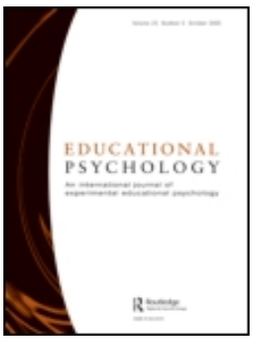

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# *The Influence of Working Memory on Reading and Creative Writing Processes in a Second Language*

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ABSTRACT *The present study tested both the processing and storage of functions of working memory (WM) and whether WM in low-order and high-order writing processes follows the same pattern as in reading. The influence of WM on creative writing was also tested. Forty-seven high school students participated in this study. A test of written language was administered to the subjects, comprising the following subtests spelling, vocabulary, style, logical sentence, sentence combining, thematic maturity, contextual vocabulary, syntactic maturity, contextual spelling, contextual style. A WM reading comprehension test was also conducted. The overall findings of the study indicate significant relationships between WM measures and reading and writing in English as a second language.*

## Introduction

The ability to determine what makes one person an efficient and accurate reader or writer has preoccupied researchers for some time. If we could link into a person's working memory processes and uncover what it is that makes one individual a great writer and another a poor one, we might be able to figure out how to improve the writing skills of the weaker writers.

In the past, researchers differentiated between short and long term memory (Atkinson & Shiffrin; Miller, Galanter, & Pribram; both cited in Richardson et al., 1996). This distinction was based on the assumption that either form of memory is solely a storage space which retains information until it is extracted. Other researchers (Brown; Peterson & Peterson; both cited in Baddeley, 1997) argued that LTM and STM result from the operation of one system.

Nowadays most researchers view what was formerly known as short term memory as working memory (Baddeley, 1986; Carpenter & Just, 1989; Daneman & Carpenter, 1980; Just & Carpenter, 1992; Masson & Miller, 1986). The change in terminology

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stems from the notion that this specific component of cognitive and linguistic processing is responsible not only for the storing of information but also for processing language input and output and integrating text components with one another and with previously acquired knowledge (Siegel & Ryan, 1989).

Though much has been written with reference to the role of working memory in the reading process, little research has been done on the influence of working memory on writing. This study investigates the influence of working memory on reading and writing, specifically creative writing. Reading and writing undoubtedly draw on some of the same processes, hence the analogy between these two related, yet dissimilar, language processes.

This research duplicates parts of the studies carried out by Daneman and Carpenter (1980) and Swanson and Berninger (1996). Its innovation was that the subjects were tested on their writing and reading proficiency in their second language (L2). I chose to conduct this study hoping to locate problematic areas. Very often linguistic processes and problems can be detected by examining a subject's L2. In one's second language it is more difficult to compensate when problems arise, and errors tend to be edifying. The interdependence hypothesis predicts that similar difficulties will appear in both languages owing to a central processing deficit (Abu-Rabia, 1997, 1999). This was the rationale for conducting this study in the subjects' second language.

## Literature Survey

What is working memory? It is the location at which many forms of complex thinking such as problem solving, contemplation, and language comprehension take place (Carpenter & Just, 1989). In this paper, I discuss the relevance of working memory to language comprehension.

> Language processing must deal with a sequence of symbols that is produced and perceived over time, the temporary storage of information is an inherent part of comprehension. Working memory plays a central role in storing the partial and final products of our computations as we process a stream of words in a text, allowing us to mentally paste together ideas that are mentioned separately in the text or are implied. (Carpenter & Just, 1989, p. 31)

According to many researchers (Engle & Conway, 1998; Gathercole & Baddeley, 1993; Just & Carpenter 1992), working memory (WM) has a twofold function a processing site and as an information storage site where the products of these processes are stored. While reading a text the reader stores syntactic, pragmatic, and semantic linguistic information. He or she then uses this information to analyse and clarify the following parts of the text. In any linguistic process WM is involved in (transitory) processing and storage of information. Richardson (1996) argues that working memory also has a significant role in the retrieval of knowledge from long term memory.

According to Baddeley and Hitch (as cited in Gathercole & Baddeley, 1993) WM consists of three components: the central executive, the visuospatial sketchpad and the phonological loop. The central executive is responsible for the management of data within the WM, the retrieval of data from LTM, and the computation and storage of information. The computation resources are limited in capacity. The central executive is augmented by two slave systems, each of which is designed to process and sustain data temporarily. The phonological loop retains verbally coded data, while the visu-

ospatial sketchpad undertakes the short term computation and sustenance of data which is characterised by visual or spatial elements (Engle & Conway, 1998).

Some researchers (Della Sala & Logic; Gilhooly, Phillips, & Forshaw; Saariluoma; all cited in Logic & Gilhooly, 1998) advocate the multicomponent theory of designated WM components. Thus, each element selects appropriate data from long term information storage. Angle (cited in Logic & Gilhooly, 1998) argues that working memory is an adaptable source for various kinds of computation and storage. Baddeley (1997) differentiates memory systems on the basis of the length of time information is stored, and on the quantity of information stored. Short-lived memory stores prevail for no longer than a fraction of a second. Memories relating to the senses are considered an indivisible component of perception. The visual and auditory senses apparently have a transient storage stage, which might be titled short term visual and auditory memory. These forms of STM leave a memory trace that lasts for a few seconds. Likewise, we evidently have LTM for sights and sounds. All these suggest some form of LTM sensory storage (Baddeley, 1997).

Joseph Jacobs, a British schoolteacher interested in his students' mental capacity, first measured STM in 1887. He invented the memory span procedure, in which subjects are asked to repeat a sequence of items such as digits, letters, words, or objects (Baddeley, 1997).

According to Just and Carpenter (1992), when addressing WM and individual differences one must address capacity, efficiency, and distance. Some people have more WM memory capacity than others, namely more attention than others, or they have more processing sources than others. Daneman and Carpenter (1983) suggest that theses two functions of WM "compete for a limited capacity" (p. 562). Another distinction is the efficiency with which an individual processes information. Some people process information more efficiently than others. WM capacity is considered limited, and information may be lost due to this. Researchers contend that the different shares of processing and storage may be the source of individual differences in reading comprehension. A skilled reader is a more efficient processor, so s/he has more information storage capacity. That is, s/he has more attention left for information storage. Just and Carpenter (1992) claim that an English language (EL) speaker's (listener's/reader's/writer's) linguistic competence is dependent on his/her WM capacity.

A significant part of linguistic competence is the ability to synthesise information from different sources, such as clauses and sentences. Consequently, information has to be retained for periods of time and for the duration of other processes. WM provides sources for storage of information, while simultaneously providing sources for processing new information. The greater the distance between two components which need to be merged, the greater the possibility that the reader will err, so the integration of processes will demand more time. Readers whose WM capacity is larger can retain more information in an active mode, hence are more successful at integrating different components.

How do we quantify a person's working memory? Swanson and Berninger (1996) defined tasks that measure WM. They asserted that WM tasks are those that oblige an individual to retain a limited amount of data for a short time while concurrently executing other actions. The Sentence Span Test (Daneman & Carpenter, 1980) was administered to measure WM. It determines the subject's ability to retain an arbitrary list of words while simultaneously comprehending the sentences in which these words appeared. It reflects the tradeoff between computation and data subsistence in working

memory. In addition, it renders idiosyncrasy (personal cognitive thinking style) in the working memory capacity for language comprehension (Carpenter & Just, 1989). Daneman and Carpenter (1980) found a significant correlation between WM and reading comprehension. They claim that this correlation is due to the fact that the WM task activates the same working processes as those activated by reading. It was hypothesised in the same article that the true reason for individual differences in WM lies in the variations efficiency of processing an English Language (EL)-specific task, and storage is immaterial to individual differences. Daneman and Carpenter found a correlation between a reader's reading span and the distance at which the reader could compute a pronoun's referent. This finding emerged from two studies, which varied the number of sentences separating the last mention of the referent from its pronoun. Subjects whose reading span was larger responded more accurately to comprehension questions concerning a pronoun's referent. The distance that a reader could match a noun to its pronoun correctly could be predicted by that reader's reading span. Hence, WM capacity and individual differences were connected by the merging processes used to create EL-coherent representation of the text. These findings were reinforced by Masson and Miller (1983). Swanson and Berninger (1996) perceive writing as an intricate operation, which entails numerous concurrent subgoals and reciprocal processes, apparently dependent on WM and therefore affected by WM capacity. They contend that what characterises skilled writers is their ability to store information while concurrently processing that or other information. Writing is an activity composed of numerous interactive processes and mini-objectives, which transpire contemporaneously. These activities, or some of them, are dependent on WM and its finite capacity.

Swanson and Berninger (1996) maintain that reading comprehension is more efficient when low order skills, such as word identification, are automatic. They assert that poor readers have difficulty reading because these low order processes demand attention—so less attention remains for comprehension. When reading is not automatic the reader's attention focuses on deciphering. Still, automaticity of low order writing processes such as handwriting, punctuation, spelling, namely transcription processes (Swanson and Berninger, 1996), will not automatically lead to efficiency of translation processes such as idea generation and converting these ideas into writing. The rationale is that writing is more productive than reading, and idea formation and presentation will never be automatic. WM may be more closely related to high order than to low order processes.

Skilled writers require convenient and flexible access to a wide range of mental representations from their LTM. These coordinating processes may be supported by the WM system. In writing, various processes must be activated in sequence prior to the output. It is conceivable that low order and high order processes are independent with regard to the writing process. If this is the case, WM may be less significant in low order processes and more significant in high order processes such as text formation.

According to Daneman and Carpenter (1980), the efficiency with which an individual processes language is determined by their WM capacity. We can make inferences from this with regard to writing, since writing and reading undoubtedly share several basic components. A skilled writer will have to activate fewer processes than a poor writer when writing the same text. For skilled writers the intermediate operations, such as lexical accessing and syntax, demand less attention than for the poor writer. This kind of effectiveness indicates that skilled writers need less attention for the basic skills of writing, and therefore have more attention for creativity, organisation, and rewriting.

Little research has been conducted in the field of writing, especially as compared with

reading, which some consider its counterpart. However, there is a small body of work pertaining to writing and working memory, in particular creative writing and working memory. Hayes (1989) maintains that writing encompasses many types of knowledge: knowledge of the topic at hand, knowledge of one's target audience, and knowledge of language structure, to mention the elements perhaps most central to the complex process of writing.

Cumming (1989) cites numerous studies holding that various processes involved in L2 writing correspond to those of L1 writing. Examination of subjects' L1 and L2 writing have demonstrasted that they design content, edit documents, make use of thinking strategies, employ individual writing techniques, and merge knowledge into writing in essentially the same manner in both languages. Errors in L2 writing seem to derive from "constraints in people's mental capacities to process information, inadequacies in their writing strategies, constraints on their functional hypotheses about language, or knowledge in general" (p. 83). Generally, there seems to be a correspondence between the writing process in an L2 and an L1.

Different theories exist as to L2 writing performance. Widdowson (1983, cited in Cumming, 1989) contends that individuals writing in an L2 are, above all, bound by their selections with reference to textual properties of the language. By contrast, Zamel (1983, cited in Cumming, 1989) maintains that concentration on language use is sporadic and uncomplicated within the entire process of L2 writing. The main conclusion reached by Cumming (1989), based on a review of previous studies, was that the differences in theories should most likely be attributed to individual differences. Cumming studied the similarities, if they exist, between writing expertise and second language proficiency, and found these two processes distinct. He stated that no significant interaction took place between the two processes, and each contributed distinctly to L2 writing.

## The Present Study

The aims of the present study were to measure both the processing and storage functions of WM and to investigate whether WM in low order and high order writing processes followed the same pattern as in reading. It is important to determine if working memory has the same influence on the writing process as on the reading process. Furthermore, the aim was to determine the influence of working memory on creative writing. In that sense, this study duplicated part of the work of Daneman and Carpenter (1980) and Swanson and Berninger (1996). Here, the additional element was the subjects' second language. The questions were:

1. Does working memory have a positive influence on writing proficiency, namely high order skills?
2. Do good working memory scores mean good writing scores?
3. Does the distance between a pronoun and its referent influence retrieval of the pronoun from WM?

## Hypothesis

The main hypothesis here was that an individual's language comprehension proficiency depends on working memory capacity. More specifically, a significant correlation between the scores on the Test of Written Language and the reading comprehension

(WM) tests is expected. The subjects' performance on the reading comprehension tests should predict their performance on the written tests; a pattern is expected in the subjects' proficiency in writing and reading.

## Method

### *Participants*

Forty-seven high school students (22 girls, 25 boys) participated in this study. All subjects studied in grades 10 and 11. The mean chronological age was 16 years and three months. Thirty-nine of the subjects were native Hebrew speakers and eight were native Russian speakers, for whom English was L3. The decision to study high school students was made on the rationale that younger subjects would still be dealing with L1 mastery. As determined by Abu-Rabia (1997, 1999), an individual's L1 development exerts a significant effect on L2 development.

### *Tasks*

*Test of Written Language.* This test (Hammill & Larsen, 1988; cited in Swanson & Berninger, 1996) is a comprehensive standardised measure of writing ability for children up to the age of 18. Swanson and Berninger (1996) state that it has been proved reliable. It encompasses the following 10 subtests:

1. Spelling: subjects were required to write dictated sentences of nine to 10 words each. They were required to pay attention to spelling and punctuation.
2. Vocabulary: subjects had to write sentences incorporating a given word.
3. Style: this made use of the spelling subtest by evaluating subjects' correct use of punctuation and capitalisation.
4. Logical sentences: subjects had to correct and rewrite illogical sentences so that they would make sense.
5. Sentence combining: subjects were asked to integrate the meanings of several short sentences into one grammatically correct sentence.
6. Thematic maturity: subjects were asked to write a short story in response to one of two stimulus pictures. Subjects earned points for all predetermined elements such as names of characters and objects, and a title for the story.
7. Contextual vocabulary: this reflected the number of different words in the story with seven or more letters.
8. Syntactic maturity: this reflected the number of words that comprise grammatically acceptable sentences in the story.
9. Contextual spelling: this reflected the number of words in the story which were spelled correctly.
10. Contextual style: this reflected the number of correctly used punctuation and capitalisation rules in the story.

*WM—Reading Comprehension.* This task (Daneman & Carpenter, 1980) was used to determine the subjects' working memory. They were required to read passages and then answer various questions without rereading the text. The subjects were given two passages to read, on each of which they were asked four questions. The passages and the questions were presented on different pages, and subjects were not allowed to

TABLE I. Means and standard deviations for Test of Written Language in L2 English ($n = 47$)

| Subtest | Sum | Mean | Median | SD | Min | Max |
|---|---|---|---|---|---|---|
| Total | 10391 | 212.06 | 201 | 84.57 | 0 | 363 |
| Spelling | 2042 | 43.44 | 44 | 3.28 | 30 | 48 |
| Vocabulary | 193 | 4.10 | 4.5 | 1.19 | 5 | 5 |
| Style | 581 | 12.36 | 13 | 2.83 | 3 | 15 |
| Logical sentences | 189 | 4.02 | 5 | 1.33 | 0 | 5 |
| Sentence combining | 184 | 3.9 | 4 | 1.29 | 0 | 5 |
| Thematic maturity | 471 | 10.0 | 10 | 4.84 | 0 | 19 |
| Contextual vocabulary | 419 | 8.9 | 9 | 4.85 | 1 | 19 |
| Syntactic maturity | 2427 | 51.6 | 46 | 31.82 | 0 | 116 |
| Contextual spelling | 3230 | 68.7 | 66 | 27.0 | 15 | 126 |
| Contextual style | 655 | 13.9 | 13 | 8.17 | 1 | 37 |

TABLE II. Passage 1 WM—reading comprehension (distance two sentences) ($n = 47$)

| Question type | Sum | Mean | Median | SD | Min | Max |
|---|---|---|---|---|---|---|
| Fact | 34 | 0.72 | 1 | 0.45 | 0 | 1 |
| Pronoun reference | 63 | 1.34 | 1.5 | 0.58 | 0 | 2 |
| Thematic | 35.5 | 0.75 | 1 | 0.420 | 0 | 1 |
| Total | 132.5 | 2.8 | 3 | 0.97 | 0 | 4 |

TABLE III. Passage 2 WM—reading comprehension (distance six sentences) ($n = 49$)

| Question type | Sum | Mean | Median | SD | Min | Max |
|---|---|---|---|---|---|---|
| Fact | 21 | 0.44 | 0 | 0.49 | 0 | 1 |
| Pronoun reference | 61.5 | 1.30 | 1 | 0.63 | 0 | 2 |
| Thematic | 39 | 0.82 | 1 | 0.43 | 0 | 2 |
| Total | 119.5 | 2.54 | 3 | 1.0 | 0 | 4 |

reread the passages when answering the questions. The first question concerned a pronoun mentioned in the last sentence of the passage. In the first passage, the distance between the pronoun and its referent was two sentences. In the second passage, this distance was six sentences. Two of the other questions required the subjects to recall a fact from the passage. The last question referred to the theme of the passage and required language production; subjects were asked to give the passage a title.

*Procedure*

Every subject was given a test booklet, with each test on a separate sheet of paper; subjects were not allowed to go back to previous parts of the test once completed. There was no time limit.

## Results and Discussion

Means and standard deviations for the Test of Written Language are shown in Table I. Correlations for these measures are shown in Table V. As shown in Table V, a

TABLE IV. Total WM—reading comprehension score ($n = 49$)

| | Sum | Mean | Median | SD | Min | Max |
|---|---|---|---|---|---|---|
| Total | 126 | 2.68 | 2.75 | 0.89 | 0 | 8 |

TABLE V. Correlation between Test of Written Language and WM—reading comprehension test total ($n = 47$)

| Subtest | Working memory |
|---|---|
| Total | 0.54*** |
| Spelling | 0.68*** |
| Vocabulary | 0.55*** |
| Style | 0.45** |
| Logical sentences | 0.48** |
| Sentence combining | 0.57*** |
| Thematic maturity | 0.29* |
| Contextual vocabulary | 0.52*** |
| Syntactic maturity | 0.51*** |
| Contextual spelling | 0.45** |
| Contextual style | 0.29* |

* $P < 0.05$
** $P < 0.01$
*** $P < 0.001$

significant correlation (total test result correlation $r = 0.54$) occurred between the working memory task (the reading comprehension task) and the subtests and total Test of Written Language. These findings are consistent with the literature. For example, Swanson and Berninger (1996) found significant correlations between the WM task and the standardised reading comprehension test, as well as between the WM task and the composite score of writing ability.

As can be observed in Tables II and III, the distance between a pronoun and its referent had a marginal affect on the subjects' ability to recall the referent. At a distance of two sentences, the mean score was 1.34 (SD 0.581) out of a possible total score of 2. At a distance of six sentences, the mean score was 1.30 (SD 0.630) out of a possible total score of 2. Hence, distance affected an individual's ability to recall a referent accurately, indicating that the subjects' working memory was at work here.

Table VI shows Pearson's intercorrelation matrix between the different components of the Test of Written Language and the working memory task. It demonstrates that subjects' performances on all the different writing tasks were positively intercorrelated, excluding the thematic maturity subtest which exhibited negative or weak correlations. The thematic maturity subtest measured the instances where the subject used names of characters, objects, provided a title for the story, and so on. Though these results were not anticipated, they are not surprising. An individual's written proficiency, and by extension activation of her/his working memory, is not necessarily displayed by use or lack of use of proper names and objects.

A number of interesting findings cannot be expressed numerically. Several subjects forgot words in the dictation or substituted "a" for "the" and vice versa. These findings

TABLE VI. Pearson intercorrelation matrix between components of the Test of Written Language

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Spelling | | | | | | | | | | |
| 2 | Vocabulary | 0.55*** | | | | | | | | | |
| 3 | Style | 0.58*** | 0.45** | | | | | | | | |
| 4 | Logical | 0.32* | 0.40** | 0.21* | | | | | | | |
| 5 | Combining | 0.58*** | 0.67*** | 0.52*** | 0.53*** | | | | | | |
| 6 | Thematic maturity | 0.29* | − 0.01 (NS) | 0.19* | 0.11 (NS) | 0.10 (NS) | | | | | |
| 7 | Contextual vocabulary | 0.57*** | 0.47** | 0.43** | 0.31* | 0.46** | 0.44** | | | | |
| 8 | Syntactic maturity | 0.49** | 0.37* | 0.46** | 0.45** | 0.57*** | 0.31* | 0.76*** | | | |
| 9 | Contextual spelling | 0.46** | 0.44** | 0.37* | 0.47** | 0.57*** | 0.26* | 0.73*** | 0.78*** | | |
| 10 | Contextual style | 0.36* | 0.34* | 0.36* | 0.42** | 0.44** | 0.18* | 0.66*** | 0.70*** | 0.85*** | |
| 11 | Total score | 0.58*** | 0.47** | 0.51*** | 0.50*** | 0.63*** | 0.37* | 0.83*** | 0.93*** | 0.93*** | 0.84*** |

* $P < 0.05$
** $P < 0.01$
*** $P < 0.001$
NS = not significant

are apparently indicative of working memory. This can be interpreted as evidence of the limited capacity of working memory and reliance on previously acquired linguistic knowledge (the central executive). A number of subjects could not recall the specific answer to a question that they were asked in the reading comprehension WM task (see appendix). Instead, some of them wrote down general information. In the second passage, the answer to the first question was "Wayne", who is the speaker's best friend. Some wrote "my best friend", others wrote "his best friend", and yet others wrote a distortion of the name Wayne. The correct answer the second question on that passage is "The Grill", which the reader is expected to understand from the context of the passage as a diner of sorts. Several subjects could not recall the name of the diner and instead wrote "a bar" or "a restaurant".

Similarly, the correct answer the second question on the first passage is "the river clearing". Several subjects wrote "the forest clearing", a more commonly used phrase with which the subjects seem familiar. It seems that something, very possibly the word "clearing", triggered the collocation "the forest clearing" in the subjects' LTM. With regard to the third question 3 on that same passage (the correct answer is "Bobbie"), some subjects wrote "I don't remember", others wrote "someone with R in his name", while still others wrote "Robin", "Bobbie", and "Billy".

The conclusions I have reached on the basis of these answers are speculative. The first question to address was, would there have been less confusion with regard to names had the names in the passage been ones that subjects were (more) familiar with, as the names used were not Israeli names? If the students had been interviewed and asked why they were confused about the names, they might have explained it as lack of familiarity. This is undoubtedly an additional aspect of writing and reading in L2. Obviously, with regard to the other incorrect answers, a semantic field was accessed and activated while these questions were being answered. Another fair assumption is the activation of phonology in WM. This seems to be evidence of the activation of the phonological loop in working memory (Gathercole & Baddeley, 1993).

While researching this field I have found that a major difficulty lies in categorically isolating the working memory component of language. In future research using similar working memory tasks, names should be culturally based, or the significance of the erroneous, but close, responses should be studied. In addition, it would be productive to interview subjects upon conclusion of the tasks (both working memory and writing tasks) to verify the accuracy of their performance. Some of their answers might have been wrong due to haste; in the attempt to reconstruct information from their working memory subjects may have forgotten letters and/or words. Clearly, their working memory may well have been more efficient in reality than the scores showed. Furthermore, it would be interesting to research the options for working memory improvement.

My assumption, based-on both research and working experience, is that if there is evidence of working memory in L2, it would most certainly be activated under the same conditions in L1. This is so despite the added difficulty of second language written proficiency. I would like to explore this in future research, where it will be essential to compare working memory in first and second language.

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**Appendix :**

**Test of Written Language:**

I. Write the dictated sentences.

Pay attention to spelling and punctuation

1. The best student in each class will receive a prize.
2. If I were you, I would be more careful.
3. Why can't you do this small favor for me?
4. That store doesn't have any brown sugar at the moment.
5. Mr. Cohen is on vacation in Rome for the month.

II. Write sentences using the following words.

Use ONE of the words in each sentence.

1. freedom 2. say 3. advertisement 4. happily 5. band

III. Rewrite the following sentences logically.

1. John blinked his nose.
2. The cat ate his bed.
3. It is very cold in summer in Israel.
4. She bent down to tie his shoelace.
5. Carol asked me to lose the book.

IV. Combine each set of sentences into ONE sentence.

1. John drives fast. John has a red car.
2. Diane reads quickly. Diane has at new book.
3. Sam is walking his dog. The dog is a poodle. Rex is Sam's poodle.
4. This book is interesting. It is brand new. My sister gave it to me yesterday.
5. The air-conditioner is very old. It doesn't work properly.

We should get a new one.

V. Comprehension Tests:

Passage 1:

It was midnight and the jungle was very still. Suddenly the cry of a wolf pierced the air. This anguished note was followed by a flurry of activity. All the beasts of the jungle recognized that an urgent meeting had been summoned by the lion, their king. Representatives from each species made rapid preparations to get to the river clearing. This was where all such emergency assemblies were held. The elephant and tiger were the first to arrive. Next came the gorilla, panther and snake. They were followed by the owl and the crocodile. The proceedings were delayed because the leopard had not shown up yet. There was much speculation as to the reasons for the midnight alarm. Finally he arrived and the meeting could commence.

Questions:

(1) Who finally arrived? (pronoun)

(2) Where were these emergency meetings held? (fact)

(3) What broke the stillness of the night? (fact)

(4) Provide a title for the passage that captures its theme. (theme)

Passage 2:

Sitting with Richie, Archie, Walter and the rest of my gang in the Grill yesterday, I began to feel uneasy. Robbie had put a dime in the jukebox. It WAS blaring one of the latest "Rock and Roll" favorites. I was studying, in horror, the reactions of my friends to the music. I was especially perturbed by the expression on my best friend's face. Wayne looked intense and was pounding the table furiously to the beat. Now, I like most things other teenage boys like. I like girls with soft blond hair, girls with dark curly hair, in fact all girls. I like milkshakes, football games and beach parties. I like denim jeans, fancy T-shirts and sneakers. It is not that I dislike rock music but I think it is supposed to be fun and not taken too seriously. And here he was, "all shook up"

and serious over the crazy music.

Questions

1. Who was "all shook up" and serious over the music? (pronoun)
2. Where was the gang sitting? (fact)
3. Who put money in the jukebox? (fact)
4. Provide a title for the passage that captures its theme. (theme)

1. Thematic Maturity Subtest
2. Contextual Vocabulary Subtest
3. Syntactic Maturity Subtest
4. Contextual Spelling Subtest
5. Contextual Style Subtest

6. VI Write a short story based on ONE of the following pictures.