Assessment of Middle School Students' Support Reading Strategies

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Abstract

This quantitative study explored the relationship between selected demographic variables of a cluster of 200 urban middle school students selected out of 654 eighth gradersand their support metacognitive strategies on a state reading assessment. Findings indicate that students utilize moderate to low support metacognitive strategies when comprehending academic texts. Based upon the findings, it is suggested that middle school educators implement support metacognitive strategies in the curriculum that will increase student comprehension skills in both narrative and expository texts.

Keywords: Metacognition, Urban Students, Literacy, Middle School

I. Introduction

Identifying ways to improve reading comprehension of adolescent students is essential. With the adoption of the Common Core State Standards Initiative CCSSI (2010), the agenda is for educators to engage their students with reading complex rigorous texts (expectancies of the college and career-readiness standards), placing the emphasis on critical thinking skills (National Governors Association Center for Best Practices [NGA Center]& Council of Chief State School Officers [CCSSO], 2010a). Because K-12 textbooks have become less challenging over the last 50 years, (Chall, Conrad, & Harris, 1977; Hayes, Wolfer, &Wolfe, 1996), the focus has shifted beyond reading complex text for aesthetic purposes to "reading and comprehending complex literary and informational texts independently and proficiently" (NGA Center & CCSSO, 2010a, p.10).Essentially, students should be "able to read complex text independently and proficiently," which is "essential for high achievement in college and the workplace and important in numerous life tasks" (NGA Center & CCSSO, 2010b, p. 4).

There is an educational paradigm shift in schools today. Schools are focused on thinking skills and the implications of thinking processes towards outcomes (performance levels) assessed by standardized tests.Students that read and comprehend text independently and proficiently have qualities of good readers (Griffith &Ruan, 2005). These students have metacognitive literacy skills – the what, how, and when of strategy use (Paris, Lipson &Wixson, 1994). The acquired knowledge allows students "to successfully interact with the text… and a variety of types and levels of text" (McLaughlin, 2015, p. 51).

A missing perspective in many studies of metacognitive literacy instruction is an analysis of students' repair strategies to their comprehension problems (Zimmermann & Hutchins, 2003). These fix-up strategies or support reading strategies are needed when comprehension breaks down. In order for the text to make sense, students monitor their understanding of the text before taking action to repair their comprehension with fix-up strategies (Tompkins, 2010; Neufeld, 2005/2006). Through learning a variety of support metacognitive strategies (Mokhtari & Reichard, 2002) such as detecting a problem and solving it utilizing fix-up strategies, students learn to question what is read, reread a text, check the meaning of an unfamiliar word, ask for assistance, or utilize another strategy (Tompkins, 2010).

II. Theoretical Approach

One particular tenet of the cognitive-processing theory, metacognition, thinking about thinking (Flavell, 1979) is particularly germane to this study. Students utilize cognitive (skills involving thinking) and metacognitive strategies (reflection on thinking) to reach a specific goal in reading (Pressley, 2002a).

Through monitoring their learning, students learn to use metacognitive strategies while reading. It is important to note that the idea of "thinking about thinking" is fluid. That is, while a student may hone excellent fluency skills (the ability to read quickly and accurately) while reading a challenging text, the same student does not understand what he or she is reading. This particular student does not read strategically (Cooper, Chard, &Kiger, 2006). That is, the readers conscious application of cognitive strategies (Honig, Diamond, Gutlohn, & Mahler, 2000). "When faced with a comprehension problem, a good user will coordinate strategies and shift strategies" (National Institute of Child Health and Human Development, 2000, p. 4-47).

III. Review of Literature

Durkin (1979) studied the impoverished state of comprehension instruction in America's public schools. The study concluded that the primary focus of comprehension instruction was testing. Teachers were not teaching the skills, strategies, and processes that students needed to comprehend what they read (National Institute of Child Health and Human Development, 2000). Pressley (2002b) added that in his study a dilemma continues of teachers asking questions and students answering them. His findings suggest that "students are provided with opportunities to practice comprehension strategies, but were not actually taught the strategies themselves, nor the utility value of applying them" (p. 241).

Few studies focus on metacognition in the middle school. However, Costa (2001)cites an article by Resnick (1999) that states that:

For more than 30 years, psychologists and other students of the human mind have been experimenting with ways of teaching the cognitive skills associated with intelligence. These include techniques as varied as generating analogies, making logical deductions, creating and using memory aids, and monitoring one's own state of knowledge (metacognition). (p. 3)

Since Durkin's landmark study (1979), Booth& Swartz (2004) cite in their research that teachers now recognize that many students need support while they are reading, not just after they have completed a passage. Tompkins (2010) suggests that readers should "learn to use a variety metacognitive reading strategies to ensure they understand what they are reading" (p. 181). Yet, some researchers state that focusing on too many during-reading metacognitive strategies at one time may overwhelm students (Nuebert & Wilkins, 2004; Pressley, 2002a).Learning which metacognitive strategy or strategies to use at the appropriate time benefits the reader in comprehension.

When the breakdown of reading comprehension occurs, there are several strategies that students can employ that can help them repair disengagement to their text. Researchers, Booth & Swartz (2004) assert that proficient readers use reading strategies to build meaning and comprehend text automatically and seamlessly, as they work in real reading situations. Additionally, the authors state that when effective readers engage with text, they activate their background knowledge. When activating prior knowledge students should"maintain a consistent focus on constructing meaning, monitor and repair comprehension throughout the reading process" (Booth & Swartz, 2004, p. 26).

Tovani (2000) states that texts become inaccessible when students do not have the comprehension strategies necessary to unlock meaning, don't have sufficient background knowledge, don't recognize organizational patterns, and have a lack of purpose. Indeed, Tovani proclaims that reading instruction must continue after elementary school. The author concludes that middle and secondary teachers assume that successful students are strategic readers. Teachers have high expectations of student's ability to comprehend texts. Thus, "students are expected to know how to read, read faster than they did in elementary school, read large amounts of text in short amounts of time, gain information from reading, and to read and understand increasingly difficult material" (Tovani, 2000, p. 20).

English Language Learners (ELLs) share the same goals as regular students in attaining efficacy in reading comprehension to help them understand difficult texts. They too must be able to learn how to take a critical stance when comprehending and interpreting texts. Effective literacy strategies and practices extend beyond the ability to comprehend academic language. Further extension includes the comprehension and connection to various types of literature and texts. English Language Learners must be able to interpret, infer, and synthesize information; to pick out the main idea; to relate ideas and information to their background experiences; to recognize the conventions of different genres; and to recognize text structure (Rea &Mercuri, 2006, p. 78).

Herrell &Jordan (2008)provide several metacognitive to help engage and build comprehension skills for ELLs. The metacognitive strategies consist of e.g., self-management: organizing a plan for studying; monitoring comprehension: checking comprehension during or listening; monitoring production: focusing on speech or writing while it is happening; and self assessment: planning ways to check on learning through learning logs, reflective journals, and checklists (p. 5).

Pre-Advanced Placement (Pre-AP) English language arts courses are designed to help students build skills in critical thinking, reading, writing, and analysis (The College Board, 2013).More specifically, students must be able to analyze academic vocabulary in context, demonstrate a mastery of close reading, and utilize before, during, and after reading strategies while engaging in complex texts. Similarly, to the goals and achievements of effective literacy practices of all middle school students, Pre-AP students are held accountable for their ability to achieve beyond the norm. Most gifted and talented students within Pre-AP programs are creative thinkers. However, they may become frustrated easily. Unfortunately, these students normally lack opportunities to work alone to manifest such creativity in productive ways (Winebrenner, 2001).

Winebrenner (2001) states that most reading programs, whether traditional or literature-based have failed to meet the learning needs of gifted students. The authors explain that most high-ability students have already mastered vocabulary concepts and need opportunities to demonstrate their competencies with the language. Thus, the students need meaningful reading experiences. The authors conclude that students need reading programs that allow them to "read, discuss, analyze, and write about literature that challenges them" (p. 90). This includes prose, poetry, biography, and nonfiction.

The strategies discussed by Winebrenner (2001) in the aforementioned paragraph are congruent to the needs of both struggling students and ELLs. Interestingly, the challenges that Pre-AP or gifted and talented students face when interpreting literature is similar to the critical stance approach to literacy development. The authors continue by stating that literature students read should:(a) be open to interpretation and various viewpoints, (b) contain rich, challenging, and varied language forms, (c) provide opportunities for readers to learn personal problem-solving behaviors, and (d) is relevant to the reader's life and experience (p. 90).

Teachers can provide surveys to students, particularly those in middle grades, to assess reading strategy use (Israel, Collins Block, Bauserman, &Kinnucan-Welsch, 2005). The authors suggest providing self-analysis surveys to students. Students are able to silently answer the survey and record their progress. Data from the self-analysis surveys can be stored in student folders or on the computer. The goal is for teachers to provide quick student analysis and garner immediate results and feedback that can impact instruction and student learning.Such surveys can provide teachers with metacognitive analysis of support student strategy use. Support metacognitive strategy use is the reader identifying a problem hampering their comprehension during reading and utilizing a fix-up strategy to comprehend information and persist further with the reading process (Tompkins, 2010).

Neufeld (2005/2006) provides several metacognitive support reading strategies or fix-up strategies students can use when comprehension breaks down. First, students need to ask, 'what strategies could I use to help me better understand what I am reading?'Second, students may reread part of the text and/or look ahead in the text. Third, students can examine other resources on the topic, e.g., books, webpages, or utilize a dictionary for assistance. Finally, students consider seeking help from another person.

Previous research has shown that teaching metacognitive reading strategies improves learning.Haller, Child & Walberg (1988) conducted a meta-analysis on the effect of metacognitive instruction of 1500 students in grades 1 – 8 during reading. The research resulted in a large effect on students in the seventh and eighth grades. The study indicated that one of the most effective instructional strategies included self-questioning and global metacognitive skills (Lei, 2011).

Janssen, Braaksma, &Rijlaarsdam (2006) conducted research on tenth grade students utilizing literature. The researchers utilized a think-aloud approach (Baumann, Jones, & Seifert-Kessell, 1993) to assess students' reconstruction of texts. The investigators concluded that good readers provided more evaluative responses (critical thinking) than weaker readers who provided retelling responses (Israel, Collins Block, Bauserman, &Kinnucan-Welsch, 2005).

Houtveen& van de Grift (2012) studied ten-year olds metacognitive utilizing a quasi-experimental design. Teachers in the experimental group were trained in metacognitive strategy instruction. The results indicated that students in the experimental group obtained better reading comprehension results than the control group.

A year later, the same groups were assessed and the results remained the same, the experimental group performed better than the control group.

The aforementioned researchers are only a few who support the use of metacognition comprehension skills to help students transact information while reading texts. First, metacognition is the key to strategic processing because it enables one to monitor the progress made toward achieving a goal (Flavell, 1979). Second, it involves the control one has over learning and thinking (Baker & Brown, 1984). Third, it is important that readers interact with the texts they read so that they are able to shape and even change their thinking. Researchers in metacognition urge that getting readers to think when they read, to develop an awareness of their thinking, and to use strategies that help them comprehend is a conduit for student success (Harvey &Goodvis, 2000).

To expand the discussion on metacognitive strategy use, this study analyzed support reading strategiesof a cohort of 200 eighth grade urban students and their academic achievement on a state reading assessment. The state reading assessment consisted of four objectives. Objective 1 assessed students' ability to bring meanings to words in context such as interpreting idioms, multiple meaning words and analogies. Objective 2 assessed students' ability to apply literary elements to texts. Objective 3 assessed students' ability to identify the text's structure and determine author's perspective. Objective 4 assessed students' critical thinking skills by having them draw inferences, utilize textual evidence, distinguish fact and opinions, compare and contrast ideas, themes, and issues across texts. The texts in the statewide reading assessment consisted of one mixed literary selection, one expository selection, and three narrative selections.

Two research questions were asked. First, "*What support reading strategies do middle school students use while reading academic texts?"* Second, "*Is there a relationshipby ethnicity and educational program for reading objectives and students' use of support metacognitive strategy?"*

IV. Methodology

Participants

The population for this study includes a cluster of 200 students selected out of 654 eighth graders from an urban school district located in the southwest corridor of the United States. Students in this population can be considered adolescent readers due to their ages ranging from 12 - 13 years of age. Two hundred individuals participated in the survey; 82 (41.0%) participants were Male and 118 (59.0%) participants were Female. Regarding the ethnicity of the eighth graders surveyed there were 39(19.5%) who identified themselves as African American, 93(46.5%) as Hispanic, 56(28%) as White, and 12(6%) as Asian. The eighth grade population participating in the study was categorized into three groups based on educational program. Traditional programs comprised of the largest group; 113 (56.5%), 24 (12%) as ESL, and 63 (31.5%) were identified as Pre-AP.

Instrumentation

The survey assessment scale used in this study was the Metacognitive Awareness of Reading Strategies Inventory (MARSI) and a Demographic Background Information Questionnaire. The MARSI was designed to assess adolescent and adult readers' metacognitive awareness and perceived use of reading strategies while reading academic or school-related materials (Mokhtari and Reichard, 2002). The instrument was selected because of its excellent reliability (.89). The instrument contains 30 constructs divided into three strategy subscales or factors: Global Reading Strategies (13 items), Problem-Solving Strategies (8 items), and Support Reading Strategies (9 items). For this study the researcher only analyzed and purported Support Reading Strategies results. The responses are presented in a Lickert format: (1) I never or almost never do this; (2) I do this only occasionally; (3) I sometimes do this (about 50% of the time); (4) I usually do this; and (5) I always or almost always do this.A Demographic Background Information Questionnaire included at the end of the scale indicated students' gender, ethnicity, and educational program.

All participants were administered the survey in their middle school classrooms after taking a state mandated reading assessment.

Data Analysis

Quantitative data were coded and analyzed using Statistical Package for the Social Sciences (SPSS) version 17.0. Descriptive statistics were conducted to answer the research questions. In order to determine the most and least used strategy, tests of mean and standard deviation were used.

To interpret the mean score of the strategy used, the study referred to Anderson (2003) and Mokhtari & Reichard (2002) scoring guide which indicates a high use of strategy if the mean of 3.5 or higher, moderate use if the mean of 2.5 to 3.5 and low use if the mean of 2.4 or lower. Pearson Product-Moment correlations were conducted to examine if relationships existed between support metacognitive strategies and gender, ethnicity, and education program.

Results and Discussion

Research Question 1: *What support reading strategies do middle school students use while reading texts on a state assessment?*

The following table lists the metacognitive support reading strategies used by eighth grade students in the study.

Table 1: Overall Used Support Meta-Cognitive Reading Strategies:

Descriptive Statistics (N = 200)

Variables	*M*	*SD*
I take notes while reading to help me understand what I read	2.16	1.171
When texts become difficult, I read aloud to help me understand what I read.	2.58	1.447
I summarize what I read to reflect on important information in the text.	2.22	1.098
I discuss what I read with others to check my understanding.	2.20	1.101
I underline or circle information in the text to help me remember it.	2.57	1.266
I use reference materials such as dictionaries to help me to understand what I read.	2.21	1.092
I paraphrase (restate ideas in my own words) to better understand what I read.	2.73	1.330
I go back and forth in the text to find relationships between ideas.	2.70	1.265
I ask myself questions I like to have answered in the text.	2.44	1.313

From the above table, it is observed that learners indicated that when they are reading an academic text, they use four moderate metacognitive support strategies with a mean of 2.58 – 2.73. The learners also indicate they use four metacognitive support skills ranged low (between 2.16 – 2.44). The above table indicates that learners have moderate to low apprehension of support strategies when an academic text becomes difficult to read.

Research Question 2: *Is there a relationshipby gender, ethnicity and educational program for reading objectives and students' use of support metacognitive strategy?*

Table 2: Pearson Product-Moment Correlation Coefficients by Gender for Reading Objectives and Support Meta-Cognitive Strategy

Reading Objective	Male	Female
1	-0.13	-0.02
2	-0.06	-0.08
3	-0.04	-0.04
4	-0.07	-0.11

Note. * $p < .05$, ** $p < .01$.

From the above table, Pearson Product-Moment correlations were conducted for each Gender (Male vs. Female) to examine if a relationship exists between Support Meta-cognitive strategies with Reading Objectives (1, 2, 3 and 4). The results suggest that there were no significant positive relationships in Support Reading Strategies with Reading Objectives 1, 2, 3 and 4. No other significant relationships were revealed.

Table 3: Pearson Correlation Coefficients by Ethnicity for Reading Objectives and Support Meta-Cognitive Strategy

Reading Objective	Hispanic	Other
1	0.01	-0.16
2	0.00	-0.13
3	0.08	-0.17
4	-0.01	-0.20*

Note. * $p < .05$

From the above table, Pearson Product-Moment correlations were conducted for each Ethnicity (Hispanic vs. Other) to examine if a relationship exists between Support Meta-cognitive strategy and Reading Objectives (1, 2, 3 and 4). Regression analysis predictor variables must be either continuous (interval/ratio) or dichotomous (two groups); to meet this requirement Ethnicity (Hispanic vs. Other) was dichotomized. The results suggest that the Other Ethnicity had a significant negative relationship among Support and Reading Objective 4, suggesting that as Support scores increase, Reading Objective 4 scores decrease. No other significance was revealed.

Table 4: Pearson Correlation Coefficients by Educational Program for Reading Objectives and Support Meta-Cognitive Strategy

Reading Objective	Traditional	Other
1	-0.04	-0.11
2	-0.07	-0.06
3	-0.03	-0.05
4	-0.06	-0.14

Note. * $p < .05$

From the above table, Pearson Product-Moment correlations were conducted for each Educational Program (Traditional vs. Other) to examine if a relationship exists between Support Meta-cognitive strategy and Reading Objectives (1, 2, 3 and 4). Specifically, to meet this requirement Educational program (Traditional vs. Other) was dichotomized. The results suggest no significance was observed.

V. Discussion

The goal of the present study was to examine students' support strategies on a statewide reading assessment and to predict students academic achievement based upon selected variables. To do so, the researcher surveyed students various support skills on a statewide reading assessment. The design of the survey included questions involving students' use of support strategies during the reading process of four narratives and one informational text.

The results from research question 1 indicate that overall students used moderate to low support metacognitive strategies on the reading assessment. That is, of the pilot students assessed in this study, students purported a moderately to low utilization of support strategies to conduct meaning from texts on the reading assessment. From the analysis, students are able to moderately use the following support metacognitive skills: paraphrase information, go back and forth in the text to find relationships, read aloud to understand the text, and circle important information in the text. Students show low support metacognitive skills when questioning the text, summarizing information, utilizing reference materials for comprehension, discussing the text with others, and taking notes while reading the text.

The results from research question 2 indicate that a relationship existing between the support metacognitive strategy and reading objectives (1, 2, 3 and 4) for gender were represented equally. The analysis of the study employed by the researcher did not provide evidence of gender as a significant factor in employing metacognitive support skills on the reading assessment. It seems that students had equal metacognitive approaches to support skills on the assessment.

As for the examinationof a relationship existing between the support metacognitive strategy and reading Objectives (1, 2, 3 and 4) for ethnicity there is significance for Other ethnicities: White, African American, and Asian for Objective 4 as opposed to Hispanic students.

A conclusion can be made that Otherethnicities scored lower in the area of drawing conclusions about characters, recognizing mood, tone, or style of a selection, and drawing inferences such as conclusions from Objective 4. More specifically, students struggled with mood, tone, drawing conclusions from the text, and providing textual evidence to support assertions about the text.

As for the examinationof a relationship existing between support metacognitive strategies and reading Objectives (1, 2, 3 and 4), educational program were represented equally. The analysis of the study employed by the researcher did not provide evidence of educational program as a significant factor in employing metacognitive support skills on the reading assessment. It seems that students had equal metacognitive approaches to support skills on the assessment.

V. Limitations and Implications

While this study is not a generalization of all middle school students, it implies that instruments like the MARSI are useful for helping middle school students determine specific strengths and weaknesses while reading complex texts. The results emerging from this research study indicate students' support reading strategies lie within the proficient to emergent range when comprehending academic texts. .

The present study expected to yield important findings. Because of students' lack of support metacognitive strategies, they struggle comprehending academic texts. Unprepared students need improvement in their critical thinking skills. Findings from the study have the potential to play a critical role in finding effective and innovative ways to improve adolescent students' metacognitive support strategies. With the information gained from assessing students' regulatory practices, educators are able to plan appropriate instruction geared towards closing the achievement gap in reading. It is suggested that reading strategies should be purposeful, focused, and strategic to prevent "cognitive failure" (Garner, 1987, p. 50).

Essentially, there should be an intentional self-selection of a means to an end to solve a dilemma, which leads to strategic planning (Almasi, 2003). Educators must teach students to learn how to monitor their reading and model fix-up or support reading strategies in the classroom (Neufeld, 2005/2006; Klinger, Vaughn, &Schumm, 1998). Harvey and Goudvis (2000) clearly emphasize that the educators' goal in teaching comprehension strategies is to move readers from the tacit level of understanding to a greater awareness of how to think while reading. As well, teachers must challenge readers to apply their strategy knowledge towards progressively more difficult and multiple genre of text.

To increase metacognition of English Language Learners (ELLs), teachers should teach learning strategies that involve examining the curriculum to be studied and the cognitive demands on the learner. Teachers should plan to teach only a few strategies at first, giving the students opportunities to practice them before introducing new ones.These metacognitive strategies include focusing on prior knowledge, planning a purpose for reading, self-monitoring comprehension, and self-assessing how well one meets the goal for reading (Akhavan, 2006).

The best-known method for building cognition in ELLs is the Cognitive Academic Language Learning Approach (CALLA). The CALLA approach is targeted at language minority students at the advanced beginning and intermediate levels of English language proficiency (Chamot& O'Malley, 1994). The CALLA method involves teaching students learning strategies through various learning activities that will be retained and then connected to new useful information.

Teachers play a major role in the learning process of all students. Providing students with strategies that support cognitive development as well as the utility of using metacognitive strategies to interpret and extend understanding of academically rigorous texts found on state and national assessments, teaches the importance of monitoring comprehension. Therefore, it benefits students to understand the importance of strategy instruction.

There is a paucity of resources and strategies that show a dramatic increase in comprehension skills of all urban students'academic achievement while reading academic texts, particularly with Hispanic and African American urban and low-income students. Few studies have investigated the importance of metacognition involving academic achievement. However, based on the research reviewed here, there is good reason to believe that enhancing students' metacognitive support awareness can aid in an increase of their reading comprehension.

VI. Conclusion

The results of the present study provide educators with a profile of eighth-grade students' strengths and weaknesses and the extent to which students make good use of effective comprehension strategies.

By having students respond to the questionnaire, teachers get an idea of the types of support reading strategies that students say they employ when comprehending academic texts. The results support Kibby's (n.d.) assertion that the purpose of reading comprehension instruction is to not simply state the right information, but to describe the thinking that resulted from the reading. The research furthers Bruner's (1985) notion that learners possess numerous learning strategies, yet the key is learning when to use the appropriate strategy or strategies.

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