67	40	56	67	17	54	49
46	80	76	17	54	76	23	48	49
47	59	49	48	54	49	47	59	49
48	54	48	55	54	48	40	56	48
49	50	56	19	51	56	48	54	48
50	70	71	49	50	71	19	51	46
51	42	37	56	49	37	11	59	44
52	71	74	23	48	74	56	49	44
53	68	65	8	46	65	8	46	40
54	69	69	14	46	69	41	39	40
55	54	55	51	42	55	14	46	39
56	49	44	41	39	44	51	46	37
57	63	66	20	37	66	20	46	34

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