Gifted students were reported to: describe strategies providing a rationale for their use, assess their comprehension employing specific reading strategies, and monitor the effectiveness of the strategies used, modifying them as necessary. These descriptions of reading strategy awareness in gifted students are similar to the respective subscales here of conditional knowledge, evaluation, and regulation.

With regard to the regulation subscale, the significant difference obtained between the gifted and the learning disabled students is in accordance with previous research. Good readers have been described as possessing more metacognitive knowledge about the reading process and the monitoring of reading comprehension than poor readers (Garner & Kraus, 1981-1982). This awareness of comprehension monitoring can be described as regulation.

With respect to the actual monitoring process, numerous research studies have concluded that unskilled and younger readers are not as effective in monitoring their reading comprehension as skilled and older readers (Baker & Brown, 1984b; Brown & Campione, 1986; Grabe & Mann, 1984; Myers & Paris, 1978; Paris & Myers, 1981). As students increase their awareness of the metacognitive processes, they have the ability to exercise more control over these processes (Sanacore, 1984).

The trend evidenced between the gifted and the average students on the regulation subscale is similar to the findings of Wong and Wong (1986). Wong and Wong reported differences between the above average and the average/learning disabled students in metacognitive knowledge about passage organization and vocabulary. It is probable that the regulation subscale of the Index of Reading Awareness is measuring a similar type of metacognitive knowledge to that in the Wong and Wong investigation. Regulation is defined as monitoring one's strategies according to the nature of the task and one's progress. Examples of questions from this subscale are: "What things do you read faster than others? (Item #7); Why do you go back and read things over again? (Item #15); What do you do if you come to a word and you don't know what it means? (Item #18)" (Jacobs & Paris, 1987, p. 270). The metacognitive knowledge about passage organization and vocabulary difficulty is task related and appears to be encompassed under regulation.

An unanticipated finding of this research study was that the gifted, average, and learning disabled students did not differ significantly from each other on the planning subscale of the Index of Reading Awareness. These results suggest that the three groups did not differ in their awareness of selecting a particular strategy to achieve a specific goal. Yet, numerous researchers have authorized

planning as one essential component of the metacognitive reading process (Baker & Brown, 1984b; Jacob & Paris, 1987; Paris & Lindauer, 1982; Wang & Peverly, 1987). However, a trend was evident between the learning disabled and the gifted/average students. This trend is consistent with the results on the total score and the other three subscales which differentiated between the gifted and the learning disabled students.

One possible explanation for the lack of differentiation between the three groups on planning, may be that the reading awareness strategies assessed by the planning subscale are easier than are the evaluation, regulation, and conditional knowledge components. For example, the planning questions of the Index of Reading Awareness focus on the following strategies: reading for meaning (Item #11), selecting the purpose for reading (Item #14), reading for the main idea (Items #8 & #12), and the use of skimming (Item #16). These are reading objectives which are specified in the Program of Studies (Alberta Education, 1982) and may be more familiar to the students than the questions on the evaluation, regulation, and conditional knowledge categories.

Another plausible explanation for these results may be due to sensitivity of the measurement instrument. The planning subscale items of the Index of Reading may not adequately discriminate among the gifted, average, and

learning disabled students. Although Jacobs and Paris (1987) reported the Index of Reading Awareness to be an effective instrument in discriminating reader differences, only overall reading awareness scores were discussed. Results in terms of the four subscales of evaluation, planning, regulation, and conditional knowledge were not reported. Further research on the instrument is needed because it is a relatively new measure which has not been normed or extensively developed.

The Relationship Between Reading Strategy Awareness and Reading Comprehension

Thus far, the discussion has focussed on reading strategy awareness differences among the gifted, average, and learning disabled students. The relationship between students' reading strategy awareness and their reading performance is also of interest. According to the correlational analysis, a significant correlation was revealed between the reading strategy awareness total score and the reading comprehension ($r = .16$; $p < .01$) and vocabulary scores ($r = .13$; $p < .01$) of the Canadian Achievement Test. Furthermore, a significant correlation was obtained between reading comprehension and reading strategy awareness on three of the four subscales (evaluation, regulation, and conditional knowledge). Although the relationship between reading strategy awareness

and reading performance is statistically significant, it is a relatively low correlation. While one cannot expect an extremely high correlation, caution must be taken in interpreting these results as they do not indicate a strong relationship between reading awareness and reading comprehension.

These results indicate that some relationship exists between students' awareness of reading strategies and their reading comprehension performance. Previous research studies found a relationship between metacognitive knowledge and reading performance (Jacobs & Paris, 1987; Moore, 1983; Moore and Kirby, 1981; Paris & Jacobs, 1984; Wingenbach, 1982, 1984). Paris and his colleagues reported a higher reading awareness level to be associated with higher reading comprehension scores (Jacobs & Paris, 1987; Paris & Jacobs, 1984; Paris & Oka, 1986). Paris & Jacobs (1984) obtained modest pretest correlations between the reading awareness interview and the Gates MacGinitie comprehension test for third grade ($r = .28$; $p < .01$) and fifth grade ($r = .40$; $p < .001$) students. This relationship was stronger for fifth grade students than third grade students, indicating their awareness to be more closely related to their comprehension performance. In a later study, Paris and Oka (1986) examined the relationship between reading comprehension as measured by the Gates MacGinitie Reading Test and reading awareness as measured by the Index of

Reading Awareness. Results revealed significant pretest correlations of $r = .41$; $p < .01$; and $r = .33$; $p < .01$ and post-test correlations of $r = .37$; $p < .01$ and $r = .40$; $p < .01$ for third and fifth grade students respectively. These correlations are slightly higher than those obtained in the present study and may be attributed to the larger sample in the Paris investigation (grade 3, $n = 665$ and grade five, $n = 745$).

In the present study, the highest correlation ($r = .18$) was obtained between conditional knowledge and reading comprehension. This suggests that an individual's awareness of reading strategies as measured by the items on the conditional knowledge subscale may be most closely related to one's reading comprehension. Furthermore, this is the subtest which may be initially most related to generalization.

Skilled and gifted students have been reported to demonstrate superior performance in strategy awareness, strategy use, and generalization. They are adept at describing specific strategies and providing a rationale for their use (Wingenbach, 1982, 1984). Gifted students spontaneously utilize more effective and complex learning strategies more quickly and easily than their average peers. In addition, they demonstrate more effective generalization on "far transfer" tasks (Borkowski & Peck, 1986). This understanding of why and when to utilize specific strategies

has been identified as a critical component in successful transfer and maintenance of skills (Paris & Oka, 1986; Pressley et al., 1987). In contrast, when taught new skills, learning disabled students have more difficulty generalizing to new tasks, particularly the more the new task or situation varies from the original task (Borkowski & Kurtz, 1987). This ability to generalize distinguishes the gifted and the learning disabled students.

The results of the planning subscale require particular consideration. No significant correlation was obtained between the planning component and reading comprehension. These results indicate that planning as measured by the Index of Reading Awareness is not significantly related to reading comprehension as measured by the Canadian Achievement Test. Furthermore, the results of the one-way ANOVA revealed no significant differences between the three groups of learners on the planning subscale. This suggests that students in each of the three groups may possess similar metacognitive reading awareness of planning strategies. Given the results of both these analyses, the items on the planning subscale require further examination. Examples of questions on this subscale include: "If you could only read some sentences in the story because you were in a hurry, which ones would you read? (Item #8); When you tell other people about what you read, what do you tell them? (Item #11); If the teacher told you to read a story

to remember the general meaning, what would you do? (Item #12) (Jacobs & Paris, 1987, p. 269). If these items accurately reflected the planning component of metacognitive reading awareness, one would anticipate a significant relationship between the planning subscale and reading comprehension, a discrimination between the three groups of learners, or both. Furthermore, this lack of relationship between the planning subscale and comprehension would contribute to the relatively low correlation between overall reading awareness and reading comprehension.

The design of the present study was causal comparative in nature. Thus, caution should be taken in assuming any cause-effect relationships between groups of students and reading awareness strategies or between reading strategy awareness and reading comprehension. Furthermore, these results must not be viewed in isolation but in the context of the numerous variables involved in reading. In addition to reading awareness, reading self-perceptions, cloze, error detection, social self-perceptions, and motivational orientation have been found to affect reading comprehension performance.

The degree of influence of these factors varied with grade and reading level of the students. Reading awareness highly predicted reading ability level for low readers and error detection and motivation for average readers, while attitudes and self-perceptions predicted reading success for

high readers (Paris & Oka, 1986). The low correlations between reading awareness and reading comprehension obtained in the present study may suggest that although reading awareness is an important factor in reading comprehension, many other important variables are involved in the reading process.

CHAPTER VII

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

The purpose, methodology, and major findings of the present investigation will be summarized in this chapter. A discussion of the limitations of this study and recommendations for future research will follow. Finally, implications of the research for practioners and researchers will be discussed.

Summary

A review of the literature indicates that skilled readers demonstrate greater metacognitive knowledge of the various reading components than unskilled readers (Canney & Winograd, 1979; Forrest-Pressley & Waller, 1984; Garner & Kraus, 1981-1982; Moore & Kirby, 1981; Myers & Paris, 1978). Proficient readers are strategic readers. They know when, how, and why to use various reading strategies. They are aware of the reading strategies required to achieve different purposes and the value of such strategies (Paris et al., 1983; Pressley et al., 1987). This awareness and reflection of the various reading strategies affects how the reading task is approached and the strategies implemented in the event of comprehension failure (Forrest-Pressley & Waller, 1984).

Although strategic learners have been identified as utilizing the processes of planning, evaluation, regulation, and conditional knowledge, few studies have investigated these specific metacognitive components in reading (Paris & Lindauer, 1982). Furthermore, investigations examining the relationship between metacognitive knowledge and reading comprehension have been limited. The majority of the existing studies have investigated two groups of learners, the skilled and unskilled. Very few investigations have examined three groups of learners within the regular classroom. Therefore, the primary purpose of this research study was to investigate reading strategy awareness differences between gifted, average, and learning disabled fourth grade students, enrolled in regular classrooms. Evaluation, planning, regulation, and conditional knowledge were the specific reading strategy awareness components examined. A secondary purpose was to investigate the relationship between reading strategy awareness and reading comprehension performance.

From the initial screening, data for 356 subjects was obtained and analyzed. The sample consisted of 116 gifted, 127 average, and 113 learning disabled students enrolled in regular grade four classes. Following the descriptive summary, five one-way ANOVAs were conducted to determine differences between the three groups in overall reading strategy awareness, evaluation, planning, regulation, and

conditional knowledge. In addition, a correlational analysis was performed to examine the relationship between reading awareness and reading comprehension.

The results indicate that all three groups of students, including the learning disabled, possess some metacognitive knowledge about reading strategies. According to the descriptive statistics, the gifted students scored the highest on reported reading strategy awareness, while the learning disabled students scored the lowest. The one-way ANOVAs revealed significant group differences between two of the three groups. The gifted and learning disabled students differed on overall reading strategy awareness and on three of the four subscales: evaluation, regulation, and conditional knowledge. No significant differences between the groups were obtained on the planning subscale. On the basis of the correlational analysis, some relationship was established between reading comprehension performance and overall reading strategy awareness, evaluation, regulation, and conditional knowledge. Although this relationship was statistically significant, it was low. However, no significant correlation was obtained between reading comprehension and planning.

The differences in reading strategy awareness between the gifted and learning disabled students are consistent with previous research of skilled and unskilled readers. A lack of differentiation among the three groups may be

attributed to the nature of the sample, the type of metacognitive knowledge investigated, or both. The correlational analysis revealed some relationship between overall reading strategy awareness and reading comprehension. The lack of distinction between the groups on the planning subscale and the nonsignificant relationship between planning and reading comprehension suggest that the planning items of the Index of Reading Awareness require further investigation. An elaboration of these findings and a discussion in relation to existing research was presented in Chapter Six.

Limitations and Recommendations for Future Research

This study has certain limitations which require consideration in the interpretation of the results. One of the methodological limitations of this study is the "knowledge versus use" issue. The problem in using the Index of Reading Strategy Awareness as the sole assessment device, is that it is difficult to determine whether students actually use the strategies they report using. Some students may possess the awareness and ability to use the metacognitive reading strategies, yet not actually employ them during the reading process (Garner, 1987). Thus, the question remains as to whether the students who

differ in reading strategy awareness actually differ in the use of this metacognitive knowledge. Further research investigating reading strategy awareness, comprehension monitoring, and strategy use along the dimensions of evaluation, planning, regulation, and conditional knowledge would address this issue.

A second limitation is determining the accuracy of the reported metacognitive knowledge. This may vary among students based on their memory of the metacognitive processes and on their perceptions in completing the questionnaire. Variations in the accuracy of the students' responses may occur as a result of memory failure due to the automaticity of the reading strategies or as a consequence of the interval of time lapsed between the reading process and the reporting (Garner, 1987). Furthermore, self-report assessment methods have the potential limitation of being biased (Borg & Gall, 1983). Students may respond according to what they feel is a correct response or as what would be viewed as desirable. In order to overcome the problems associated with the students' various reading abilities, the questions on the Index of Reading Awareness questionnaire were read to the students. This may have presented somewhat more bias than if all the students were able to read the questionnaire independently. However, to avoid this limitation others would be incurred.

A third limitation is the type of metacognitive knowledge investigated. The Index of Reading Awareness was developed reflecting Paris's conceptualization of reading awareness. There may be other types of metacognitive knowledge and strategies that are equally important to successful reading not assessed by this questionnaire (Jacobs & Paris, 1987).

The fourth limitation is with the Index of Reading Awareness questionnaire. Given that the importance of metacognition has only recently been recognized, very few assessment measures have been developed in this area. Previous research has almost exclusively utilized the interview format to assess metacognitive knowledge. Thus, the use of the Index of Reading Awareness brings with it the limitations of a relatively new assessment instrument. Although the Index of Reading Awareness multiple-choice format overcomes some of the limitations of verbal report measures, it does not allow for student generated responses. Students must choose from the given alternatives and the issue of guessing is introduced (Paris, Wasik, & Van der Westhuizen, 1988). Furthermore, the Index of Reading Awareness has only three multiple-choice alternatives for each question. This in itself is limiting and may result in less discrimination between students than if there were more options available.

As has been noted previously in the discussion, some difficulty with the planning items of the questionnaire may be present. The planning subscale did not discriminate between the three groups or show a significant relationship to reading comprehension. The reported test-retest reliability ($r = .55$) over an eight month interval is adequate but not high. Furthermore, no specific normative data has been reported. These limitations may be attributed to the newness of the instrument and through further testing could be overcome.

A final limitation of this study is that only fourth grade students were investigated. Further research is required in the area of metacognitive reading strategy awareness with these three distinct groups of learners at various grade levels. Such research would clarify and expand our understanding of the role of metacognitive reading strategy knowledge in the reading process.

The present research study examined strategy awareness in reading. Future research investigating awareness and strategy use of evaluation, planning, regulation, and conditional knowledge across the various content areas would determine whether these are general strategies or whether they are specific to a particular content area. Moreover, research investigating the most effective instructional methods in this area for these three groups of learners would be invaluable.

Conclusions and Implications of the Research

Despite the limitations of this research study, the results indicate a positive relationship between reading strategy awareness and reading performance. Furthermore, overall and specific reading strategy awareness differences between gifted and learning disabled students were found. Although further research is necessary with strategy use and instructional methods, these findings have implications for teachers, school curriculum, teacher education, and assessment methods.

Traditionally poor readers or learning disabled students have been given additional instruction and practice with the skills components of reading (phonics, sight words, and decoding) while good readers or gifted students have been provided with an emphasis on reading comprehension and the higher order thinking processes (Jones, 1986). Thus, it is not surprising that research has characterized unskilled readers as being concerned with the decoding aspects rather than the comprehension aspects of reading (Canney & Winograd, 1979; Palincsar & Brown, 1987a; Paris & Myers, 1981). Moreover, the learning disabled readers have been viewed as having a 'deficit' in metacognitive knowledge (Borkowski & Kurtz, 1987; Torgesen, 1977). The results of this study suggest that learning disabled students possess some metacognitive awareness of reading strategies.

It is critical for teachers to recognize that the learning disabled or poor readers in their classes possess the ability to be aware of metacognitive reading strategies. Research has consistently shown that learning disabled students improve their reading performance when instructed in strategy use (Chan & Cole, 1986; Chan et al., 1987; Clark et al., 1984). Increasing reading strategy awareness may be a contributing factor in improved reading performance.

Metacognitive reading awareness must include conditional knowledge. Students need to be aware of the value of reading strategies and when to employ them in order to improve their reading performance and to spontaneously transfer such strategies (Paris & Byrnes, 1989).

An awareness of the relationship between metacognitive knowledge about reading strategies and reading performance would allow teachers to recognize the importance of incorporating this metacognitive knowledge into their reading instruction. Although further research is needed in instructional methods, teacher recognition of the importance of metacognitive knowledge in reading is the first step in employing changes in instruction. However, a general knowledge is not sufficient. An understanding of the differences in specific reading strategy awareness (evaluation, regulation, and conditional knowledge) among various learners in the regular classroom would assist

teachers in tailoring instruction to meet these individual needs.

Implications for teachers are that metacognitive reading awareness and strategy instruction are important for all students within the regular classroom. Although this would be most important for the learning disabled students, all students could benefit from such instruction. Learning disabled students would appear to require direct instruction in these areas as metacognitive knowledge is a prerequisite to the application of these strategies. Gifted students may not require this same basic instruction as they possess a greater reading strategy awareness. However, research in strategy use indicates that gifted students can also benefit from reading strategy instruction (Mitchell & Irwin, 1985; Scruggs et al., 1985).

As the view of reading must be expanded to include metacognition generally and reading strategy awareness specifically, this has implications for both assessment and instruction. Implications for assessment lie with the Index of Reading Awareness questionnaire and with reading assessments. With respect to the Index of Reading Awareness, the results of the planning subscale require particular consideration. The lack of difference between the three groups of students and the nonsignificant relationship between the planning subscale and reading comprehension would seem to indicate that planning may be a

misnomer for this scale. Perhaps further research could involve a factor analysis and an item analysis of the Index of Reading Awareness questionnaire. A revision of the questions and alternatives, on this basis, could include more choices for each item. Extensive testing of the Index of Reading Awareness, including validity, reliability, and normative data would potentially strengthen the usefulness of this instrument for both researchers and practioners.

Present reading assessments which focus exclusively on vocabulary and comprehension are not adequate. Reading assessments (at both the formal and informal levels) need to include metacognitive aspects such as reading awareness. As there are presently very few such assessment measures, there is a need for further development of appropriate instruments to evaluate metacognitive reading strategy awareness (Jacobs & Paris, 1987).

If change within the educational system is to occur, then it must be directed to the teachers through the objectives of the curriculum and through teacher education. The results of this research indicate some relationship between metacognitive knowledge and reading performance. The current objectives of the language arts curriculum need to be modified to include metacognitive reading strategy awareness as one aspect of reading instruction. The components of reading strategy awareness must at least include conditional knowledge, evaluation, and regulation.

Teacher education with respect to metacognition needs to occur at both the inservice as well as preservice level.

Reading strategy awareness is one important component in reading comprehension and strategic learning. However, many other important variables are involved in the reading process. Paris & Byrnes (1989) present this more global perspective:

> The development of strategic reading appears to depend on student's progressive understanding of the nature and usefulness of strategies that aid comprehension (Paris, Lipson, & Wixson, 1983). But, strategic behavior involves more than simply knowledge or metacognition about strategies. Children's theories of strategies must be joined with their theories of self-competence, effort, and academic tasks in order to be manifested in self-regulated learning. (p. 185)

The implications of this research are far reaching. Investigations of reading strategy use and the effects of reading strategy awareness instruction on reading comprehension and academic performance would provide further direction for teachers and researchers. Meanwhile, educators need to be aware that reading awareness is one variable in the reading process and that differences in reading strategy awareness exist among the learners in the regular classroom. Assessment, instruction, curriculum, and

teacher education are the areas potentially impacted by research in metacognition and reading. The anticipated benefits are students of the future who are proficient readers and self-directed learners.

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Appendix

Index of Reading Awareness

Name_____School_____Teacher_____

Multiple Choice

Circle the best answer for you.

1. What is the hardest part about reading for you?

   a. Sounding out the hard words.
   b. When you don't understand the story.
   c. Nothing is hard about reading for you.

2. What would help you become a better reader?

   a. If more people would help you when you read.
   b. Reading easier books with shorter words.
   c. Checking to make sure you understand what you read.

3. If you are reading a story for fun, what would you do?

   a. Look at the pictures to get the meaning.
   b. Read the story as fast as you can.
   c. Imagine the story like a movie in your mind.

4. What is special about the first sentence or two in a story?

   a. They always begin with "once upon a time."
   b. The first sentences are the most interesting.
   c. They tell what the story will be about.

5. How are the last sentences of a story special?

   a. They are the exciting, action sentences.
   b. They tell you what happened.
   c. They are harder to read.

6. If you were reading for science or social studies, what would you do to remember the information?

   a. Ask yourself questions about the important ideas.
   b. Skip the parts you don't understand.
   c. Concentrate and try hard to remember it.

7. What things do you read faster than others?

   a. Books that are easy to read.
   b. When you've read the story before.
   c. Books that have lots of pictures.

8. If you could only read some sentences in the story because you were in a hurry, which ones would you read?

   a. Read the sentences in the middle of the story.
   b. Read the sentences that tell you the most about the story.
   c. Read the interesting exciting sentences.

9. How can you tell which sentences are the most important ones in the story?

   a. They're the ones that tell the most about the characters and what happens.
   b. They're the most interesting ones.
   c. All of them are important.

10. It you are reading for a test, which would help you the most?

   a. Read the story as many times as possible.
   b. Talk about it with somebody to make sure you understand it.
   c. Say the sentences over and over.

11. When you tell other people about what you read, what do you tell them?

   a. What happened in the story.
   b. The number of pages in the book.
   c. Who the characters are.

12. If the teacher told you to read a story to remember the general meaning, what would you do?

   a. Skim through the story to find the main parts.
   b. Read all of the story and try to remember the meaning.
   c. Read the story and remember all of the words.

13. If you are reading a library book to write a book report, which would help you the most?

   a. Sound out words you don't know.
   b. Write it down in your own words.
   c. Skip the parts you don't understand.

14. Before you start to read, what kind of plans do you make to help you to read better?

    a. You don't make any plans. You just start reading.
    b. You choose a comfortable place.
    c. You think about why you're reading.

15. Why do you go back and read things over again?

    a. Because it's good practice.
    b. Because you didn't understand it.
    c. Because you forgot some words.

16. If you have to read very fast and could only read some words, which ones would you try to read?

    a. Read the new vocabulary words because they are important.
    b. Read the words that you could pronounce.
    c. Read the words that tell the most about the story.

17. Which would help you read better?

    a. Check to see if you understand the meaning.
    b. Copy the whole story.
    c. Write down the words you don't understand.

18. What do you do if you come to a word and you don't know what it means?

    a. Use the words around it to figure it out.
    b. Ask someone else.
    c. Go on to the next word.

19. Which of these would help you understand a story?

    a. Think about what the sentences mean and how they go together.
    b. Look up all of the words in the dictionary.
    c. Read the story aloud.

20. What do you do if you don't know what a whole sentence means?

    a. Read it again.
    b. Sound out all of the words.
    c. Think of the other sentences in the paragraph.

21. What parts of the story do you skip as you read?

a. The hard words and parts you don't understand.
b. The unimportant parts that don't mean anything for the story.
c. You never skip anything.

22. Which of these is the best way to remember a story?

a. Say every word over and over.
b. Think about remembering it.
C. Write it down in your own words.