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The Impact of Motivation and Learning Strategy Use on Middle Schoolers' Reading Achievement

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THE IMPACT OF MOTIVATION AND LEARNING STRATEGY USE ON MIDDLE SCHOOLERS' READING ACHIEVEMENT

by

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Abstract

The present study explored the impact of motivation and learning strategy use on middle school students' reading achievement. Students in grades 7 and 8 completed questionnaires measuring motivation as well the most commonly employed learning strategy. Teachers provided students' FCAT Sunshine State Standards Reading scores, which served as the dependent measure. A total of 93 students in a medium-size Florida school district participated in this study. Motivation was measured using the Motivation for Reading Questionnaire (MRQ), which is comprised of 53 questions whose items are rated on a 4 point Likert scale. Students also completed a learning strategies questionnaire. It was hypothesized that students identified as intrinsically motivated would obtain higher FCAT Reading scores than those who are extrinsically motivated, whereas students who are extrinsically and intrinsically motivated would obtain higher FCAT Reading scores than those who are either intrinsically or extrinsically motivated. Results indicate that the hypotheses were partially supported. Intrinsically motivated students obtained higher FCAT Sunshine State Reading scores than extrinsically motivated students. However, there was no significant difference between the reading performance of intrinsically and dually motivated students. Students identified the use of mental imagery as the most frequently used learning strategy irrespective of motivational type. Future directions for research and recommendations for intervening with struggling readers are discussed.

The Impact of Motivation and Learning Strategy Use on Middle Schoolers' Reading Achievement

In the past two decades, our society has begun to demand educational reform largely in response to the 1983 findings contained within the National Commission of Educational Excellence report (U.S. Department of Education, n.d.a). The Commission found that 23 million Americans were functionally illiterate and that 13% of 17 year-olds in the United States was functionally illiterate. Additionally, 40% of 17 year-olds was found lacking higher order thinking skills. The Commission subsequently offered recommendations for strengthening the reading and mathematics curricula of our nation's schools and increasing teacher competency. More than a decade later the issue of school reform was revisited in "Goals 2000: Educate America Act" (U.S. Department of Education, n.d.b). Although the language employed by "Goals 2000" supported educational reform through a call for increasing school readiness for kindergarten students, high school graduation rates, and student learning outcomes, as well as enhancing teacher training, the program was aspirational in nature and lacked the support of legislation. It was not until the passage of the No Child Left Behind Act (NCLB) of 2001 that states were mandated to adopt loftier educational goals and hold schools accountable for student outcomes (Goertz & Duffy, 2003; Gulek, 2003). The No Child Left Behind Act, with its emphasis on high educational standards and sanctions for schools that fail to meet these standards, has ushered in the advent of high stakes testing. Poor student performance on statewide assessments may result in a range of negative consequences for schools, administrators, and students to include school choice, school takeover, and student retention (Goertz & Duffy, 2003).

Despite increasing pressure to improve student performance in the years since the 1983 National Commission on Educational Excellence report and the passage of NCLB, American students have been slow to demonstrate increased reading performance on national assessments. American fourth grade students taking the National Assessment of Educational Progress (NAEP) in Reading with accommodations in 2005 scored an average of 219 on a scale of 100-500, which is similar to fourth graders' NAEP reading performance in 1992 prior to accommodations (National Center for Education Statistics, 2005b). Eighth graders who were administered the National Assessment of Educational Progress in Reading in 2005 obtained an average score of 262, which represents a slight increase in reading performance from 1992 and 2005 (National Center for Education Statistics, 2005b). Eighth graders' 2005 reading scores range from 238 to 274 compared to fourth graders' reading scores that range from 191 to 231 (National Center for Education Statistics, 2005a). Thirty-eight percent and 29% of the nation's fourth and eighth graders, respectively, scored at the "below basic" achievement level in 2005 (National Center for Educational Statistics, 2005a). Students attending schools in Florida demonstrate higher performance on statewide reading assessments than on national reading assessments, although many fail to score at grade level. In 2005, fourth, sixth, and eighth grade students who were administered the Florida Comprehensive Achievement Test (FCAT) criterion referenced measure, which yields scores ranging from 100 to 500 (Florida Department of Education, 2004), obtained mean reading scores of 319, 299, and 297, respectively (Florida Department of Education, n.d.).

An increasing awareness of declining achievement among American school children along with an increased demand for highly skilled, knowledgeable, and

competitive workers is partly responsible for educational reform efforts (Duke & Pearson, n.d.). This new era in education has resulted in a proliferation of research exploring various factors contributing to academic success. Researchers have demonstrated an interest in identifying factors associated with low educational achievement, as it is these factors that place students at risk for a host of negative sequelae such as school failure, retention, emotional or behavioral problems, delinquency, high school drop out, unemployment, and poverty. Distal factors such as SES, single parent household, and minority status and proximal factors such as low early achievement jeopardize learning (Capella & Weinstein, 2003). Conversely, protective factors such as home environment, psychological resources, classroom and school behavior, and school and peer environment enhance learning outcomes (Capella & Weinstein). DiPerna and Elliott (2002) refer to protective factors as academic enablers, which consist of attitudes and behaviors such as self-efficacy, motivation, school and academic engagement, study skills and learning strategy usage, and interpersonal skills that allow students to not only actively participate in but also benefit from educational activities.

Rationale for the present study

Although achievement is valued across subject areas, reading achievement perhaps most significantly impacts students' educational, social, and vocational outcomes and subsequently has been the focus of many investigations (Guthrie, Wigfield, & Von Secker, 2000; Wigfield & Guthrie, 1997; Wigfield, Guthrie, Tonks, & Perencevich, 2004). Early researchers responded to the crisis of declining student performance in the core areas of reading and math by investigating strategies to assist struggling learners in

the lower grades (Pressley, 2002). Many of these strategies were cognitive in nature and included activities such as rehearsal, summarizing, mental imagery, and mnemonics (Pressley, 2002). A subsequent awareness that students' knowledge of learning strategies does not automatically translate into the internalization and later use of strategies when warranted led to an introduction of the role personal characteristics, motivational processes, and classroom context play in learning outcomes (Ee, Moore, & Atputasamy, 2003; Zusho & Pintrich, 2003). It now is widely accepted that multiple processes impinge upon learning (DiPerna & Elliot, 2002). This realization has led to the integration of metacognitive skills training into existing reading comprehension instruction programs that traditionally taught learning strategies in isolation (Pressley, 2002).

Self-Efficacy and Achievement

There is abundant support for teaching students how to use a variety of strategies flexibly along with strategies that target increasing motivation to enhance achievement. A discussion of motivation and achievement, however, first requires an exploration of self-efficacy, a construct that is a subset of motivation. The relationship between self-efficacy and motivation cannot be underscored enough, as these beliefs influence the goals people set, the amount of effort they put towards accomplishing goals, how long they pursue goals in the face of challenges, and their ability to cope with failure (Bandura, 1993). Self-efficacy is an individual's beliefs about one's ability to control his or her behavior and life events (Bandura). Unlike the global construct of self-concept, self-efficacy refers to specific beliefs about one's competency in a particular situation (Duke & Pearson, n.d.; Linnenbrink & Pintrich, 2003) that influence one's affect, cognitions, level of motivation, and behavior. Self-efficacy influences behavior both

directly and indirectly through its impact on goal setting and reasoning processes (Bandura).

Findings in support of a positive relationship between self-efficacy and achievement in language arts and math were reported by Alfassi (2003). In his study, 37 Israeli students attending a remedial high school that adopted a learner centered approach were compared with 15 students attending a traditional remedial high school on the variables of self-efficacy, motivational orientation, and achievement. Participants attending the remedial school with a learner centered approach demonstrated significantly higher levels of self-efficacy. Ratings of self-efficacy in language arts and mathematics were significantly and positively correlated with performance in language arts and math.

In a study of fourth-, seventh-, and tenth graders, Shell, Colvin, and Bruning (1995) reported a positive relationship between self-efficacy and performance on the Reading Comprehension, Reading Vocabulary, Language Mechanics, Language Expression, and Spelling portions of the California Achievement Test. These researchers demonstrated a distinct performance pattern for low, average, and high achieving students. High achievers and average achievers demonstrated higher task self-efficacy for reading and writing than low achievers. Average achievers' profile was between that of the low and high achievers, with average achievers demonstrating higher task self-efficacy for reading and writing than low achievers (Shell et al.). Kitsantas (2002) demonstrated a similar pattern for adult students, with high scorers reporting increased self-efficacy and valuing of the test. Higher levels of self-efficacy, therefore, have been demonstrated to be associated with increased math and reading achievement.

Although research generally supports a positive relationship between levels of self-efficacy and academic achievement, some findings suggest that a high self-concept in specific populations may be associated with less favorable educational outcomes. Stone and May (2002), in an investigation of the accuracy of academic self-perceptions in students with learning disabilities, demonstrated that students with learning disabilities rated themselves significantly lower on general self-concept and specific skills than their non-learning disabled peers. However, when students' with learning disabilities skills ratings were compared to ratings provided by their parents and case managers, it was shown that these students significantly overestimated their academic skill level. Stone and May suggest this finding may be associated with students' low metacognitive skill level, use of differential reference groups, and attempt to preserve self-esteem.

Motivational Goal Orientation and Learning Strategy Use

In addition to focusing on the role an individual's beliefs about his or her ability to influence personal outcomes, the motivational literature focuses on factors that drive human behavior. Humans are conceptualized as being motivated either by intrinsic or extrinsic factors (Ryan & Deci, 2000). Hence, individuals who are intrinsically motivated are believed to engage in an activity because it is rewarding in itself, whereas individuals who are extrinsically motivated engage in an activity because it is associated with an independent reward. An individual's motivational orientation, whether intrinsic or extrinsic, in part dictates the type of motivational goals one adopts (Schunk & Ertmer, 2000). Different taxonomies used to identify motivational goal orientations appear in the literature, including but not limited to mastery versus performance (Elliot, McGregor, &

Gable, 1999; Obach, 2003; Zusho & Pintrich, 2003), task versus ego (Ee et al., 2003), and mastery versus ego-social versus work-avoidant (Somouncouglu & Yildirim, 1999). The Normative Goal Theory's dichotomy of mastery and performance goals, with the latter consisting of approach and avoidance goals, has predominated the literature until recently challenged by Pintrich (2000) who proposed that individuals may hold multiple goals simultaneously. There is evidence to support the role of both mastery and performance approach goals in enhancing learning outcomes.

Somouncuoglu and Yildirm (1999) investigated the relationship between achievement goal orientation and learning strategy use among college students. These researchers found that a majority of their sample had a mastery orientation or mastery and ego-social orientation. Individuals demonstrating a mastery orientation view achievement as an opportunity to gain mastery and enrich themselves, whereas individuals with an ego-social orientation view achievement as a means to earn good grades, social approval, or a competitive edge. They further demonstrated that achievement goal orientation predicts strategy use. A mastery orientation was found to be positively correlated with the use of deep cognitive and metacognitive strategies, whereas an ego-social orientation was positively correlated with the use of surface cognitive strategies. A work avoidance orientation was negatively correlated with deep cognitive and metacognitive strategy use and slightly positively correlated with the use of surface cognitive strategies. Goal orientation and strategy selection were further demonstrated to be context dependent and therefore dynamic, hence the researchers' proposal of assessing motivational goal orientation as a mediator of strategy selection, which has been demonstrated to influence academic achievement.

Learning Strategy Use and Achievement

Numerous strategies have been developed to help struggling learners improve academically, with each having varying levels of efficacy and unique criticisms. Learning strategies can be placed into five broad categories: rehearsal, elaboration, organizational, comprehension monitoring, and affective (Weinstein & Mayer, 1986). Rehearsal strategies involve the use of repetition and include activities such as memorization and note taking, whereas elaboration strategies involve the use of mental imagery, mnemonics, paraphrasing, summarizing, and relating information to prior knowledge (Weistein & Mayer). Comprehension monitoring strategies have a metacognitive component that entails thinking about the overall learning process and involves the flexible use of learning strategies (Gettinger & Siebert, 2002). Activities such as creating organized lists, outlining, (Weinstein & Mayer), and using graphic organizers (Kim, Vaughn, Wanzek, & Wei, 2004) are examples of organizational strategies. A competing definition of organizational and procedural strategies focuses on the adoption of habits or skills that maximize studying (Gettinger & Siebert). Weinstein and Mayer's broad category of affective strategies is comprised of strategies such as environmental management and self-monitoring for negative affective states. Examples of affective strategies include eliminating distractions during study time, managing time effectively, and self-monitoring for appropriate levels of attention, motivation, and anxiety.

Although rehearsal based strategies are considered a learning strategy by some researchers (Weinstein & Mayer, 1986), this position is challenged based on a need to differentiate learning strategies and study tactics (Gettinger & Siebert, 2002). A primary criticism of rehearsal based techniques such as highlighting and rote memorization is that

these strategies result from the adoption of performance oriented goals that fail to deepen learning. Gettinger and Siebert therefore advocate for the use of metacognitive strategies as these are believed to be associated with optimal learning outcomes.

Several researchers have demonstrated positive academic outcomes for students employing self-regulated, or metacognitive, strategies (Jitendra, Hoppes, & Xin, 2000; Kitsantas, 2002). Overall findings pertaining to the effectiveness of metacognitive strategy use with a diverse student population, however, are mixed. Cook and Kaffenberger (2003) developed and tested a problem-solving counseling and study skills program (Solution Shop) targeting increasing the academic performance of ethnic minority and economically disadvantaged middle school students. Solution Shop focused on academic goal setting, planning, and monitoring, study skills development, the provision of staff and peer support, and student empowerment. Seventh and eighth grade participants benefited from the intervention, with 47.37% and 68.75% of the students, respectively, increasing their grade point average. Slightly more than 43% of the seventh graders and 25% of the eighth graders maintained the same grade point average. Only one student among the seventh and the eighth graders evidenced a decrease in grade point average.

Beckert, Wilkinson, and Sainsbury (2003) investigated the impact of a needs-based study and examinations skills course using adult learners. These researchers demonstrated that a student designed study course resulted in enhanced performance on a medical school examination. Fleming (2002) similarly demonstrated that college freshmen benefited from study skills instruction and a basic self-regulatory program.

However, additional study skills training may impede the performance of students who already possess adequate study skills (Fleming).

In addition to general cognitive strategies students may employ in a variety of classroom contexts, content specific strategies in reading or math can be taught and subsequently may enhance achievement. Ghaith (2003), employing a sample of 32 eighth grade English Language Learners attending private school in a foreign country, explored the impact of think alouds on reading performance. This strategy involves the reader orally revealing his or her thoughts during reading activities. Students' mastery of think alouds was found to be positively correlated with their overall reading comprehension and performance in two of four comprehension categories: interpretive and critical. Combined main idea strategy instruction and self-monitoring instruction have been shown to significantly improve the performance of middle school students with learning disabilities on immediate and delayed multiple choice but not written comprehension tasks (Jitendra et al., 2000). Nolan (1991) similarly demonstrated that grade 6-8 students with varying degrees of reading deficits who were taught self-questioning and prediction of outcomes significantly outperformed students who were taught self-questioning or who were provided vocabulary instruction alone. A larger treatment effect for combined strategy instruction was noted for students with the most severe reading deficits.

Combined learning strategy instruction, however, appears to have limited application across student populations. Research conducted by Johnson and Graham (1997) comparing the use of story grammar instruction, story grammar instruction and goal-setting, story grammar instruction and self-instruction, and story grammar instruction, goal setting, and self-regulation indicate a significant effect for story

grammar instruction only. Metacognitive strategies such as goal setting and self-instruction alone or combined with story grammar instruction failed to enhance comprehension, a finding that appears to contradict Nolan's (1991) and Jitendra and her colleagues' (2000) findings supporting the use of combined strategies, including the use of metacognitive strategies, to enhance reading comprehension among struggling readers. Johnson and Graham (1997) suggest that a failure to find significant effects for metacognitive strategy use may be attributable to the introduction of a metacognitive component that further taxes students' with learning disabilities limited cognitive resources. It is equally important to consider that although Nolan (1991) identified his sample as functioning .6 to 3.9 years below grade level according to a reading assessment, he did not ascertain students' disability status which may have impacted study results.

Differential Learning Strategy Use and Achievement

Pokay and Blumenfeld (1990) investigated the role motivation and learning strategy use play in predicting the achievement of high school geometry students early and late in the semester. Specifically, the impact of students' motivation and use of content specific and general learning strategies on grades were explored. This study's authors demonstrated students' differential use of strategies based on time of assessment –early versus late in the semester. Early in the semester, students' use of geometry-specific and effort management strategies was significantly related to geometry grades, whereas later in the semester self-regulated strategy use was correlated with geometry grades.

Differential learning outcomes associated with the use of metacognitive strategies may be explained further by students' level of strategy adoption. For example, low achievers have been found to approach reading tasks lacking awareness of the need to self-monitor for understanding and to employ "fix up" strategies when warranted (Ee et al., 2003; Gettinger & Siebert, 2002; Zusho & Pintrich, 2003). Kitsantas (2002), in her investigation of the effect of self-regulatory processes on test preparation and performance of college students, differentiated high test scorers from low test scorers on several variables. High test scorers employed more self-regulatory processes before, during, and after testing. They additionally were more likely to set strategic process goals, plan, seek help, and organize and transform their notes, self-monitor, structure their environment, and self-consequate to increase motivation. Low scorers demonstrated increased use of memorization and rehearsal strategies compared to high scorers. In regard to test performance, high scorers compared to low scorers scored significantly higher and reviewed and revised answers more.

Lau and Chan (2003) similarly demonstrated qualitative differences between middle school students who earned high versus low scores on an achievement measure in regard to strategy use, motivation, and attributional beliefs. Although there is ample evidence supporting high achievers' increased adoption of learning strategies compared to their low achieving peers, Ee and his colleagues (2003) demonstrated that even when high achieving students overwhelmingly endorse task and ego goal orientations and report frequently or almost always having knowledge of self-regulated learning strategies, they only sometimes or frequently employ these strategies.

Not only does learning strategy use vary according to time of assessment and achievement level, but it also is affected by student disability status. Individuals with learning disabilities, who are at greatest risk of academic failure, perhaps are most challenged in regard to adopting and using learning strategies. Meltzer, Miller, Reddy, and Roditi, (2004) investigated perceptions of academic difficulties, effort, and strategy use among students in grades 4-9 who were identified as having a learning disability; teachers' perceptions of the students' academic behaviors; and the impact of strategy instruction on teacher and student perceptions of students' academic difficulties, effort, and strategy use. The researchers found that prior to intervention students with learning disabilities reported experiencing increased difficulty in reading and spelling, as well as putting forth less effort and employing fewer learning strategies than their non-disabled peers. Teachers similarly perceived students with disabilities as struggling more in reading, spelling, and writing, and as demonstrating lower effort and strategy use compared to students without disabilities. Strategy instruction significantly decreased students' with disabilities report of struggling in reading, writing, and spelling. Teacher ratings further indicate that all students, especially those with disabilities, benefited from strategy training as evidenced by increased effort on school tasks, strategy use, and improvements in spelling. Despite participating in strategy training and making overall academic gains, students with learning disabilities continued to lag behind their non-learning disabled peers in terms of self- reported and teacher reported levels of effort and strategy use. Students' differential and inconsistent use of learning strategies underscores the importance of targeting motivation along with strategy use when seeking to promote and enhance learning outcomes (Bandura, 1993; Borkowski, Johnson, & Reid, 1987).

Motivation, Learning Strategy Use, and Reading Achievement

Motivational processes such as self-efficacy, goal orientation, and the selection of learning strategies together have been shown to positively impact learning behaviors and outcomes. Zimmerman and Martinez-Pons (1990) explored the relationship among self-efficacy, strategy use, and achievement in 5th, 8th, and 11th grade girls and boys enrolled in regular and gifted classes. Gifted students endorsed experiencing higher levels of verbal and mathematical efficacy, employing strategies such as organizing and transforming materials, reviewing notes, and seeking peer assistance more than their regular education peers, with grade level differences emerging. Although an increase in the use of cognitive strategies emerged over time when comparing 5th and 8th graders, this trend was not evidenced when 8th and 11th graders were compared; hence a decrease in cognitive strategy use as students entered high school. Students who reported higher verbal efficacy, irrespective of their gifted or regular education status, reported a significant increase in the use of learning strategies such as reviewing notes, organizing and transforming materials, and seeking assistance from peers (Zimmerman & Martinez-Pons). Pintrich and DeGroot (1990) similarly investigated the relationship among motivation, self-regulated learning, and achievement using a 7th grade sample and found higher levels of self-efficacy and intrinsic value were associated with an increased use of cognitive strategies. Cognitive strategy use along with increased self-efficacy and intrinsic value were associated with increased self-regulatory processes.

McGregor and Elliot (2002) investigated the effects of motivation on achievement related processes prior to task engagement for university students enrolled in an introductory psychology course. These researchers found that motivation, or goal

orientation, predicts students' task approach, level of engagement, ratings of competency, self-esteem, and challenge or threat assessment. A mastery goal orientation was positively correlated with achievement related behaviors. Students with a mastery orientation reported preparing for the exam in advance, experiencing less anxiety, and were less likely to endorse procrastinating in studying for the exam. Support emerged for a performance approach goal orientation as well. Students demonstrating this orientation also reported feeling calm due to preparation. Performance avoidance goals, on the other hand, were negatively correlated with positive achievement outcomes. Students evidencing this achievement orientation were more likely to perceive the exam as a threat, experience anxiety, procrastinate, report a decrease in ability related self-esteem, and less likely to invest adequate time studying before the exam.

Pintrich (2000), using a sample of 8th and 9th graders to investigate the role of motivation in learning and achievement across time, tested both the normative goal orientation and revised goal orientation theories. The Normative Goal Theory postulates that individuals demonstrating a high level of mastery and low level of performance orientation, which refers to a desire to obtain an external reward such as grades or social approval, are expected to experience optimal achievement outcomes. The Revised Goal Theory proposes that individuals demonstrating high levels of mastery and performance orientation also may experience positive achievement outcomes. Pintrich's findings support both the Normative Goal and Revised Goal Theories. The adoption of a high mastery/low performance and a high mastery/high performance orientation each positively predicted levels of self-efficacy and cognitive and metacognitive strategy use over time. The latter group did not experience more anxiety, negative affect, or self-

handicapping behaviors than the former group. The presence of a high performance goal along with a mastery goal, however, did not enhance overall achievement related processes. A mastery goal orientation predicted the increased use of cognitive and metacognitive strategies, although a decrease in strategy use emerged over time. Neither mastery nor performance goal orientation was predictive of math GPA. A low mastery and high performance achievement orientation was associated with the poorest achievement related processes. These students, although demonstrating average or higher level of self-efficacy, task value, and affect at the beginning of the study, demonstrated the lowest levels of the aforementioned factors by the conclusion of the study. Students with a low mastery/high performance orientation additionally evidenced increased self-handicapping behaviors and less willingness to take risks in the classroom, although their reported cognitive or metacognitive strategy use was similar to the other groups over time.

Elliot, McGregor, and Gable (1999), employing a sample of undergraduate students, conducted two investigations into the relationship among achievement goals, learning strategy use, GPA, and exam performance. Findings from the initial study indicate that undergraduates' mastery orientation goals were positively correlated with the use of deep processing strategies. Performance approach goals were positively correlated with the use of surface processing strategies. Performance avoidance goals predicted poorer exam performance, the use of surface processing strategies, and a lack of deep processing strategy use. The second study, which explored achievement goals and SAT scores as predictors of exam performance and strategy use, found that a mastery goal orientation is associated with the use of deep processing strategies and persistence.

A performance approach orientation also was positively associated with a show of persistence, whereas a performance avoidance orientation was negatively associated with exam performance and the use of deep processing strategies. Students evidencing a performance orientation, therefore, were more prone to use surface processing strategies and to demonstrate disorganization.

Cross-cultural Findings

Cross-cultural research in the area of motivation and achievement related processes support findings from studies using American samples. Jegede and Ugodulunwa (1997), employing a sample of Nigerian secondary school children, investigated the effect of motivational counseling, study skills training, and motivational counseling combined with study skills training compared to no treatment on English achievement. The researchers demonstrated that students who received motivational counseling and study skills training outperformed students participating in study skills training only. Students who participated in study skills instruction outperformed students receiving no intervention. Jegede and Ungodulunwa noted a significant contribution for achievement motivation on English performance in the experimental condition.

Purpose of Study

The pivotal role self-efficacy plays in achievement through its influence on the motivational orientations and achievement goals individuals adopt is supported in the literature. Individuals who are intrinsically motivated are expected to seek mastery in their achievement endeavors and to obtain higher achievement outcomes than individuals who are extrinsically motivated. Achievement motivation and goal orientation also are believed to influence learning strategy selection, which in turn affects academic

performance. Although the role learning strategies play in enhancing reading achievement has been demonstrated, the use of learning strategies is not a "one size fits all" matter. Rather, strategy use often is a function of the learning context, student achievement or ability level, exposure to strategy instruction, motivational variables, or a combination of the aforementioned. Therefore, reading achievement is a result of an interaction of complex processes unique to each individual (James & Selz, 1997). To date few research studies have investigated the relationship among middle school students' motivation, learning strategy use, and performance on high-stakes reading assessments. As a result, this study will examine the difference in learning strategy use and reading achievement scores among intrinsically, extrinsically, and intrinsically-extrinsically motivated students. Findings from this study may be used to assist schools and other stakeholders in identifying effective and practical interventions for enhancing student achievement in general and performance on standardized reading assessments in particular. The study's hypotheses are outlined below.

1. FCAT Reading SSS scores of intrinsically motivated students (students with intrinsic motivation scores of 3.0 or greater and extrinsic motivation scores of less than 3.0) will be significantly higher than the FCAT Reading SSS scores of extrinsically motivated students (students with extrinsic motivation scores of 3.0 or greater and intrinsic scores of less than 3.0).
2. FCAT Reading SSS scores of students who are both intrinsically and extrinsically motivated (students with both intrinsic and extrinsic motivation scores of 3.0 or greater) will be significantly higher than the

FCAT Reading SSS scores of students who are solely intrinsically or extrinsically motivated.

3. Most frequently used learning strategy will differ between intrinsically, extrinsically, and intrinsically/extrinsically motivated students with intrinsically/extrinsically motivated students using more deep processing strategies than intrinsically or extrinsically motivated students.

Method

Participants

Ninety-three seventh and eighth grade students attending school in a medium size Florida school district voluntarily participated in this study during the fall semester of 2006. Thirty-nine percent of the sample were boys and 59% were girls. Two percent did not indicate a gender. The ethnicity of the participants was as follows: 36% Caucasian, 37% African American, 16% Latino, 1% Asian American, and 9% an unidentified ethnicity. Participants' ages ranged from 12 years to 16 years. Nine percent of the sample was 12 years of age, 52% were 13 years of age, 29% were 14 years of age, 9% were 15 years of age, and 1% was 16 years of age. The mean age of participants was 13.4 years with a standard deviation of .811.

Procedures

Approval for the present study was obtained from the Barry Institutional Review Board prior to its commencement. This investigator contacted the school district IRB representative and school principals to seek written permission to conduct the study in their schools (see Appendices A and B for a copy). Upon securing the IRB representative's and the principals' permission, the investigator mailed recruitment forms

to 7th and 8th grade teachers to solicit volunteers for this study (see Appendix C for a copy of the form). Upon receiving a signed recruitment letter from teachers agreeing to participate, this investigator contacted teachers and scheduled a meeting to discuss expectations for their participation and to provide study materials (e.g., demographic form/study strategies questionnaire, motivational questionnaire). Ninety-three student volunteers whose parents provided written consent were included this study (see Appendix D for a copy of the Consent letter). Each participating teacher distributed two instruments: a demographic data form/learning strategies questionnaire and a motivation questionnaire. Teachers read instructions for completing each instrument aloud. Instructions included completing the instruments in the above order and placing each completed instrument in an 8 X 11 inch envelope for the teacher to collect after completion of all instruments. After the students completed the instruments and placed the instruments into the envelope, the teacher collected the envelopes from the students and wrote the students' FCAT Reading SSS score on a 3 X 5 note card, placed the note card containing the score into a letter-sized envelope, and stapled the letter-sized envelope to the 8 X 11 envelope. Students who chose not to participate were allowed to silently read self-selected academic materials at their desks. The researcher returned to the schools weekly and collected the sealed envelopes. All data was kept in a locked file cabinet.

Design

The participants were placed in one of three motivational groups (intrinsic, extrinsic, and intrinsic/extrinsic) based on their score on the Motivation for Reading Questionnaire (MRQ). A one-way analysis of variance (ANOVA) was used to examine

the difference in the FCAT Reading SSS scores between students' motivation type (intrinsic, extrinsic, and intrinsic/extrinsic). Descriptive statistics were used to explore students' use of deep processing learning strategies.

Measures

One standardized reading achievement test and two questionnaires were employed in this study. A description of each measure is provided below.

Demographic and reading strategy questionnaire. A demographic questionnaire based on the research literature and work by Somuncuoglu and colleagues (1999) was developed by this researcher. This measure was used to identify students' age, sex, and ethnicity (see Appendix E for a sample copy). Students also rated different types of surface cognitive strategies and deep cognitive strategies they employ when completing reading comprehension tasks by rating each of ten reading strategies on a 1 to 5 Likert scale and indicating one reading strategy of the ten that is used the most (see Appendix E for a sample copy). Surface strategies refer to behaviors that promote short-term memorization of information such as highlighting and rehearsing (Somuncuoglu et al.). Conversely, deep strategies promote long-term memorization of information through organizing, elaborating, and forming connections with existing knowledge. Examples of organizational and elaborative strategies include creating outlines or using graphic organizers and using mental imagery and summarizing, respectively.

Reading and motivation. The Motivation for Reading Questionnaire (MRQ), developed by Wigfield and Guthrie (1997), was used to assess reading motivation (see Appendix F for sample items). This instrument is comprised of items that assess four motivational goal orientations – intrinsic, extrinsic, social, and avoidant. Intrinsic

motivation, commonly associated with mastery goals in the literature, is assessed by items exploring students' reading curiosity, reading involvement, and their perception of reading importance. Items pertaining to competition in reading, reading recognition, and reading for grades measure extrinsic motivation and the adoption of performance goals. Social motivation, which reflects aspects of an ego-social goal orientation, is assessed by items focusing on compliance and the social aspects of reading. Lastly, an avoidant goal orientation is measured by items tapping what students report enjoying the least about reading. The revised MRQ consists of 53 statements that comprise 11 scales including reading efficacy, challenge, curiosity, reading involvement, importance, recognition, grades, social, competition, compliance, and reading work avoidance. Respondents are required to rate items using a four-point scale (e.g., 1 = *very different from me*, 2 = *a little different from me*, 3 = *a little like me*, 4 = *a lot like me*). Theoretical and factor-based reliabilities for the reading motivation scales of the MRQ range from .40 to .78 and .43 to .81 for fall and spring assessments, respectively, with the grades scale having the lowest reliability estimate for the spring assessment.

Reading achievement. The Florida Comprehensive Assessment Test (FCAT) is designed to assess student achievement of the Sunshine State Standards benchmarks in reading, mathematics, science, and writing (Florida Department of Education, 2005). The FCAT Reading consists of a criterion-referenced and a norm referenced section that allow for comparisons both at both the state and national levels. The FCAT SSS in Reading assesses higher order thinking skills in four content areas: Words and Phrases in Context; Main Ideas, Plot, and Purpose; Comparisons and Cause/Effect; and Reference and Research through the use of multiple choice questions that are machine scored. The

FCAT measures the content areas of Reading and Mathematics for 7th and 8th graders. In addition to the content areas, eighth graders complete reading performance tasks that require them to answer questions using their own words. The FCAT Reading SSS yields scores between 100 and 500 that correspond with achievement levels 1 (*low*) through 5 (*high*). The internal consistency reliabilities for the 2003 FCAT Reading SSS using Cronbach's Alpha are .91 and .89 for 7th and 8th graders, respectively. The concurrent validity of the 2003 FCAT Reading SSS with the FCAT Norm Referenced Test is .82 for 7th graders and .83 for 8th graders.

Results

Hypothesis 1 indicated that the FCAT Reading SSS scores of intrinsically motivated students (students with intrinsic motivation scores of 3.0 or greater and extrinsic motivation scores of less than 3.0) will be significantly higher than the FCAT Reading SSS scores of extrinsically motivated students (students with extrinsic motivation scores of 3.0 or greater and intrinsic scores of less than 3.0). Table 1 provides the means and standard deviations for FCAT by motivational type.

Hypothesis 2 indicated that FCAT Reading SSS scores of students who are both intrinsically and extrinsically motivated (students with both intrinsic and extrinsic motivation scores of 3.0 or greater) will be significantly higher than the FCAT Reading SSS scores of students who are solely intrinsically or extrinsically motivated.

Table 1

Means and Standard Deviations of FCAT Reading SSS Scores by Motivation Type

	N	Mean	SD
Extrinsic	6	261.17	112.32
Intrinsic	16	325.56	37.99
Extrinsic-Intrinsic	36	322.00	48.39

A one-way analysis of variance (ANOVA) was used to test the first two hypotheses. Between-group comparisons ($F=3.427$, df 57, $p< .05$) revealed statistically significant differences between intrinsically and extrinsically motivated students, thus supporting Hypothesis 1. In terms of Hypothesis 2, intrinsically motivated students obtained a mean FCAT Reading SSS score of 325 compared to 261 for extrinsically and 322 for dually motivated students. Thus, Hypothesis 2 was not supported.

Hypothesis 3 stated that the most frequently used learning strategy differs between intrinsically, extrinsically, and intrinsically/extrinsically motivated students with intrinsically/extrinsically motivated students using more deep processing strategies than intrinsically or extrinsically motivated students. Intrinsically/extrinsically motivated students were expected to report using more deep processing strategies than intrinsically or extrinsically motivated students. Extrinsically, intrinsically, and extrinsically/intrinsically motivated students identified mental imagery, a deep cognitive

strategy, as the most frequently used learning strategy. Sixty percent of extrinsically motivated students endorsed using this strategy, whereas approximately 47% and 49% of intrinsically and dually motivated students, respectively, reported this strategy as the most used to enhance reading comprehension. See Table 2 for frequency of strategy endorsement.

Table 2

Frequency of Students' Choice of Learning Strategy by Motivational Group

	Intrinsically	Extrinsically	Dually
Prior Knowledge	--	--	2.9
Reread	12.5	--	22.9
Self question	6.7	20.0	--
Use resources	--	--	5.7
Summarize	6.7	--	2.9
Memorize	--	--	8.6
Select important information	13.3	--	2.9
Mental imagery	46.7	60.0	48.6
Visual aids	6.3	20.0	5.7
Note take, outline, use graphs	0.0	0.0	0.0

Discussion

The present study explores the relationship among reading motivation, learning strategy use, and reading achievement among middle school children. Hypothesis 1 was supported. Thus, intrinsically motivated students scored higher on a reading achievement measure than extrinsically motivated students. Hypothesis 2 was not supported as there was no difference in the reading achievement of intrinsically motivated and dually motivated students. Students' learning strategy preference, (Hypothesis 3), did not vary by motivation type, as mental imagery was endorsed as the strategy employed most by all three groups. Thus, Hypothesis 3 was not supported. Additionally, intrinsically/extrinsically motivated students did not employ deep learning strategies, such as self-questioning, more than intrinsically or extrinsically motivated students. This study's failure to provide support for a relationship between intrinsic/extrinsic motivation and deep learning strategies appears consistent with previous research findings that suggest the presence of a high performance goal, commonly associated with an extrinsic orientation, along with a mastery goal, commonly associated with an intrinsic orientation, does not enhance achievement related processes (Pintrich, 2000). The aforementioned suggests that a dual motivation orientation may not increase achievement outcomes or learning strategy use more than an intrinsic motivation orientation alone. Most promising, however, is the support given to the relationship between intrinsic motivation and increased reading achievement.

The present study has several limitations which include a small sample size due to recruitment constraints. Students also volunteered to participate in the study and therefore were self-selected. Both a small sample size and participant self-selection limits the

ability to generalize study results. An additional caveat was the investigation of student's preferred learning strategy, hence an inability to replicate findings from previous studies that link motivational orientation to differential strategy use. A standardized learning strategy questionnaire should be employed in future studies to explore students' strategy use in greater depth. In light of the assertion that motivational goal orientation is context dependent (Somouncuoglu & Yildirm, 1999; Wigfield, Guthrie, Tonks, & Perencevich, 2004), future research should explore students' motivation and strategy use in other reading content areas such as Science and Social Studies. The impact time of assessment – fall semester versus spring semester- has on students' use of content specific strategies versus self-regulated strategies has been demonstrated (Pokay and Blumenfeld, 1990). Therefore, future studies should include fall and spring assessments of learning strategy use to determine whether strategy use among intrinsically, extrinsically, and intrinsic-extrinsically motivated students would vary over time based on exposure to formal strategy instruction and feedback regarding their academic performance.

Notwithstanding the abovementioned caveats, this study adds further support to research in the field that links intrinsic motivation to enhanced achievement outcomes. Despite this study's failure to not identify strategies associated with enhanced performance on the FCAT Reading SSS, an intrinsic motivation orientation is believed to be associated with positive achievement related behaviors (McGregor & Elliot, 2002; Pintrich & DeGroot, 1990). An increase in time spent reading and the breadth of reading has been demonstrated for fourth and fifth graders with high levels of intrinsic motivation (Wigfield & Guthrie, 1997). Therefore, the findings underscore the importance of administrators, teachers, parents, and students reformulating their beliefs about the goals

of education in general and the learning process in particular. It is crucial that key stakeholders adopt attitudes that not only promote reading but also support instructional practices such as explicitly teaching learning strategies, enhancing children's mastery goals, and exposing them to interesting and meaningful interactive learning experiences, that increase intrinsic motivation (Guthrie, Wigfield, & VonSecker, 2000). Efforts to identify effective reading strategies for learners with varying needs should be explored to assist students not only in performing well on high-stakes tests such as the FCAT but also in demonstrating competency both inside and outside of the classroom.

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Appendix A

Letter to District Representative

Fall 2006

Dear_____:

I am a graduate student attending Barry University conducting research under the supervision of Dr. Agnes Shine, Assistant Professor. The title of my research project is "The Impact of Motivation and Learning Strategy Use on Middle Schoolers' Reading Achievement," which seeks to explore attitudes and behaviors that impact reading achievement. Please take time to review the enclosed proposal for approval.

I would like to conduct this study in the district during Fall 2006. Teacher participation is completely voluntary and will consist of briefly meeting with me to discuss the study. Additionally, teachers will be asked to collect achievement data (2006 FCAT Reading SSS scores) and to allocate class time for the administration of a demographic/learning strategy questionnaire and a motivation questionnaire to students one time only.

There are no known risks associated with participation. Students who opt not to participate will remain anonymous. A potential benefit includes adding to existing knowledge in the area of reading achievement. If you consent to allow school personnel and students to participate, study related activities should take no longer than 40 minutes. I welcome an opportunity to answer any questions you may have about this study. If you have any questions about this study, you may contact me at (772) 812-1635 or Dr. Agnes Shine, my research advisor, at (305) 899-3991.

Sincerely,

Detra Bonner
Barry University Graduate Student

____ **Yes**, I grant permission for you to conduct research in the _____County School District.

____ **No,** I do not grant permission for you to conduct research in the _____County School District.

_____ _____

Signature of District Representative Date

Appendix B

Letter to Principals

Fall 2006

Dear Principal:

Please allow me to introduce myself. My name is Detra Bonner, and I am a Barry University school psychology graduate student in the process of conducting research. The title of my study is "The Impact of Motivation and Learning Strategy Use on Middle Schoolers' Reading Achievement." I am interested in inviting teachers and students attending your middle school to participate in this research project during Fall 2006. Teachers will be asked to solicit volunteers from amongst their students to participate in this study and to allocate approximately 40 minutes during class to allow students to complete a demographic/learning strategies questionnaire and a motivation questionnaire one time only. Participating teachers also will be asked to document students' 2006 FCAT Reading SSS scores.

There are no known risks associated with students' involvement in this study. Students' participation in this research study may further our understanding in the area of reading achievement. This is an anonymous study, and as such, students' names and any other identifying information will not be collected. Please also be assured that the Institutional Review Board at Barry University in Miami Shores, Florida has fully approved this study. Should you have any questions or concerns regarding this research project, please do not hesitate to contact me at (772) 812-1635 or my research advisor, Dr. Agnes Shine, at (305) 899-3991. Any additional inquiries regarding the status of this study may be addressed by Ms. Nildy Polanco, Institutional Review Board contact person, at (305) 899-3020.

____ **Yes**, I am interested in this research project and consent to have $7^{th}/8^{th}$ grade teachers and students participate.

____ **No**, I am not interested in this research project and do not consent to have $7^{th}/8^{th}$ grade teachers and students participate.

Thank you very much for your participation. Please return this letter in the self-addressed, stamped envelope provided.

Sincerely,

Detra Bonner, M.S.
Barry University Graduate Student

Appendix C

Teacher Recruitment Letter

Fall 2006

Dear Teacher:

I am a graduate student attending Barry University conducting research under the supervision of Dr. Agnes Shine, Assistant Professor. The title of my research project is "The Impact of Motivation and Learning Strategy Use on Middle Schoolers' Reading Achievement," which seeks to explore attitudes and behaviors that impact reading achievement. As a teacher of middle school students you are invited to participate in this study.

I plan to conduct this study during Fall 2006. However, I would be willing to arrange another time upon your request. Your participation is completely voluntary and will consist of briefly meeting with me to discuss the study. Additionally, you will be asked to collect achievement data (2006 FCAT Reading SSS scores) and allocate class time for the administration of a demographic/learning strategy questionnaire and a motivation questionnaire to students one time only.

There are no known risks associated with participation. Students who opt not to participate will remain anonymous. A potential benefit includes adding to existing knowledge in the area of reading achievement. If you agree to participate, study related activities should not take longer than 40 minutes. I welcome an opportunity to answer any questions you may have about participating in this study. If you have any questions about this study, you may contact me at (772) 812-1635 or Dr. Agnes Shine, my research advisor, at (305) 899-3991.

I would like to assure you that this study has been reviewed and approved by the Institutional Review Board at Barry University. However, the final decision about participation is yours. Thank you in advance for your interest in this study. Please return this letter in the self-addressed, stamped envelope provided.

____ Yes, I will participate in this research study.
____ No, I will not participate in this research study.

Sincerely,

Detra Bonner
Barry University Graduate Student

Appendix D

Barry University Consent Form

Fall 2006

Dear Parent or Guardian:

Your child is invited to participate in a research study exploring beliefs and behaviors that are associated with reading achievement. Your child was selected as a possible participant because he or she is a middle school student attending school in Florida. We ask that you read this form and ask any questions you may have before agreeing to allow your child to participate in this study.

If you agree to allow your child to participate in this study, he or she will be asked to complete a demographic form and two questionnaires exploring academic related beliefs and behaviors. You also will be asked to approve of the release of your child's Florida Comprehensive Achievement Test scores in Reading from the 2005-2006 school year.

The anticipated length of participation is approximately 35 to 40 minutes. There are no known risks associated with participation in this study. A potential benefit includes adding to existing knowledge in the area of reading achievement.

The records of this study will be kept confidential and stored in a locked file cabinet for 5 months in the primary investigator's home. We will not include any information that will make it possible to identify a participant in any report that is generated. Research records will be stored securely and only investigators will have access to records.

Please note that participation in this study is voluntary and your decision whether or not to participate will not result in any negative consequences. If you decide to allow your child to participate, he or she is free not to answer any question or to withdraw at any time without penalty. The investigator conducting this research is Detra Bonner, a graduate student at Barry University. If you have questions, you are encouraged to contact her at (772) 812-1635. You may also contact her research advisor, Dr. Agnes Shine, at (305) 899-3991 or Nildy Polanco at (305) 899-3020.

I have read the above information and consent to allow my child _____ to participate in this study.

(Name of Child)

_____ _____

Signature of **Parent** Date

I have read the above information and agree to participate in this study.

_____ _____

Signature of **Child/Participant** Date

Appendix E

Demographic/ Learning Strategies Questionnaire

Please complete the following by choosing one from each category.

I am:

___ 11 years old
___ 12 years old
___ 13 years old
___ Other (Please specify age: ___)

I am:

___ male
___ female

I am:

___ White or Caucasian
___ African American or Black
___ Hispanic or Latino(a)
___ Asian American
___ Other (Please specify ethnicity: _____)

.....

Carefully read each of the statements below and circle a number between 1 and 5 that best describes your reading related behaviors.

1 = never or rarely
2 = occasionally
3 = sometimes (50% of the time)
4 = often
5 = almost always or always

Please make sure you answer or rate each statement based on things you do whenever you read a passage, story, or book.

1. I think about what I already know about the topic I am reading about or think how it is like my life as I read to improve my understanding. **1=never/rarely 2=occasionally 3=sometimes 4=often 5=almost always or always**
2. If at first I do not understand what I read, I will look back in the book and read it again for understanding. **1=never/rarely 2=occasionally 3=sometimes 4=often 5=almost always or always**
3. I use a dictionary, glossary, or ask for help when I come across a word I do not know. **1=never/rarely 2=occasionally 3=sometimes 4=often 5=almost always or always**

4. I ask myself questions about what I read and answer these to make sure I understand. **1=never/rarely 2=occasionally 3=sometimes 4=often 5=almost always or always**
5. I sum up what I just read using my own words to help me I understand. **1=never/rarely 2=occasionally 3=sometimes 4=often 5=almost always or always**
6. I read information several times and commit it to memory to improve my understanding. **1=never/rarely 2=occasionally 3=sometimes 4=often 5=almost always or always**
7. I take notes, create outlines, or use graphic organizers as I read to improve my understanding of what I read. **1=never/rarely 2=occasionally 3=sometimes 4=often 5=almost always or always**
8. I read to get the most important information and do not worry about the smaller details. **1=never/rarely 2=occasionally 3=sometimes 4=often 5=almost always or always**
9. I form pictures in my mind to help me remember what I read. **1=never/rarely 2=occasionally 3=sometimes 4=often 5=almost always or always**
10. I look at charts, drawings, and other visual aids that are provided to improve my understanding. **1=never/rarely 2=occasionally 3=sometimes 4=often 5=almost always or always**

Please select the statement above (a number between numbers 1 and 10) that describes the one strategy you use most when you read and write it in the blank provided. _____

Appendix F

Paraphrased Items from The Motivation for Reading Questionnaire
Wigfield & Guthrie (1997)

Construct: Reading Efficacy
Examples: I read well.
I know I will succeed in reading this year.
Construct: Challenge
Examples: I enjoy books that make me think.
I will read difficult books if they interest me.
Construct: Curiosity
Examples: I enjoy reading about topics that interest me.
If we discuss something interesting in class, I will seek out additional reading material about the topic.
Construct: Reading Involvement
Examples: I like to read fun and interesting stories.
I pretend to be friends with characters in the book.
Construct: Recognition
Examples: I enjoy receiving praise for reading.
Others often comment about my reading skills.
Construct: Competition
Examples: I work hard to answer more questions correctly about the stories we read.
I try to be the best reader in my class.
Construct: Social
Examples: I enjoy talking to my friends about what I read.
I sometimes like to read with others.
Construct: Work Avoidance
Examples: I do not like to read long and difficult stories.
I do not like to answer questions about stories.