# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

The term *reading* carries different meanings in different contexts to different people. To ecstatic Chinese parents witnessing their children reading aloud Confucius' teachings, there is no doubt in their mind that their offspring can read. To a prospective employer, a job applicant who can understand a set of written instructions on how to repair an appliance, is able to read. To a teacher, a student who can read a text aloud and answer questions based on it, is considered able to read. Under these circumstances, *reading* carries different definitions. What then is *reading*?

This chapter will first review and discuss the various theories and models that describe *reading*. The following section then looks at the difficulties learners may face in reading and the strategies used to make sense of what they read. The final section discusses the story grammar that will be used to analyze the written immediate recall protocols produced by the subjects of this study as a means of testing reading comprehension.

## 2.2 Models of the Reading Process

Definitions of *reading* have focused mainly on *meaning*. Reading is in essence a process of extracting or constructing meaning from written information. However, this simple definition is anything but straightforward. It has generated

great interest and extensive research within the last few decades and has produced various theories and models to describe the complex nature of reading. These reading models are classified into three general categories: top-down, bottom-up and interactive. These models differ in the emphasis placed on text-based variables such as vocabulary, rhetorical structure, cultural content as well as reader-based variables that include background knowledge, cognitive development and strategy use (Barnett, 1989).

### 2.2.1 The Bottom-up Model of Reading

The bottom-up model sees the reader beginning with the printed word, recognizes graphic stimuli, decodes them to sound, recognizes words and decodes meaning (Alderson, 2000). Therefore, this model sees the reader beginning with the written text which is considered the *bottom* and proceeding in a linear fashion to process the text by absorbing, analyzing and gradually adding chunks of text to the next chunks until they become meaningful (Barnett, 1989). This model of reading forms the basis for phonic approaches to the teaching of reading that focus attention primarily on the letter-to-sound correspondence (Davis, 1995).

Though this model seemed logical in describing the process of reading, there were criticisms and doubts raised by various researchers. Samuels and Kamil (1984, in Carrell et. al., 1988) find that Gough's (1972) assumption that all individual letters in the visual field must be taken into account by the reader before meaning could be assigned to any string of letters does not account for the role of other sources of information, such as previous knowledge of text topic and sentence-context, play in enhancing word recognition and comprehension. Furthermore, based on this model,

reading would be a laborious process and the reader a *plodder through print* (Davis, 1995). In addition, it does not account for the fact that there are at least 160 different grapho-phonic rules which would be a very heavy burden on learners' short term or working memory (ibid).

### 2.2.2 The Top-down Model of Reading

In contrast to the bottom-up model of reading, the top-down model sees meaning and thinking beginning at a very early stage in reading when the reader guesses or predicts the text's meaning on the basis of minimal textual information and maximum use of existing, activated knowledge (Alderson, 2000). From a psycholinguistic perspective, this model views reading as a linear process that progresses from the *top*, the higher-level mental stages, *down* to the text itself (Barnett, 1989). As Goodman (1975, in Carrell et. al., 1988) states in his oft-quoted definition of reading, this model describes reading as a *psycholinguistic guessing game*. Therefore, the process of reading is primarily concept-driven (Grabe, 1988). This model stresses the role of existing syntactic and semantic knowledge structures in bringing about meaning and pays minimal attention to letter-sound correspondence. The construction of meaning is seen as an *ongoing, cyclical process of sampling from the input text, predicting, testing and confirming or revising those predictions, and sampling further* (Goodman, 1975, in Carrell et. al., 1988:74).

Although the top-down model of reading created quite an impact on approaches to studying mental processes in reading, it also generated controversy. According to Eskey (1988, in Davies, 1995:62), this *leaping to meaning* model that emphasizes prediction at the expense of attention to detail does not reflect a true

picture of the range of problems second language readers face. Barnett (1989) raised the question of what happens when a reader encounters a text on an unfamiliar topic with a large amount of unfamiliar vocabulary. Would the reader be able to read effectively by generating predictions under these circumstances?

### 2.2.3 The Interactive Model of Reading

The bottom-up and top-down models of reading present contrasting views of the reading process and it is obvious that there are problems with both models. Rumelhart (1977, in Samuels and Kamil, 1984) proposed the interactive model as an alternative to account for both the bottom-up and the top-down models of reading. This model places importance on flexible processing and multiple information sources. It sees reading as involving both bottom-up and top-down strategies. Rumelhart (1971, in Barnett, 1989) suggests that reading is a perceptual as well as a cognitive process. He states that the reader's perception of words comes together with his or her previous knowledge about the language spelling patterns, syntax, vocabulary, semantics and context in order to interpret what has been read. Thus, the reader is seen as *an active participant, and all of the reader's knowledge and previous experience play a major role in reader comprehension* (Barnett, 1989).

Based on the interactive model, it is possible to hypothesize that readers who are inexperienced at processing visual and orthographic information will rely more heavily on semantic information and readers who have poor syntactic knowledge will rely more on orthographic or lexical information (Davis, 1995). Therefore, in the field of second language reading, this model of reading presents a basis for investigating the performance and processing strategies of readers. Carrell (1987)

finds that successful second language reading involves an interaction between these strategies because the readers could use either top-down or bottom-up strategies to compensate for deficiencies at textual or content level to overcome reading difficulties. The convergence and interaction of syntactic, semantic, lexical and orthographic information influence perception and interpretation of what was read.

The interactive model of reading has been further developed by other researchers in subsequent years. Stanovich's interactive-compensatory model assumes that a deficit in any knowledge source would bring about greater reliance on other knowledge sources (Barnett, 1989). Rumelhart (1984, in Davis, 1995) proposed a *schema-theoretic* account of the comprehension process. Formalized as *schema theory*, this model places emphasis on the importance of background knowledge in language comprehension. According to Rumelhart (1980:34), a *schema* is a *data structure for representing the generic concepts stored in memory.* An individual's schemata may change over time and with experience as it is fluid and continuously subject to modification and it provides frameworks for interpreting the world, including, in reading, the world of the text (Davis, 1995).

Rayner and Pollatsek (1989) proposed another model described as the bottom-up interactive that focuses on the processing of visual information. Based on extensive and sophisticated studies of eye movements to demonstrate the relationship between eye movements and cognition, this model sees identification of words from visual information interacting with higher-level sources of information through a thematic processor in the process of making meaning. In other words, the process of

comprehension requires both bottom-up processing of incoming information and top-down processing to relate the data to existing knowledge.

In second language reading, the belief of most second language theorists is that the reading process is primarily interactive, reader-based and conceptually driven and reader purposes, cognitive skill, language proficiency, strategies, background knowledge and schemata contribute more to comprehension than the graphic, syntactic and semantic symbols of the text itself (Barnett, 1989). As a text is the entity to be comprehended, factors such as typology structure, grammar, vocabulary and cohesion need to be given due consideration. From a psychological perspective, Jenkin et. al. (1993) emphasize the importance of considering both the information processing demands of reading and the relationship between second language proficiency and the level of comprehension the reader can achieve in second language reading. They propose two issues for consideration: the form of mental representation and the nature of knowledge base that non-native speakers bring to the reading task.

Central to the different models of reading that has been posited is the assumption that reading starts with a visual stimulus and ends with meaning when comprehension takes place (Davis, 1995). However, the route to comprehension is not so simple. What happens when there is a breakdown in the process, i.e. when the reader encounters difficulties in reading and what are these difficulties? The following section looks at the difficulties learners may face and the strategies readers use in their quest for meaning in reading.

## 2.3 Reading Difficulties

Every reader's goal is comprehension. The road to comprehension involves complex cognitive processes fraught with difficulties that the reader has to overcome to achieve his or her goal. Oakhill and Cain (1997) list the following areas which may contribute to difficulties in reading:

### 2.3.1 Semantic skills

It is the bane of many teachers that their learners are able to read a text aloud but are not able to understand the text. In other words, they are able to decode the words but they do not understand the meanings of the words. This is particularly evident in the case of the students involved in this study whose first language, Bahasa Melayu, shares the same alphabet as English. The problem is further compounded by the fact that there is increasingly more English vocabulary being 'Malaysianised'. Unfamiliar words disrupt the flow of reading as lexical access may be made slower by the additional processing thus resulting in inadequate comprehension of the text. Though research has revealed contradicting stances on vocabulary difficulties affecting comprehension, it is obvious that comprehension skill and word knowledge are related.

### 2.3.2 Syntactic skills

Besides establishing the meanings of words they read, readers must also work out the sentence and phrase structures to establish the correct interpretation of the sentences. Failure to do so may affect comprehension because written texts contain formal structures and punctuation that provide cues to the phrasing and grouping of words. Although studies show that the relationship between syntactic ability and

comprehension skills is far from clear, there is reason to believe that an awareness of grammatical structures will assist and enhance readers' comprehension.

### 2.3.3 Inferential skills and integration

Learners need inferential skills to understand beyond what is explicitly stated in the texts they read. They may have problems inferring information implied in a text. They may also encounter difficulties inferring specific meanings of words that are dependent on the context given. Even when the information is explicitly stated, learners may not be able to make inferences from different parts of the text. According to Ashcraft (1994), comprehension and drawing of inferences involve at least 3 distinct steps. Starting with the retrieval of the related information from memory via syntactic and semantic cues, the reader stores the retrieved information in memory and finally, integrates the meanings together to make connections between antecedents and referents. He draws inferences from one phrase to the next and in doing so, determines relevant meanings. Hence, the reader needs to acquire the relevant skills before he is able to infer and integrate what he reads.

### 2.3.4 Understanding text structure

Understanding the structure of a text is integral to attain comprehension. Knowledge of how a text, such as a narrative, is structured helps the reader to construct meaning. Mandler and Johnson (1977) and Stein and Glenn (1979) are some of the researchers who have shown that knowledge of text construction may facilitate memory for and understanding of narratives. Buss et.al.'s (1983) study of young children found that chronologically ordered narratives were recalled much better than those that were not. They also found that both children and adults

consciously and strategically manipulate the contents and structure of already established memories of the story schema in their recalls. Smiley et.al. (1977) find that readers who comprehend better tend to recall important story parts compared to readers with poor comprehension who do not.

### 2.3.5 Comprehension monitoring

Learners may also experience difficulties at the metacognitive level. They may lack the skills of assessing the adequacy of their comprehension. They may not be able to identify their comprehension difficulties and the strategies that can be utilized to overcome them. Metacognition, which transcends cognition, enables learners not only to use particular strategies but also to be aware of the importance of these strategies and how to appraise them (McNeil, 1984). Poor monitoring may also be the result of the learners' poor comprehension. Empirical evidence for the causal link between metacognitive monitoring and comprehension is limited but Baker (1994, in Oakhill & Cain, 1997) suggests that it is very likely that metacognition and cognition interact in the development of the readers' reading skills.

### 2.3.6 Working memory

Working memory is defined in Oakhill and Cain (1997:183) as the *ability to store and process information simultaneously, i.e. to hold the information from one sentence in mind while reading the next one.* Therefore, inefficient skills at simultaneous processing and storing of information in the working memory system could result in difficulties in making appropriate connections between sentences and ideas in order to attain comprehension. Investigation such as Yuill et.al.'s (1989) into this working memory and comprehension link have shown that memory load

capacity correlates to comprehension skills of readers. In other words, the relationship between working memory and comprehension is strong.

The section above gave a brief outline based on Oakhill and Cain (1997), of the areas in which readers may face difficulties in their pursuit of comprehension in reading. Though empirical evidence is inadequate to show links between these areas and comprehension, measures need to be taken to overcome these difficulties if reading is to be efficient and effective. The following section looks at the strategies learners use to overcome these difficulties.

## 2.4 Learning Strategies

According to Brown (1994:114), *strategies* are specific moment by moment *attack* techniques that learners use to solve *problems* posed by second language input and output. These strategies comprise two types – learning strategies that concern processing, storage and retrieval of input, and communication strategies that relate to expression and delivery of output. O'Malley et.al (1985) categorize learning strategies into 3 categories. They are metacognitive, cognitive and socio-effective strategies.

Metacognitive strategies are strategies employed in planning for learning, thinking about the learning process as it is taking place, monitoring one's production or comprehension and evaluating learning after completion of an activity. These strategies include the use of advance organizers, selective and directed attention, self-management, functional planning, delayed production, self-monitoring and self-evaluation.

Cognitive strategies pertain to specific learning tasks and involve more direct manipulation of learning materials. Strategies in this category include repetition, resourcing, translation, grouping, note-taking, deduction recombination, imagery, auditory representation, use of keywords, contextualization, elaboration, transfer and inferencing.

Lastly, socio-effective strategies are strategies involving social-mediating activity and transactions with others. This type of strategy involves cooperation and questioning for clarification.

While learning strategies concern the receptive domain of processing, storage and retrieval of input, communication strategies deal with verbal or non-verbal productive communication of information (Brown, 1994). Tarone (1981:286) classifies communication strategies into 5 categories: paraphrasing, borrowing, appealing for assistance, mime and avoidance. Paraphrasing is a strategy that includes approximation, word coinage and circumlocution. Learners may also resort to borrowing through literal translation and language switching. They may also appeal for assistance or use non-verbal strategies in mime. Learners may also employ topic avoidance and message abandonment when they encounter difficulties in their efforts to communicate.

## 2.5 Reading Strategies

In the area of reading in second language learning, Barnett (1989:66) uses the term *strategy* to refer to the *mental operations involved when readers purposefully approach a text to make sense of what they read.* She elaborates that these strategies

may be good, i.e. successful, or poor, i.e. unsuccessful. These strategies may be techniques that are controlled consciously. Conversely, they may also be unconscious processes that are applied automatically. Researchers such as Block and Hosenfeld have attempted to catalogue the types of reading strategies second or foreign language learners use but perhaps the most complete is that of Sarig (1987).

In Sarig's (ibid) study of 10 high-school seniors, the process of reading in a foreign language is seen as involving both the interlingual transfer of reading skills from the students' metamodel (Hebrew) and a problem-solving process. Sarig refers to the strategies her subjects use as reading moves and these moves are divided into four types: technical-aid moves, clarification and simplification moves, coherence-detecting moves and monitoring moves. These moves contain both *comprehension promoting* as well as *comprehension deterring* moves.

### 2.5.1 Technical-aid moves

These moves show the reader using technical aids to facilitate text processing. Such strategies include skimming, scanning, skipping, marking and writing key elements in the text, differential marking for different purposes, writing margin paragraph summaries and using glossaries. These moves have been shown to be effective in promoting comprehension when the reader has the appropriate conception of the reading task at hand and uses a variety of appropriate and effective moves to perform the task.

### 2.5.2 Clarification and simplification moves

The reader uses these moves to show his or her intention to clarify and/or simplify utterances in the text read. They include strategies such as using

substitutions like paraphrases, circumlocutions and synonyms. These moves promote comprehension when there are effective lexical, morphological, syntactic and rhetorical recognition of utterances and effective sizing of the unit to be clarified or simplified. In short, these moves depend most on the reader's language proficiency.

### 2.5.3 Coherence-detecting moves

This type of reading move shows the reader's intention to produce coherence from the text using textual or contextual cues. Learners do so by identifying the macroform of the text, activating content and formal schemata to predict forthcoming text, identifying people in the text and their views and actions, cumulatively decoding text meaning, relying on summaries given in the text and identifying the focus of the text. Therefore, for these moves to be effective, the reader requires the appropriate content and textual schemata, awareness of the rhetorical function of the text and the ability to identify views even when they are in contrast with his or her own views.

### 2.5.4 Monitoring moves

These moves show the reader's active monitoring of text processing, whether metacognitively conscious or not. They include the reader's conscious change of planning and carrying out of tasks, desertion of hopeless utterance, flexibility of reading rate, identification of misunderstanding and incompatibility, mistake correction and self-evaluation. To be able to utilize these moves, the reader has to be capable of monitoring his or her task performance, be able to identify failure and find ways of remediation and be able to tolerate fuzzy comprehension.

## 2.6 Reading Assessment

Reading is a cognitive process that is not directly observable and the process can only be inferred from the behaviors readers display. As Goodman (1975, in Carrell et. al., 1988) puts it, reading is a psycholinguistic guessing game that depends very much on the extent to which agreement between the reader's reconstruction of the writer's meaning and the writer's intended meaning is achieved. As these mental operations are not observable, conclusions can only be made based on the end product of the process, which is comprehension.

Assessments of reading comprehension are often based on the premise that comprehension is a product of interaction with a text (Johnston, 1983). These tests often consist of tasks that can be measured objectively such as multiple-choice, cloze or open-ended questions. These tests give a limited view of what comprises reading and examine only a proportion of what could be comprehended from a text (McNeil, 1984). However, over the years, teachers have come to regard the question-answer format as the most convenient, objective and cost-effective means of assessing reading comprehension.

Carroll (1971, in Johnston, 1983:8) contends that comprehension is a process that happens immediately upon reception of input and only involves short-term memory. He states that, "*As soon as longer time intervals are involved in the testing of comprehension, there is the possibility that we are studying memory processes along with or in place of, comprehension processes.*" Consequently, immediate recall measures will be apt as measures of reading comprehension.

Bernhardt (1991) suggests the use of immediate recall protocols to investigate processes involved in second language text comprehension. Hayes (1989, in Bernhardt, 1991:200) considers protocol analysis as *cognitive psychology's most powerful tool for tracking psychological processes.* According to Berkmeyer,

> "The immediate recall protocol demands that the reader comprehend the text well enough to be able to recall it in a coherent and logical manner. More importantly, this procedure allows misunderstandings or gaps in comprehension to surface..."

She argues that the immediate recall

> "……can serve an extremely valuable diagnostic function....[it] is useful for classroom teachers because it reveals in a direct way the information that they need to know – i.e., how meaning is being constructed and what factors, whether textual or extratextual, are impeding reading comprehension."
>
> Berkemeyer, (1989, in Bernhardt, 1991:188)

According to Barnett (1989), written recall protocols show how individual readers reconstruct a text, what they remember, how they interpret vocabulary and grammar, which schemata they invoke and how meaningfully they read. Consequently, an analysis of recall protocols could help teachers to recognize learners' strengths and weaknesses, their individual reading styles, where they had miscomprehended and how their schemata had interacted with the text. Therefore, the qualitative information gained from protocol analysis would provide greater insights into the comprehension processes of second language readers to help improve language instruction.

Some studies, such as Carrell (1984a), Carrell (1984b), Connor (1984), Lee (1986) and Carrell (1987), utilized the recall task and required their readers to recall in the target or second language. Subsequent studies in second language reading such

as Lee and Riley (1990), Raymond (1993) and Kim (1995) have mostly required their readers to recall in their native language.

In this study, written recall protocols are utilized for analysis to investigate students' comprehension of a narrative text. The following section will focus on the use of story grammars and the framework that will be used in the analysis of the students' written recall protocols.

## 2.7 Story Grammars

In his experiments involving the memorization and reconstruction of folktales, Bartlett (1932, in Mason, 1992) has shown that people not only omit details but rationalize and change the stories to fit in with their interpretation of them. In other words, people use a story schema as a set of retrieval cues (Bartlett, 1932, in Mandler & Johnson, 1977). This implies that there is a general framework that describes the organization of stories.

Various researchers have shown that the connectivity of a story can be shown with the use of a *story grammar* just as the structure of a single sentence can be illustrated by a sentence grammar. Rumelhart (1975), Mandler and Johnson (1977) and Stein and Glenn (1979) are some of the researchers who have shown that such grammars can be utilized to account for the relative salience of the various parts of a story, i.e. how a story hangs together. The unit of analysis most widely used for narratives is the proposition which is the predicator, usually the verb and an argument or arguments related specifically to the predicator. Hence, a proposition roughly corresponds to a simple sentence (Stein & Glenn, 1979).

To represent the structure of a wide range of simple stories, Rumelhart (1975:213) developed a story grammar which consists of *a set of syntactical rules which generate the constituent structure of stories and a corresponding set of semantic interpretation rules which determine the semantic representation of the story*. This story grammar was further developed by other researchers such as Mandler and Johnson (1977) and Thorndyke (1977). To provide the basis of a representational framework for the passages used in his research on cognitive structures in comprehension and memory of narratives, Thorndyke (1977) developed the grammar for a simple, prototypical narrative as presented in Fig 2.1.

Rule 1 states the requisite of all stories in sequential order – Setting, Theme, Plot and Resolution. The Setting (Rule 2) in simple stories establishes the time, location and main characters. Rule 3 defines the theme which is an optional series of events leading up to a goal. The Plot (Rule 4) pertains to a series of episodes (Rule 5) each of which is a cluster of actions representing a subgoal and a series of attempts to realize the subgoal plus an outcome. Rule 6 indicates that an attempt at realizing a subgoal may be direct or may involve other subgoals. The outcome of any event (Rule 7) is either a resulting state or another event. If the goal is not realized then an additional attempt may occur within the episode. If the goal is realized, the episode is terminated and the result is then utilized. The resolution, which is the statement of the final result of a story with respect to the theme, is defined in Rule 8. The subgoal and goal (Rule 9) are aimed at achieving the desired state. The characters, the location and the time indicate the final state of affairs (Rule 10).

Fig. 2.1
Grammar Rules For Simple Stories

| RULE NUMBER | RULE | |
|---|---|---|
| (1) | STORY | Setting + Theme + Plot + Resolution |
| (2) | SETTING | Characters + Location + Time |
| (3) | THEME | (Event)* + Goal |
| (4) | PLOT | Episode* |
| (5) | EPISODE | Subgoal + Attempt + Outcome |
| (6) | ATTEMPT | Event*<br>Episode |
| (7) | OUTCOME | Event*<br>State |
| (8) | RESOLUTION | Event<br>State |
| (9) | SUBGOAL<br>GOAL | Desired State |
| (10) | CHARACTERS<br>LOCATION<br>TIME | State |

* this element may be repeated
( ) this element is optional

(Thorndyke, 1977:79)

Stein and Glenn (1979) used Rumelhart's schema for simple stories to analyze story recall protocols produced by elementary school children in their study and found that it was cumbersome and somewhat unreal with no specification of the causal link and structural variations that can occur in a story. They also found that Rumelhart's story grammar categories were either too restrictive or not wide enough to encompass all types of information found in stories. Consequently, they made changes to Rumelhart's schema and developed their version of a story schema.

### 2.7.1 Stein and Glenn's Story Grammar

Stein and Glenn's (1979) story grammar is based on a set of rules that defines the category structures and inter-category relations that occur in a simple story. This story grammar is described below and a summary of the rules of the grammar is given in Fig. 2.2:

**Rule 1: Story $\Longrightarrow$ ALLOW (Setting, Episode System)**

Rule 1 states that a story comprises a setting category and an episode system connected by an ALLOW relation. Stein and Glenn caution that most story representations are more complex than that of a simple story. Structural variations and complexities can and most often do occur in most stories.

**Rule 2: Setting $\Longrightarrow$ [ State (s) / Activity (ies) ]**

Rule 2 concerns the setting category of the schema. This category introduces the main character or characters and describes the social, physical or temporal context in which the story happens. The basically stative information refers to long-term or habitual states of the characters or locations. Several states or activities may occur within this category and they are related by AND, THEN or CAUSE relations. The AND relation refers to two units co-occuring in time or when there is no definite or apparent temporal sequence between the two statements. The THEN relation is used when one statement occurs before a second statement but is not the direct cause of the second though it may be the necessary pre-condition that causes the second statement to occur. The CAUSE relation, on the other hand, shows just this relation – one statement directly causing the occurrence of the second. When there are other types of information in this setting category, the Major Setting category introduces

the character(s) and the Minor Setting, the other types of setting information. Though setting statements usually occur at the beginning of a story, they can appear elsewhere in the story when a new character or a new physical or social context is introduced.

**Rule 3: Episode System ⇨ AND THEN CAUSE (Episode (s))**

Rule 3 is about the rest of the story structure which can be described by an episode system. This system is a higher-level category and consists of one or more episodes.

**Rule 4: Episode ⇨ INITIATE (Initiating Event, Response)**

Each episode in a story is an entire behavioural sequence and these episodes are inter-related. Each episode comprises the external and / or internal events which influence a character, the character's internal response (i.e. goals, cognitions, plans) to these events, the character's external response to his goals and the consequences of his actions. In other words, the causal chain of events in an episode begins with an initiating event and ends with a resolution. The INITIATE relation marks the direct causal connection between the Initiating Event and Response categories.

**Rule 5: Initiating Event ⇨ Natural Occurence(s) Goal(s) Cognition(s)**

An initiating event causes a response in the main character(s) and it may be a natural occurrence that involves a change of state in the physical environment, not caused by an animate being or an action performed by a character that evokes a response or internal events such as hunger, pain or sickness. This category can contain several statements connected by the AND, THEN and CAUSE relations.

**Rule 6: Response ⇨ MOTIVATE (Internal Response, Plan Sequence)**

Rule 6 refers to the response, a higher-level category which comprises an internal response and a plan sequence.

**Rule 7: Internal Response ⇨ Affective Response(s) Goal(s) Cognition(s)**

The main function of the internal response category is to MOTIVATE the character into formulating a plan sequence which involves statements of affective responses, goals and cognitions. Affective responses are emotional responses such as happiness, excitement or fear. Goals refer to a character's desires and intentions while cognitions refer to a character's thoughts usually denoted with phrases such as she knew, she realized, etc. These three types of statements may be in any order and can be related by AND, THEN and CAUSE relations.

**Rule 8: Plan Sequence ⇨ MOTIVATE (Internal Plan, Plan Application)**

The higher-level plan sequence category consists of the Internal Plan and a Plan Application that are connected with a MOTIVATE relation.

**Rule 9: Internal Plan ⇨ (Cognitions, Subgoals)**

The Internal Plan directs a character's subsequent behaviour and is marked by statements defining the character's strategy to procure a change in the state of affairs. It contains statements of subgoals and cognitions about the situation, the hypothesized activity and the consequences of the behaviour.

Fig. 2.2

Rules defining the internal representation of a story

| RULE NO. | RULE |
|---|---|
| 1 | Story ⇨ ALLOW (Setting, Episode System) |
| 2 | Setting ⇨ State(s)<br>Action(s) |
| 3 | Episode System ⇨ AND<br>THEN (Episode(s))<br>CAUSE |
| 4 | Episode ⇨ INITIATE (Initiating Event, Response) |
| 5 | Initiating Event ⇨ Natural Occurrence(s)<br>Action(s)<br>Internal Event(s) |
| 6 | Response ⇨ MOTIVATE (Internal Response, Plan Sequence) |
| 7 | Internal Response ⇨ Goal(s)<br>Affect(s)<br>Cognition(s) |
| 8 | Plan Sequence ⇨ INITIATE (Internal Plan, Plan Application) |
| 9 | Internal Plan ⇨ Cognition(s)<br>Subgoal(s) |
| 10 | Plan Application ⇨ RESULT (Attempt, Resolution) |
| 11 | Attempt ⇨ (Action(s)) |
| 12 | Resolution ⇨ INITIATE (Direct Consequence, Reaction) |
| 13 | Direct Consequence ⇨ Natural Occurrence(s)<br>Action(s)<br>End State(s) |
| 14 | Reaction ⇨ Affect(s)<br>Cognition(s)<br>Action(s) |
| Intra-Category Connectors | AND : includes simultaneous or a temporal relation<br>THEN : includes temporal but not direct causal relations<br>CAUSE : includes temporal relations which are causal in nature |

(Stein and Glenn, 1979:60)

**Rule 10: Plan Application ⇨ RESULT (Attempt, Resolution)**
**THEN**

Rule 10 states a character's overt attempts to achieve his goal and the resolution of his conflict or disequilibrium. These two categories are connected either by a THEN relation or a RESULT relation.

**Rule 11: Attempt ⇨ Action(s)**

The attempt category includes statements about the character's overt deeds to attain a goal and can be connected by AND, THEN or CAUSE relations.

**Rule 12: Resolution ⇨ INITIATE (Direct Consequence, Reaction)**

Rule 12 states the resolution category which comprises the direct consequence and a reaction connected by an INITIATE relation.

**Rule 13: Direct Consequence ⇨ Natural Occurrence(s)**
**Action(s)**
**End State(s)**

The direct consequence category expresses the attainment or otherwise of the character's goals, marks any changes in the sequence of events caused by the character's actions and INITIATEs or causes a character's reaction to the direct consequence. This category states natural occurrences, actions and end states. Statements in this category can be connected by AND, THEN or CAUSE relations.

**Rule 14: Reaction ⇨ Affect(s)**
**Cognition(s)**
**Action(s)**

This category defines the character's feelings or thoughts about the achievement of his goal. While this category is similar to the internal response category (Rule 7), it does not contain clear goal statements and does not lead to a plan sequence. Though

this category usually occurs at the end of an episode, it can also occur at other points in the episode.

As can be seen in the above section, Stein and Glenn's (1979) story grammar is a modification of Thorndyke's story grammar that was developed from Rumelhart's story grammar. This version of a story grammar specifies the causal link and structural variations that can occur in a story.

## 2.8 Conclusion

Reading is undoubtedly a vital skill learners need to acquire. As a process, it involves the active construction of meaning among parts of a text and between the text and personal experiences. As reading is a skill that learners need to learn, teachers need the knowledge to guide them in reading efficiently and effectively.

This chapter has delved briefly into the theories and models of the reading process. It has also discussed the difficulties learners face in reading and the strategies that they can use to overcome these difficulties. Although assessment of reading comprehension is commonly of the question-answer format, this chapter also explored the use of story grammars and written immediate recall protocols in assessing reading comprehension. This review will form the basis for the data collected in the study.