ABSTRACT

GIFTED LEARNERS’ MOTIVATIONAL OUTCOMES IN CLUSTER VERSUS ABILITY-GROUPED READING INSTRUCTION: AN EX-POST FACTO STUDY

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This post hoc study focused on gifted programming in language arts for students in fourth through eighth grades in one large (n=12,229) diverse school district. One group of gifted students experienced cluster grouping, while the other group of gifted students experienced ability grouping for language arts instruction. The study examined whether motivational processes reported by gifted students differed by gender, race/ethnicity, and socioeconomic level. The study also investigated whether gifted students who were ability grouped for reading instruction differed in self-efficacy, achievement goal orientation, achievement, and challenge seeking in language arts when compared to gifted students who were cluster grouped. Finally, student perception of classroom goal structure was compared between cluster-grouped gifted students and ability-grouped gifted students. Some students were surveyed at the end of eighth grade immediately following participation, and others were surveyed at the end of ninth grade.

Among gifted students, females exhibited greater levels of challenge-seeking behavior by selecting higher-level high school courses; therefore, gender was controlled in further analyses. Within the gifted population examined for this study, self-efficacy, personal
achievement goal orientation, achievement, challenge seeking, and perception of classroom achievement goal structure did not vary by race/ethnicity or socioeconomic status (SES) of gifted adolescent students.

Using regression analysis, ability-grouped gifted students who were surveyed at the end of eighth grade were more likely to report challenge-seeking behavior and less likely to report mastery goal orientation than those who had been cluster grouped. Gifted students surveyed at the end of ninth grade who had been in ability-grouped classrooms reported greater self-efficacy, mastery goal orientation, and performance-approach goal orientation than gifted students who had been cluster grouped.

Finally, gifted students’ perceptions of classroom goal structures were explored. Non-white students surveyed at the end of eighth grade reported lower performance-avoidance goal structure in their classrooms than did white students. Ninth grade gifted students who had been in ability-grouped classrooms reported greater mastery achievement goal structure than gifted students who had been cluster grouped since late elementary grades.

Motivational benefits were found for gifted students who had been ability grouped for language arts instruction. The study further suggested that the effects of ability grouping may ease the transition from middle school to high school for gifted students.
GIFTED LEARNERS’ MOTIVATIONAL OUTCOMES IN CLUSTER VERSUS ABILITY-GROUPED READING INSTRUCTION: AN EX-POST FACTO STUDY

BY

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A DISSERTATION SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE DOCTOR OF PHILOSOPHY

DEPARTMENT OF LEADERSHIP, EDUCATIONAL PSYCHOLOGY AND FOUNDATIONS

Doctoral Director:
Lee Shumow
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Finally, I would like to thank others who have guided and encouraged me during my professional career in education. Your trust and faith in my ability have allowed me to take risks and overcome challenges.
DEDICATION

To my husband, Roel, and children, Andre and Clarissa, who have filled my life with unconditional love
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A significant challenge facing the American educational system today is developing globally competitive citizens while ensuring the learning of all students. Realizing this ideal can be tricky because students have a wide variety of strengths and weaknesses. Each one deserves to learn something new every day. Teaching the same information the same way to all learners may not be effective for all students, especially those who are gifted. A gifted learner is likely to learn information at a faster instructional pace than a student who is not gifted (Reis et al., 1993) and “gifted students who are not given adequate opportunities to develop their talents often become ‘involuntary underachievers’” (Siegle & McCoach, 2009, p. 197). The National Association of Gifted Children (2012-2013) claims that the United States must develop talent and help gifted students achieve beyond grade level in order to “restore assets lost [and] place our nation on more solid footing in an increasingly competitive global ecosystem” (p. 3). This study examined gifted middle-school students’ self-efficacy, personal achievement goal orientation, challenge seeking, achievement, and perception of classroom goal structure in two different reading learning environments. In one environment, gifted students were ability grouped, whereas in the other they were educated in cluster groups in the regular classroom. The goal was to identify if either environment better benefited gifted students.
Finding cost-effective methods of matching unique gifted learners to appropriate educational environments may be one remedy to the challenge of educating all students to their potential. Often, gifted students already know the skills and information that are taught in the regular classroom, and consequently, their minds are idle. Jensen (1998) claims that “new learning and challenge are important to new brain growth” (p. 31). In mixed-ability group learning environments, gifted students may not get to experience an appropriate level of challenge to bring about the disequilibrium that will motivate them to seek out new information or learning experiences. Most curricula are appropriate for middle-ability learners in the room (Rogers, 2002), so gifted students may not have opportunities to set appropriate goals for themselves and experience the satisfaction of achieving those goals. Often, gifted students learn much more quickly than other learners, remember what they have learned, and do not need the review that other students may need for long-term learning (Winebrenner, 2000). This does not allow the gifted student to stretch or to be challenged. Winebrenner states, “gifted students who rarely undergo demanding learning experiences may lose confidence in their ability to perform well on challenging learning tasks” (p. 54). These students rarely have the opportunity to develop good study skills and also are at risk of becoming underachievers and developing performance goal orientation rather than mastery goal orientation. Educators need to consider student motivation and underachievement when designing or selecting educational approaches for gifted students.
Issues Facing Gifted

Reasons for Underachievement

There are many reasons for underachievement among gifted students. One is that the school curriculum is below a level of challenge for them. Gifted students may learn more quickly than other students and often already know much of what is being taught in the classroom (Reis et al., 1993). When these students subscribe to performance-based achievement goals, they believe that since they already know what is being taught, there is nothing more for them to do. Performance achievement goal orientation is when a student is motivated to engage in a task in order to display his/her ability rather than engage in the task for the sake of learning (Dweck & Leggett, 1988). Many gifted students find that the first time they are truly challenged is in college. Worse yet, some may not make it to college because they drop out of high school, having grown intolerant of boredom and impatient with the redundancy of instruction offered in a typical classroom (Roedell, 1984; Siegle & McCoach, 2005). Matching the gifted student to a learning environment that facilitates productive motivational processes may decrease the risk of gifted student underachievement.

Perfectionism

Gifted students may also be hindered by perfectionism. Perfectionism is when a student experiences an inner drive to reach expectations that do not allow mistakes or error (Hewitt & Flett, 1991). Meyer, Turner, and Spencer (1997) found that challenge seeking students who had high mastery achievement goal orientation were able to persist and modify
their plans when faced with the threat of potential failure. Since regular classrooms offer little challenge to gifted students, they may have unrealistic expectations for their own performance when they encounter a challenge. Gifted students may also lack coping skills that allow them to deal with the stress that accompanies challenge. This may lead to extreme maladaptive perfectionism when the students have crippling anxiety or are driven to the point of paralysis, unable to perform any task they feel has the potential for imperfection. Wang, Fu, and Rice (2012) report that maladaptive perfectionism of gifted students is associated with performance achievement goal orientations. This is far different from students who have mastery achievement goal orientation and who are motivated to learn to increase knowledge or intelligence. Such mastery achievement goal orientation has been associated with adaptive perfectionism rather than maladaptive perfectionism, distinguished by a strong desire to succeed without disabling effects (Wang et al., 2012).

**Challenge as a Remedy**

It is important for all students to experience challenge and new learning in school. Knowing that one is able to accomplish tasks that are valued is an important way to increase one’s self-efficacy (Lopez & Lent, 1992). According to Bandura (1986), self-efficacy is defined as “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performance” (p. 391). High academic self-efficacy has been shown to influence motivation. Students with higher self-efficacy will take risks and attempt difficult problems. Gifted students need to be given opportunities to increase their self-efficacy by experiencing challenges.
There are multiple ways to provide challenge to gifted learners. One option is to accelerate gifted students to another grade level or increase a single content area level of learning to meet their educational needs. Another strategy suggested by Gamoran, Nystrand, Berends, and LePore (1995) is to adjust the content and context of instruction based on the learners’ needs; therefore, underachievement could be reduced by raising the caliber of both instruction content and instructional discourse in classes. This idea requires the teacher to modify instruction in several ways to appropriately meet the needs of each of the mixed ability students in one classroom. Still another option could be grouping gifted learners for instruction. This is an inexpensive intervention that allows a teacher to instruct deeper, more difficult concepts while maintaining an appropriate pace for students. The teacher would appropriately modify the instructional content and/or instructional discourse for all of the similar ability students in the room. This is thought to be effective because of the comparable needs of all gifted students being served (Rogers, 2007).

Purpose of Study

The objective of this study was to learn about the motivational processes of early-adolescent gifted students in reading classes. The first idea to be investigated was whether gifted students’ self-efficacy, personal achievement goal orientation, achievement, challenge seeking, or perception of the classroom goal structure differed by their demographic background characteristics. Another purpose was to determine whether gifted students who were ability grouped for reading instruction differ in self-efficacy, achievement goal orientation, achievement, and challenge seeking in reading when compared to gifted students
who were cluster grouped for reading instruction. Third, student perception of classroom achievement goal structure was compared and differences were identified between cluster-grouped gifted students and ability-gifted students. The goal was to identify if either environment better benefited gifted students. This information will be useful for future decision making regarding the education of gifted students in the content of reading.

Research Questions

This research was guided by the following research questions:

1. Among gifted middle school students, do self-efficacy, personal achievement goal orientation, achievement, challenge seeking, and perception of classroom goal structure vary by demographic background characteristics like gender, minority group membership, or free/reduced lunch as proxy for low socioeconomic status (low-SES)?

2. Do gifted middle-school students who experience cluster-grouped reading instruction differ from gifted middle-school students who were ability grouped for reading instruction in terms of self-efficacy, personal achievement goal orientation, achievement, and challenge seeking outcomes? Specifically:

2a) Controlling for any differences in student background factors, does the self-efficacy, personal achievement goal orientation, achievement, and challenge seeking of gifted students who attended cluster-grouped reading classes in the middle grades (Group A1) differ from that of gifted students who attended
ability-grouped reading classes in the middle grades (Group A2) immediately after participation?

2b) Controlling for any differences in student background factors, does the self-efficacy, personal achievement goal orientation, achievement, and challenge seeking of gifted students who attended cluster-grouped reading classes in the middle grades (Group B1) differ from that of gifted students who attended ability-grouped reading classes in the middle grades (Group B2) one year after participation?

3. As an exploratory inquiry, do gifted middle-school students who experience cluster-grouped reading instruction have different perceptions of classroom achievement goal structure than gifted middle-school students who were ability grouped for reading instruction? Specifically:

3a) Controlling for any differences in student background factors, are there differences in perception of classroom achievement goal structure of gifted students who attended cluster-grouped reading classes in the middle grades (Group A1) from gifted students who attended ability-grouped reading classes in the middle grades (Group A2) immediately after participation?

3b) Controlling for any differences in student background factors, are there differences in perception of classroom achievement goal structure of gifted students who attended cluster-grouped reading classes in the middle grades (Group B1) from gifted students who attended ability-grouped reading classes in the middle grades (Group B2) one year after participation?
Operational Definitions

Student Factors

Gifted students. According to the National Association of Gifted Students (n.d.), gifted individuals are those who demonstrate outstanding levels of aptitude (defined as an exceptional ability to reason and learn) or competence (documented performance or achievement in top 10% or rarer) in one or more domains. Domains include any structured area of activity with its own symbol system (e.g., mathematics, music, language) and/or set of sensorimotor skills (e.g., painting, dance, sports). In this study, students were considered gifted in reading if they a) scored at or above the 95th national percentile reading achievement test or a verbal cognitive abilities test or b) scored at or above the 88th national percentile on a reading achievement test or verbal cognitive abilities test and demonstrated other specific learner characteristics such as possessing an intense interest, a large body of knowledge, or an ability to learn new skills or information quickly, and demonstrated high-level classroom performance.

Low socioeconomic status (low-SES). Students whose families qualify for free or reduced cost lunches served at school are considered to have low-income status. The low-income eligibility guidelines are provided annually by the United States Department of Agriculture. This is sometimes referred to as free/reduced lunch status.
Classroom Environment

Ability grouping. Sometimes referred to as tracking, ability grouping refers to homogenously grouping students into a separate classroom based on achievement (Loveless, 1999). In this study, for example, Group 2 consisted of gifted students who were assigned to a classroom with only other eligible gifted reading students.

Cluster grouping. Cluster grouping is when a group of two to six gifted students with similar content specific ability are assigned to a regular, heterogeneously-grouped classroom. In this study, Group 1 consisted of gifted students who were in a regular reading classroom that included a small group of gifted students who were identified by high ability in reading or verbal aptitude.

Academic Outcomes

Academic achievement. In this study, the score is a national percentile rank in the subtest of reading, i.e., student performance on the EXPLORE exam given during the eighth grade school year.

Challenge seeking. This was demonstrated by gifted-student selection of honors English classes in high school. These are classes that follow the regular curriculum but have added rigor with additional topics or depth for high ability students. Prerequisites include higher scores on standardized tests and strong classroom performance in middle school, although ultimately students may self-select to take or not take honors classes.

Personal achievement goal orientations. This refers to students’ reasons or purposes for engaging in academic behavior. Specific achievement goals foster predictable response
patterns. These patterns include cognitive, affective, and behavioral components that have been characterized as more or less adaptive (Midgley et al., 2000b). This study examined mastery, performance-approach and performance-avoidance achievement goal orientations.

Mastery goal orientation. Students’ purpose or goal in an educational setting is to develop their competence. They seek to extend their mastery and understanding while exhibiting a willingness to take risks (Midgley et al., 2000b). Mastery achievement goal orientation is related to adaptive learning behaviors. In this study, the focus was on achievement related to reading. This was measured by the Patterns of Adaptive Learning Scales (PALS) with five items that used a Likert response scale.

Performance-approach goal orientation. Students’ purpose or goal in an educational setting is to demonstrate their competence. Performance-approach goal orientation has been connected to both adaptive and maladaptive learning behavior (Midgley et al., 2000b). In this study, the focus was on achievement related to reading. This was measured by the Patterns of Adaptive Learning Scales (PALS) with five items that used a Likert response scale.

Performance-avoid goal orientation. Students’ purpose or goal in an educational setting is to avoid the demonstration of incompetence and is considered a maladaptive learning response (Midgley et al., 2000b). In this study, the focus was on achievement related to reading. This was measured by the Patterns of Adaptive Learning Scales (PALS) with four items that used a Likert response scale.

Self-efficacy. This considers students’ perceptions of their own competence to do their class work (Midgley et al., 2000b). In this study, the focus was on class work related to
reading. This was measured by the Patterns of Adaptive Learning Scales (PALS) with five items that used a Likert response scale.

**Classroom Climate**

Perception of classroom goal structures. This is concerned with student perceptions of the purposes for engaging in academic work that are emphasized in the classroom (Midgley et al., 2000b). The three types are classroom mastery goal structure, classroom performance-approach goal structure, and classroom performance-avoidance goal structure.

Classroom mastery goal structure. Student perceptions that the purpose for engaging in academic work in the classroom is to develop competence (Midgley et al., 2000b). In this study, the focus was on achievement related to reading. This was measured by the Patterns of Adaptive Learning Scales (PALS) with six items that used a Likert response scale.

Classroom performance-approach goal structure. Student perceptions that the purpose of engaging in academic work in the classroom is to demonstrate competence (Midgley et al., 2000b). In this study, the focus was on achievement related to reading. This was measured by the Patterns of Adaptive Learning Scales (PALS) with three items that used a Likert response scale.

Classroom performance-avoid goal structure. Student perceptions that the purpose for engaging in academic work in the classroom is to avoid demonstrating incompetence (Midgley et al., 2000b). In this study, the focus was on achievement related to reading. This was measured by the Patterns of Adaptive Learning Scales (PALS) with five items that used a Likert scale.
Overview of Methods

This is an ex-post facto study, meaning data were previously collected and the study is a retroactive evaluation of the information in a natural environment, not a laboratory. Data used in this study were collected by the school district for program evaluation purposes. One set of data comes from the Patterns of Adaptive Learning Scales (PALS) by Midgley et al. (2000b) that was used to survey students who were eligible for gifted reading programming for four or five years beginning their fourth or fifth grade year of school through their eighth-grade year of school. Surveys were administered to all of these students in the spring of their eighth- or ninth-grade years. Additional collected data include EXPLORE standardized test scores in the area of reading during the fall of their eighth-grade year and students’ ninth-grade English class assignment.

The study sought to observe if gifted students’ self-efficacy, personal achievement goal orientation, achievement, challenge seeking, or perception of the classroom achievement goal structure differs significantly by their demographic background characteristics of gender, race/ethnicity, and socioeconomic level. Additionally, a comparison was made between gifted students who experienced cluster grouping in their late elementary school through eighth-grade reading classes and gifted students who experienced ability-grouped reading classrooms from late elementary school through eighth grade. Self-efficacy, personal achievement goal orientation, achievement, and challenge seeking were compared between gifted students with different demographic characteristics and also between cluster-grouped and ability-grouped gifted students. Students’ perceptions of their classroom environments (cluster versus ability
grouping) were compared to determine whether they differed by their perception of classroom achievement goal structure.

In summary, gifted students are a valuable resource. Unfortunately, in the current educational system, they are sometimes at risk for underachievement and maladaptive perfectionism. This study sought information related to motivational processes and achievement in the reading instruction of adolescent gifted students. This ex-post facto study analyzed data obtained by the school district. A look at gifted student motivational processes and achievement was considered based on the background characteristics of students. Then a deeper look sought to reveal differences in self-efficacy, personal achievement goal orientation, challenge seeking, achievement, and perception of classroom goal structure based on students’ learning experience through either ability-grouped or cluster-grouped reading instruction.
Who are gifted students? That question has many answers. Currently, the federal government does not have a definition of giftedness nor does it legislate that there be services for gifted students (Adelson, McCoach & Gavin, 2012). The National Surveys of Gifted Programs found many different definitions of giftedness adopted by local school districts (Callahan, Moon, & Oh, 2014). Subotnik, Olszewski-Kubilius, and Worrell (2011) report that definitions of giftedness are usually based on high intelligence, innate sensitivities, creativity with persistence, talents outside academics (like athleticism), and/or unusually high opportunities. In this study, a combination of those qualities was used for identification of gifted students. Within this school district, gifted students were those who scored in the 95th national percentile on either a reading achievement test or a verbal ability test. Other students who scored at least an 88th national percentile on the same assessments and demonstrated strong gifted learner characteristics plus performed at a high level in their reading classroom were also identified as gifted students.

Determining the most appropriate methods for meeting the needs of gifted students is important. According to Vaughn, Feldhusen, and Asher (1991), “in order for gifted education to survive the onslaught of ‘no tracking’ and cooperative learning bandwagons sweeping the country, more effective experimental research must be done to demonstrate the effectiveness of gifted programming intervention” (p. 98). This study sought to observe whether advantages
aside from achievement were related to the learning environments of cluster grouping or ability grouping for gifted students. There is little research on the effects of cluster grouping and ability grouping that is not achievement based (Niehart, 2007). Therefore, this study compared the motivational processes of gifted students who were cluster grouped to gifted students who were ability grouped. Adelson, McCoach, and Gavin (2012) report that there are few empirical studies comparing gifted students in gifted programs to gifted students who attended schools without gifted programming. By comparing two groups of gifted students who experienced different learning environments, this study sought to fill that void.

This study explored the relationships among gifted students’ self-efficacy, personal achievement goal orientation, reading achievement, challenge seeking, and perception of classroom achievement goal structure related to their classroom grouping (ability or cluster). Theory and research related to those topics informed the focus and method of this study.

First, this literature review overviews possible differences in subgroups based on the background characteristics of gifted students. Second, the practice of ability-grouping gifted students is examined. Specifically, the review describes how ability grouping may influence self-efficacy, personal achievement goal orientation, reading achievement, and challenge seeking. Finally, the influence of the classroom ability grouping versus cluster grouping on student perception of classroom achievement goal structure is reviewed. The organization of this literature review follows the order of the study’s three research questions.
Self-Efficacy of Gifted Students

Gifted students have unique abilities and, therefore, unique needs. To help them reach their potential, schools need to create learning situations that allow them to grow. Having a strong sense of self-efficacy is important for success in school and throughout one’s lifetime. It provides the staying power needed to overcome challenges. According to Pajares and Schunk (2001), “The higher the sense of efficacy, the greater the effort, persistence, and resilience” (p. 3). They continue, “Self-efficacy beliefs exercise a powerful influence on the level of accomplishment that individuals ultimately realize” (p. 3). Pajares and Schunk also state that strong self-efficacy beliefs are related to higher academic achievement and that a well-developed sense of efficacy influences one’s skills, previous experience, mental ability, or other self-beliefs on achievement (p. 8). In fact, Zimmerman and Martinez-Pons (1990) explain that students’ high efficacy and ability to self-regulate are related and create a cycle. They explain, “students’ selection and use of strategies depends directly on their perceptions of their academic efficacy and reciprocally on feedback through a cybernetic loop: If monitoring indicates a deficiency in performance, learners’ self-efficacy will be affected, and this, in turn, will affect their subsequent motivation and choice of strategies” (p. 51).

Self-efficacy among gifted students is generally high. Ries and McCoach (2000) found that even among underachieving gifted learners, self-efficacy was high. Zimmerman and Martinez-Pons (1990) found that a student’s giftedness was associated with high levels of academic efficacy, and gifted students’ self-efficacy was greater than that of regular students. They attributed these results to the use of self-regulated learning strategies and the display of greater organizing and transforming, self-consequencing, seeking peer assistance, and
reviewing notes than regular students. They also found that gifted students sought significantly more adult assistance than did regular students. Practices that reduce gifted students’ self-efficacy should be eliminated simply because of all of the benefits.

Achievement Goal Orientation of Gifted Students

In addition to self-efficacy, another motivation theory that is appropriate for consideration in gifted education is achievement goal theory. Achievement goal theory is concerned with why students are engaging in particular tasks. This study of achievement goal behavior has evolved into identifying two main types of goals (Ames & Archer, 1988; Covington, 1984; Urdan, 2004). These types of goals are mastery and performance. Mastery goal orientation is when his/her purpose of action is to develop competence and is associated with the desire to learn. Performance goal orientation is when the purpose of the action is to demonstrate competence, especially in comparison to others (Ames & Archer; Dweck, 1986). Mastery and performance goals may be broken into two categories: approach and avoidance. Mastery-approach goal orientation is when a student partakes in an activity to improve his/her ability. Mastery-avoidance goal orientation is when a student participates in an action so he/she does not fail to learn or make an error. Performance-approach goal orientation is when the purpose of the action is to show his/her skill or capability to others. Performance-avoidance goal orientation is when the purpose of the action is to avoid looking incompetent to others (Elliot & Dweck, 1988; Elliot & McGregor, 2001). Studies of achievement goal orientations show that the student’s purpose for taking action has many effects. For example, mastery-approach goal oriented behavior has resulted in greater persistence, risk-taking, and
achievement. Conversely, performance-avoidance approach has been linked to helplessness, disinterest, worry, and a diminishing sense of self-worth (Ames & Archer, 1988; Dweck, 1986; Elliot & McGregor, 2001; Sideridis & Kaplan, 2011; Urdan, 2004).

Research on the achievement goal orientation of gifted students is limited, and the findings are mixed. Dai, Moon, and Feldhusen (1998) suggest that the inconsistent findings may be due to the varied incentives offered in the studies, the diverse systems of eligibility, or the individualized differences in gifted students. Dweck (2000) has suggested when a student is labeled “gifted,” s/he may seek performance goal orientation to maintain that “gifted” status and prove that one is worthy of the gifted label. The research has shown that promoting personal mastery goals in gifted students has had positive effects. Wang, Fu, and Rice (2012) found that for gifted students with low self-worth, increasing personal mastery goals increased their self-efficacy. Ames and Archer (1988) also found that gifted students with strong mastery goal orientation were more likely to use productive learning strategies and believed that effort was related to success. As suggested by Makel, Putallaz, and Wai (2012), it is important to study under what conditions gifted students develop personal mastery goal orientation over personal performance goal orientation. Mastery goal orientation is associated with adaptive learning behaviors (Midgley et al., 2000b). This study sought to identify if personal achievement goal orientation had a relationship with gifted students’ learning environments in a cluster-grouped classroom or ability-grouped classroom for reading instruction.
Achievement in Reading of Gifted Students

Generally, people believe that gifted learners are also high achievers. Since gifted eligibility is often based on standardized test scores, students identified as “gifted” already are high achieving according to their standardized test results. The goal is to keep identified gifted students scoring at those high levels over many years throughout the middle grades. Reis and McCoach (2000) describe several reasons why gifted students do not always achieve at high levels of performance. One reason is the mismatch between the school curriculum and the learner. Students often choose not to participate in “inappropriate and un-motivating” curricula (p. 156). This study sought to determine if classroom environment of cluster or ability grouping are related to the reading achievement of gifted students.

Challenge Seeking of Gifted Students

As students progress through the grades, they are offered choices of classes including choice based on class difficulty. The hope is that gifted students select appropriately leveled classes that are demanding and cognitively stimulating rather than those that are easy and allow gifted students to put little effort into academic work. Research related to the challenge seeking of gifted students found that gifted elementary-school students sought out more stimulation and challenge than other children (Gottfried & Gottfried, 2004; Raine, Reynolds, Venables, & Mednick, 2002). They also found that this desire for challenge remained stable through adolescence (Gottfried & Gottfried, 2004). Other researchers found that, over time, gifted students may show a decline in seeking challenge in school (Eccles, Lord, & Midgley, 1991; Fredricks, Alfeld, & Eccles, 2010; Seigle & McCoach, 2005). Fredricks et al. (2010)
explain, “it is clear from the interviews that many of the youth were more interested in school when they were younger, but when they reached middle and high school, intelligence and high-achievement were less valued among their peers” (p. 26). Since the gifted students who were interviewed were in regular classes, they reported that they faced “fitting in” with regular learners who may not have held the same desire or passion. Also, textbooks have become “dumbed down,” so gifted learners may find school curricula boring (Plucker & McIntire, 1996) and become disengaged as a coping mechanism (Pekrun, Goetz, Daniels, Stupnisky, & Perry, 2010). Plucker and McIntire (1996) conclude, “A growing body of research…provides evidence that a lack of challenge exists in our schools and that academically talented students appear to be especially and uniquely affected” (p. 13).

Additionally, many gifted students stop working when middle grades become difficult. They have not needed to exert effort in the past and now are not willing to take risks; they would rather be regarded as smart and lazy than work hard and possibly feel dumb (Dweck & Master, 2009). On the bright side, researchers also found that when students were in gifted classes, they reported more positive and challenging experiences (Fredricks et al., 2010). This study explored the possible relationship between cluster or ability grouping and challenge-seeking behaviors of gifted students.

Background Characteristics Related to Motivational Processes and Achievement of Gifted Students

The first research question in the present study investigated whether self-efficacy, personal achievement goal orientation, achievement, challenge seeking and perception of classroom goal structure varied by demographic characteristics (gender, race/ethnicity, or
socioeconomic level) of early adolescent gifted students. This section explains why it is important to investigate possible background differences in the motivational processes and achievement of gifted students. If those differences are found, then background factors need to be controlled in subsequent analyses.

Gender Differences

Student motivational processes and achievement have been found to differ by gender in numerous studies (Robinson, Shore, & Enersen, 2007). Despite widespread gender differences that have been observed among the general population, some scholars argue there may be fewer gender differences among gifted students for the reason that they may be treated differently because of their high ability. Additionally, gifted girls may be more likely to select nontraditional educational and career paths than their average-ability female classmates. Also gifted boys may not be looked down upon for being bookish rather than manly (Robinson et al., 2007). Researchers have found some gender differences in self-efficacy and achievement among gifted students. Few researchers have studied gender differences in gifted students’ personal achievement goal orientation. This study investigated the possible gender differences in motivational processes and achievement among early adolescent gifted students in reading.

Gender and Self-Efficacy of Gifted Students

Gender differences in the self-efficacy of gifted students have been studied, but the results are varied and depend on the subject. For math, nongifted boys have been found to have higher levels of self-efficacy than nongifted girls; and for language arts, nongifted girls
have been found to have higher levels of self-efficacy than nongifted boys (Bussey & Bandura, 1999; Joet, Usher, & Bessoux, 2011; Pajares, 1997; Pajares, Johnson, & Usher, 2007). However Zimmerman and Martinez-Pons (1990) found that gifted boys had higher efficacy in both math and verbal areas. Schmidt and Shumow (2012) found that a heterogeneous group of high school boys had higher self-efficacy in science than girls. There are other studies in which no difference has been found in heterogeneous groups of students (Meece, Glienke, & Askew, 2009; Midgely & Maehr, 1998). Since the literature is varied and sparse regarding gifted students, this study looked for differences in levels of self-efficacy for reading based on gender.

**Gender and Goal Orientation of Gifted Students**

Achievement goal orientation of gifted students related to gender has received little attention (Meece et al., 2009). Of the studies that were found, gender alone did not influence student goal orientation (Gottfried & Gottfried, 2004). In fact, it was determined that classroom and family environments, but not gender, had an impact on personal achievement goal orientation of gifted students (Ames & Archer, 1988; Makel, Putallaz, and Wai, 2012; Urdan, 2004). Given the paucity of studies on gender differences in personal achievement goal orientation of gifted students, this study tested for such differences based on gender.

**Gender and Achievement of Gifted Students**

Achievement differences by gender have been identified among gifted students. Female students were found to test more poorly when given timed tests. When timing during
the test session was removed, females performed as well as male students (Robinson, Shore & Enersen, 2007). It was also found that gifted females tend to test more poorly than males in math, even if they earned the same grade in the class (Preckel, Goetz, Pekrun, & Kleine, 2008).

The opposite pattern occurs with reading where gifted girls scored higher than gifted boys (Swiatek, Lupkowski-Shoplik, & O'Donoghue, 2000). For advanced scores in the area of reading, as eighth-grade students took the NAEP reading test from 1998-2007, more female students had reading scores in the advanced levels (two percent more females than males), and this increased number of high-scoring females has remained constant from 1998 to 2007 (Plucker, Burroughs, & Song, 2010). Given these findings, gender differences in reading achievement favoring gifted girls are tested in this study.

Gender Differences in Challenge Seeking Among Gifted Students

Last, female challenge seeking has been reported to be higher than male challenge seeking. Wilson, Stocking, and Goldstein (1994) found that gifted girls selected classes because they thought the classes would be challenging and different from the usual, while gifted boys selected classes in which they thought they would do well. Given the dated study on this topic, this study investigated possible gender differences in reports of gifted students’ challenge seeking.

Race/Ethnicity and Socioeconomic Differences in Motivational Processes

Gifted students may differ in motivational processes and achievement by the race/ethnicity or socioeconomic status of their families. Non-white students and low
socioeconomic (low-SES) students may have characteristics that uniquely affect their educational experiences. Many non-white students are also low-SES. At the same time, non-white students may be very variable. Even students within the same ethnic group may experience different cultural traditions. This is the same for all low-SES students. Some may be experiencing a temporary situation, while others may belong to a family that has generations of poverty. Prior research on motivational processes and achievement of these groups will be reviewed.

Race/Ethnicity and Self-Efficacy of Gifted Students

Research on the self-efficacy of non-white gifted students is extremely limited. Self-efficacy of non-white students is mixed and, like gender, may depend on the school subject. Pajares and Schunk (2001) found that task-specific math self-efficacy was lower in a heterogeneous ability range of Hispanic and African American students, and Borman and Overman (2004) also found general math self-efficacy lower in those same groups. Conversely, Midgely and Maehr (1998) found that African American students had higher math self-efficacy than whites. In the area of language arts, Hispanic high-school students had a lower writing self-efficacy than white high-school students (Pajares, 1997). Given the limited information on this topic, this study investigated possible race/ethnicity differences in gifted student reports of self-efficacy.

Race/Ethnicity and Achievement Goal Orientation of Gifted Students

Limited research is available regarding gifted minority students and personal achievement goal orientation. One project, Midgely and Maehr’s (1998) middle school study,
found that African American students had higher mastery goal orientation than white students. Another, which had an extensive diverse population of adolescents, was done by Witkow and Fuligni (2007) and found many more similarities than differences among ethnic groups. They did find, however, that performance-avoidance goal orientation was stronger for Asian students than Hispanic or white students. Across all ethnicities they found that the relationship between achievement goals, GPA and intrinsic value of school were all the same. This research study will add to current research on race/ethnicity of gifted students related to personal achievement goal orientation.

**Race/Ethnicity and Achievement of Gifted Students**

Educational achievement of minority students has been widely studied. It has been found that non-white students do not perform as well on standardized tests as white students. Many believe that the problem lies with the tests that appear culturally biased (Samuda & Lewis, 1992). In one study, high-performing math test-taking students were much less likely to be black or Hispanic or low-SES (Parsons, 2013). McCoach et al. (2010) reported that on standardized reading tests in 2007, only 29% of Black students and 27% of Hispanic students tested at a proficient level. On the 2007 NAEP reading test at eighth grade, while 3.8% of white students scored at the advanced level, only 0.7% of Hispanic and 0.4% of Black students scored at that same advanced level. Over time, more white students scored in the advanced level (increasing by 0.4%) compared to black and Hispanic students (increasing by 0.1% point) (Plucker, Burroughs, & Song, 2010). Overall, establishing the validity and reliability of standardized tests for minority students has been problematic because language
differences exist between the test writers and these students, test questions rely on experiences these students may not have had, tests favor students with high verbal ability, and tests may not accurately represent students who are not achievement-oriented (Ford, 1998; Walton & Spencer, 2009). In light of the findings that standardized tests may be biased against non-white students, this study investigated whether white gifted students experienced higher achievement levels as measured by a standardized test.

Race/Ethnicity Differences in Challenge Seeking Among Gifted Students

Schools are reporting that Advanced Placement (AP) and honors courses do not represent the diversity of their school district. While one nearby school district was made up of 43% white students, the AP courses were 81% white and honors courses were 71% white, leaving black, Latino, and Asian students underrepresented (Cockrell & Olszewski-Kubilius, 2012). Based on this research, this study tested whether non-white students were under-represented in high school honors English classes.

Socioeconomic Status and Self-Efficacy of Gifted Students

One study measured general self-efficacy for solving life problems of low-SES students. It found that lower socioeconomic levels were related to lower general self-efficacy (Boardman & Robert, 2000). Another study of students and their families showed that academic self-efficacy was not influenced by familial socioeconomic level (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). Schunk and Meece (2006) explain that there may be a connection between low-SES and low academic self-efficacy, “Due to a number of
different factors, lower income children are more likely to experience learning problems in school that can result in lower self-efficacy” (p. 85). Based these findings, the idea that low-SES students may show lower levels of reading self-efficacy was tested in this study.

**Socioeconomic Status and Achievement of Gifted Students**

Additional information regarding low-SES students comes from Willms (2006), which found there is a significant relationship between reading performance and socioeconomic status both for the Progress in International Reading Literacy Study (PIRLS) and the Program for International Student Assessment (PISA). Another study, *Gifted Youth At Risk: A Report of a National Study*, identified that while low-SES students make up 20% of the population, they make up only 4% of students scoring at the 95th national percentile or above on standardized tests (VanTassel-Baska, Patton, & Prillaman, 1991). Last, Plucker, Burroughs, and Song (2010) looked at NAEP data and concluded that in 2007 about 3.7% of eighth-grade non-low-SES students scored in the advance level on the reading test, while only 0.6% of low-SES students scored at the same level. Similar to minority status, this study tested whether low-SES students had lower reading achievement scores as suggested by the research.

**Socioeconomic Status Differences in Challenge Seeking Among Gifted Students**

Oakes (1992) found that low-SES students were disproportionately placed in lower-level classes while whites were more often in upper-level classes. Research on challenge seeking shows that low-SES students are about half as likely to take coursework in advanced
math and science in comparison to more advantaged students (VanTassel-Baska, Patton, & Prillaman, 1991). Research related to gifted students and challenge is embedded within research focused on underachievement and stereotype threat. The past research also suggests the need to study whether low-SES students are under-represented in high school honors English classes.

Grouping of Gifted Students

If teachers have similar students in a single class, instruction should focus on their needs. But if a teacher has a heterogeneous group of students, teaching often is directed to the middle-level students in the class (Renzulli, 1998; Rogers, 2002). Those who are at the highest and lowest levels of ability often will not be appropriately challenged. In fact, a substantial number of teachers believe that teaching a heterogeneous group of students is difficult (Loveless, 2013). By arranging similar students in ability-grouped classrooms, teaching may better meet the needs of all of the students. Research findings have been mixed regarding student outcomes of ability grouping for instruction.

Hallinan, Bottoms, Pallas, and Palla (2003) found support for ability grouping in that it is more conducive to learning, but only for the highest level students. Some empirical studies have shown that classrooms for high-ability groups offer a greater quantity and higher quality of instruction, provide stronger motivational factors, allow for vicarious learning opportunities from being with similar others, increase teacher expectations for students to learn, and offer a more stimulating and supportive learning climate than classrooms for low-ability groups (Hallinan et al., 2003).
Slavin (1987) found that ability grouping supported high-ability students, but only when these students were chosen for their specific strength in that area. He found that when a student had a specific academic strength in math, for example, it was best to ability group that student for math instruction. It was not helpful to group students based on overall IQ. Slavin (1987) writes, “Grouping plans should reduce student heterogeneity in the specific skill being taught (e.g. reading, mathematics), not just in IQ or overall achievement” (p. 328). Another study found that ability grouping gifted students resulted in increased standardized test scores particularly for minority and low-SES students (Card & Giuliano, 2014). Another reported the benefit of ability grouping gifted students was that they were able to find age-mates and others who understood them and, like all adolescents, thrived on the social support they received from other gifted students who shared their ability, passion, and interests (Olszewski-Kubilius & Clarenbach, 2012). Even grouping for the lowest ability group was found to be beneficial in a classroom in which the students were learning via computer. This finding was attributed to the possibility that the content and pace of learning with computer programs may be readily adjusted to meet the students’ needs (Lou, Abrami, & Spence, 2000).

Other studies have been critical of ability grouping. One criticism pertains to the demographic makeup of the classrooms. Gamoran, Nystrand, Berends, and LePore (1995) claim, “ability grouping divides students on social as well as cognitive characteristics, so by magnifying achievement inequality it contributes to overall achievement inequality among social groups” (p. 709). Another study by Lou et al. (1996) cites problems arising from peer influences. Students may either facilitate or discourage a fellow student’s performance. Both
teachers and students establish culture, attitudes, and norms that regulate behavior in the classroom. If weak students behave poorly to save face, they may contribute to a negative culture, which will hinder learning. If high-ability students create a classroom of support and success, then ability grouping could promote an even greater achievement disparity when low-ability students experience decreased learning because of a negative environment in the low-ability classroom. Another argument against ability grouping is focused again at the lowest ability group. Students in the lowest ability groups are not given as much time as high ability-grouped students to discuss topics or answer teacher questions. Goldenberg (1989) found that children in the very lowest groups experience academic instruction that is repetitive and so low that it offers them little opportunity to enter the mainstream of classroom instruction. There are varied reports on the effectiveness of ability grouping.

In some previous research, limitations or problems exist, including comparison of gifted ability-grouped students to nongifted students and combining of high- and low-achieving students. Most research of ability grouping focused on achievement as an outcome. Few studies have focused on self-efficacy, personal achievement goal orientation, and challenge seeking, all critical variables in a learner’s academic success and motivation. Thus, this study contributes to the literature by investigating levels of motivational processes and achievement outcomes experienced by gifted students who were taught reading in a cluster-grouped or ability-grouped environment for several years.
Ability Grouping and Self-Efficacy

Classroom environments can affect students’ self-efficacy in several important ways. The sources of self-efficacy include mastery experiences, vicarious experiences, verbal persuasion, and students’ physiological states (Pajares, 1997). Mastery experiences are activities that promote challenge and provide opportunities to learn new skills. Vicarious experiences are when a person views someone they consider similar to themselves completing an activity. Verbal persuasion is when a teacher encourages students by telling them they are able to complete a task. Students’ physiological states include feeling relaxed or feeling stressed among other sensations that influence how the student will react to the situation.

Midgely and Maehr (1998) found that students in classrooms that emphasized mastery learning had higher self-efficacy (p. 7). When learning material at a pace that aligns with a learner’s needs, the experience is more meaningful, and when the learning experience is meaningful, students to have more mastery experiences that contribute to academic self-efficacy. The Michigan Middle-School Study found that high mastery beliefs were related to higher academic self-efficacy and lower self-handicapping strategies (Midgely & Maehr, 1998). Studies support the idea that gifted students need to be pre-assessed and taught what they do not already know (Gross, 2004). Ability-grouping gifted students for academic classes allows a teacher to fulfill the students’ unmet needs with alternative activities that replace the core curriculum. After extensive analysis, Reis et al. (1993) found that 40-50% of traditional classroom material could be eliminated for gifted students in all core curricular areas (p. xi). For gifted learners, the instruction should be above the average student’s abilities. Many school districts purchase the same textbook for all students in a class or grade level; therefore,
the book is not an appropriate tool for some learners. By ability grouping gifted students, the teacher may find other resources that will better meet those students’ needs and make learning more meaningful for gifted students.

Verbal persuasion from meaningful others also increases self-efficacy. Gross (2004) explains that in ability-grouped classrooms, gifted students are likely to receive a higher level of peer support, both academically and socially, and they are less likely to underperform to gain peer acceptance. Burns and Mason (2002) also observed that students in a high-ability classroom benefit from gifted classmates that contribute to a better academic climate and have a more positive reference group. The positive classroom environment created by a group of gifted learners enhances students’ self-efficacy.

Another area in which ability grouping may enhance self-efficacy includes vicarious learning opportunities. Ability grouping increases the likelihood that students will be placed with others they perceive to be similar to themselves. When they see other learners they consider similar overcoming a challenge, they are more likely to feel that they will also be able to overcome that challenge. Students who experience that success themselves or by watching others will increase their self-efficacy. Schunk, Pintrich, and Meece (2008) explain that by observing similar others succeed, the observer’s self-efficacy will increase. This observation also motivates the observers to perform the same task. They ultimately believe that if others can perform the task, they can too. If surrounded by other students they perceive are similar, the experience of vicarious learning is stronger and has a greater influence on self-efficacy. Feedback also influences self-efficacy. “Effective persuaders cultivate students’ beliefs in their capabilities while at the same time ensuring that the envisioned success in
attainable (Pajares, Johnson, & Usher, 2007, p. 107). The students also must feel that the feedback is credible (Schunk, Pintrich & Meece, 2008). Conversely, if students feel that their ranking or class standing has decreased, academic self-concept may decline. This study extends this idea to self-efficacy.

Finally, the classroom environment may influence students’ physiological states. Reis and McCoach (2000) explain that positive peer interaction can contribute to some students’ reversal of underachievement. When a student is enjoying the interaction with other students, those relaxed, enjoyable feelings may increase the student’s motivation in the classroom. Also, working with other gifted students and feeling the pleasure of success may change an underachieving student’s attitude. Gifted peers had an influence on gifted students (Reis & McCoach, 2000). Many students reported peer pressure or the attitude of their peers as a force for or against getting good grades (Reis & McCoach, 2000). Being in a classroom with only other gifted peers, therefore, may have a positive impact on all gifted students’ self-efficacy. This hypothesis was tested in this study.

**Ability Grouping and Personal Achievement Goal Orientation**

Students oriented toward mastery goals experience more motivation and achievement at school (Elliot & Dweck, 1988). Mastery goal orientation can be increased by assigning students appropriate and challenging assignments, evaluating students in a manner that encourages ongoing learning rather than competition, and offering students more choice (Ames, 1992). The following researchers have reported that grouping gifted students in a classroom for instruction may contribute to personal mastery goal orientation for various
reasons. Ability-grouped classrooms for gifted students have the ability to match the pace of instruction to the learner and the students experience a high level of peer support both academically and socially (Gross, 2004). Hallihan et al. (2003) found that high ability groups offered stronger motivational factors for gifted students to learn, a great quantity and quality of instruction, and a more stimulating climate for learning. Delcourt and Evans (1994) found that ability-grouped gifted students were motivated because of the fast pace and the ability to work off each other to succeed. Rogers (2007) suggested that ability grouping is a good way to offer gifted students a daily challenge. And last, teachers of gifted students in high-ability classrooms hold higher expectations for their students (Burns & Mason, 2002).

While high-ability classrooms may have the factors needed for personal mastery goal orientation, several studies found that gifted students in higher level classes had the same achievement goal orientation as other students in the same grade. Further, the goal trajectories declined at the same rate for all students, including the high-ability learners, as they attended higher grades (Paulick, Waterman, & Nückles, 2013). Senko and Hulleman (2013) found that since performance goal orientation relies on normative information, gifted students whose rivals are also gifted may be less likely to expect to attain a goal and may not even pursue it. Some gifted students in ability-grouped classrooms report that their classrooms were highly teacher-oriented, they preferred fewer challenges, and they were more dependent on external sources of evaluation (Delcourt, Cornell, & Goldberg, 2007). But others argue that since we know grouping gifted students in classrooms increases their achievement, we need to understand why their achievement is increased. Since mastery goal orientation is associated with achievement, a look at student goals may help solve this mystery. In light of this
information, this study tested whether personal achievement goal orientation was impacted for gifted students in a cluster- or ability-grouped reading classroom.

**Ability Grouping and Reading Achievement**

Many studies demonstrate the positive relationship between ability grouping and achievement. For example, Marsh (1984) found that gifted learners in homogenous group settings experience positive effects in achievement. Hallihan et al. (2003) also found that students placed in high-ability groups have higher test scores than those who were not ability grouped. They described three critical conditions for learning in ability-grouped situations: quantity and quality of instruction; factors affecting student motivation like intrinsic and extrinsic rewards, self-regulated learning, intellectual involvement, students’ belief that the task is relevant to the future; and the academic culture of the group. All three of these conditions are stronger in high-ability classrooms (Gross, 2004). Slavin (1987) found that when students were grouped for reading instruction, teachers focused on a specific skill and reading achievement increased. Teachers should vary their level and pace of instruction to correspond to students’ level of readiness and learning rates in ability-grouped classes. Goldring (1990) also found that ability-grouped gifted students perform better than their gifted counterparts in regular integrated classrooms. Although Goldring found the greatest achievement gains in science and social studies, reading and writing gains also were obtained.

Rogers’ (2007) review of research on ability grouping of gifted students concluded that ability grouping for instruction was best for gifted students. Rogers (2007) recommended that gifted students be ability grouped in order to receive daily challenge, noting, “the
research on the ability grouping and performance grouping of gifted learners is extensive and substantially positive” (p. 388). Rogers cited several studies that found an improvement in academic growth for gifted students that ranged from one-third of a year of additional growth for full-time gifted classes at the secondary level (higher at the elementary level and in pullout classrooms) to three-fifths of an additional year of growth for cluster grouping if the instruction is differentiated for gifted learners. Based on the reviewed research, this study investigated whether gifted students who were ability grouped for reading instruction for at least four years would show greater reading achievement than gifted students who were cluster grouped for the same length of time.

**Ability Grouping and Challenge Seeking**

Gifted students may become at-risk learners when they are not in an appropriate learning environment (Rogers, 2002; Siegle & McCoach, 2009; Winebrenner, 2000). It was found that five percent of gifted students drop out of high school and that at one high school, half of the gifted students were underachieving by time they entered their sophomore year (Reis & Renzulli, 2011). One of the problems of most classrooms is that there is a lack of challenge for gifted learners (Plucker & McIntire, 1996). In addition to the problem of boredom, when schoolwork becomes difficult, students who have not experienced challenges may not have developed the study habits needed for success and may even feel that they are no longer gifted (Hoekman, McCormick & Gross, 1999). In one study, gifted students who achieved in school explained the importance of being grouped together in honors and advanced classes and said that underachievement actually began in elementary school when
they were not provided the appropriate level of challenge (Reis & Renzulli, 2011). VanTassel-Baska, Willis, and Maeyer (1989) compared ability-grouped gifted students to gifted students in heterogeneous classrooms and found that the grouped students reported a positive school experience and a higher level of commitment to schoolwork. Gifted students entering tenth grade were studied, and those who were in the highest track classes exerted more effort than other students. It was found that their classroom experiences accounted for the difference (Carbonaro, 2005). Gifted students also experienced more feelings of passion and had more positive feelings for school in classes where their learning was supported, encouraged, and valued by peers, which is likely to occur in ability-grouped classrooms (Fredricks, Alfred, & Eccles, 2010). Since gifted students were ability grouped for reading instruction beginning in late elementary school and had increased opportunities for challenge, this study investigated if those students selected more challenging high school honors English classes.

Classroom Achievement Goal Structure

Individuals have reasons for performing learning tasks like those related to mastery achievement goal orientation – wanting to learn a new skill or increasing their intelligence – or they may act according to a performance goal – wanting to earn the highest score in the class or not look dumb to others. Just as students operate under these goals, classrooms may be oriented toward one type or another. Individuals receive messages from many sources, including their teachers, classmates, the classroom media, or even the school culture. Individuals interpret and are influenced by these messages.
Many researchers have questioned the relationship between perceived classroom goal structure and personal achievement goal orientation. Studies have shown there is a relationship between them (Bockaerts, de Koning, & Vedder, 2006). Perceived classroom mastery goal structure was shown to predict students’ personal adoption of mastery achievement goal orientation (Murayma & Elliot, 2009; Rolland, 2012). Another study found that the relationship between perceived classroom mastery goal structure and personal mastery goal orientation was even stronger when performance-avoidance goals were less emphasized in the classroom (Schwinger & Stiensmeier-Pelster, 2011). The same study found that students had greater performance-avoidance goal orientation when they perceived the classroom focused on performance-avoidance goal structure. This was true for perception of performance-approach goal structure as well (Schwinger & Stiensmeier-Pelster, 2011; Urdan, 2004), although Murayama and Elliot (2009) found no connection between perception of classroom performance goal structure and personal performance goal orientation. Thus, this study investigated whether there is a relationship between the classroom grouping and the perceived goal structure of the classroom by gifted students.

Impact of Grouping Environment on Perception of Classroom Achievement Goal Structure

The only mention of the relationship between ability grouping and classroom achievement goal structure was by Midgley et al. (2000a) in a list of strategies to move toward a mastery-focused middle-school environment. They suggested moving away from ability grouping and moving toward grouping by topic, interest, and student choice with frequent reformation of groups. This recommendation may be based on the assumption that
ability grouping encourages an environment of social comparison or even competition. Social comparison, in turn, encourages a classroom performance goal structure rather than the more productive classroom mastery goal structure.

Hypotheses

When comparing gifted students based on demographic characteristics of gender, race/ethnicity, and socioeconomic status, this study expected to find that there was no difference in their self-efficacy, personal achievement goal orientation, achievement, challenge seeking, or perception of classroom goal structure.

Second, this study expected to find greater self-efficacy and more personal mastery goal orientation among the gifted students who were ability grouped for language arts instruction for four years compared to gifted students who were cluster grouped. This study also expected that reading achievement scores would be higher for gifted students who were ability grouped compared to gifted students who were cluster grouped. In addition, this study expected to find gifted students who were ability grouped might have demonstrated more challenge seeking by selecting honors English classes as high school freshmen.

Finally, this study explored possible differences in the perception of gifted students who experienced different classroom groupings and expected gifted students to perceive that the ability-grouped classrooms had a greater mastery goal structure than the cluster-grouped classrooms, and expected that this perception would remain in place into the high school English classes.
Summary

Allowing gifted students the opportunity to be taught in a challenging learning environment will ultimately advance our society and help maintain our ability to be globally competitive. A challenging, appropriate learning environment may benefit gifted students in many ways. In addition to maintaining or increasing achievement, a strong self-efficacy is an antidote to the anxiety that may be the source of perfectionism in gifted students. Additionally, mastery goal orientation helps counter gifted student underachievement and encourages students to seek challenges. Classroom goal structure may influence individual goal orientation. This study sought to identify a relationship between educational environments and the motivational processes and achievement of gifted middle-school students.
CHAPTER 3
RESEARCH METHODOLOGY

This ex-post facto research study analyzed data from a school district when programmatic changes for gifted education were taking place. It is an ex-post facto study meaning data were collected prior to the study. This study utilized a between-subjects approach for two groups of students. Data collected by the school district for program evaluation purposes were analyzed for this dissertation. Survey results, standardized test results, and course selection information were used. The survey data came from the Patterns of Adaptive Learning Scales (PALS) that were administered to gifted students in the spring of their eighth- or ninth-grade years (Midgley et al., 2000b). Additional data collected included EXPLORE standardized test scores in the area of reading during the fall of the eighth-grade year and gifted students’ ninth-grade English class assignment.

Context

School District

At the time of this study, this school district served 12,229 students. It is located in a large midwestern United States city with ten elementary schools serving students in kindergarten through fifth grade, four middle schools serving students in grades six through eight, and a single high school serving students in grades nine through twelve. Demographic
information was found on the Illinois Interactive Report Card (2014). It is an ethnically and racially diverse school district: 30% white, 12.4% Black, 51.5% Hispanic, 3% Asian, .8% American Indian, and 2.2% multiracial. More than 61.8% of the students are considered low-income, and there is a mobility rate (a measure of how many students are transferring in and out of a school district) of 10%. During 2012-2013, 56% of fourth-grade students met or exceeded standards on the Illinois Standard Achievement Test (ISAT, 2014) reading test, 50% of fifth-grade students met or exceeded standards on the ISAT reading test and 49% of eighth-grade students met or exceeded standards on the ISAT reading test.

District Gifted Programs

Ability Grouping

In 2008, the district began a daily reading program for gifted learners in grades four and five. The students received daily reading instruction from a gifted-education teacher. Instruction included Shared Inquiry, a type of discussion created by Great Books. In Shared Inquiry, thought-provoking questions are posed, and participants are guided to reach their own interpretations and then discuss their ideas purposefully to reflect on what other participants say. As the gifted students listen and respond to each other, they increase their knowledge by considering other students’ points of view (Great Books, n.d.). According to Vygotsky’s (1978) sociocultural theory, social interaction is a necessary step in learning; therefore, these discussions should facilitate understanding and cognitive growth. The interactions require students to be metacognitive and self-reflective. Both types of thinking are motivational and also help students achieve greater understanding of texts. Additionally,
the students study Greek and Latin words and affixes. Students are responsible for learning and remembering new words because the word study tests are cumulative. This offers greater challenge for the students. In 2009, ability grouping for gifted middle-school students in language arts was implemented. These students received instruction similar to the fourth and fifth grade ability-grouped gifted students. They were grouped for reading with the gifted students in their grade level.

Cluster Grouping

Prior to this practice that began in 2008, gifted students were cluster grouped in heterogeneous classrooms. In reality, this varied widely across the district. The concept was that cluster groups were comprised of two to six gifted students per regular classroom. The students in the cluster groups were offered alternative tasks, content, or pacing. For example, when all students were assigned an independent reading lesson, gifted students were assigned to read a more complex text. While the whole class read an on-level text, cluster-grouped gifted students were assigned a literature circle book at their level to discuss with peers. Other times gifted students in this classroom did the same assignments as their non-gifted peers.

Sample

There were two groups of gifted students who comprised the sample of this study. Each group of gifted students had a different learning experience for reading instruction. Table 1 shows the year the gifted students began the available programming: cluster grouping (Group 1) or ability grouping (Group 2). Some students were identified as gifted and placed
into gifted programming at the beginning of fourth grade, and others were identified as gifted and placed into gifted programming at the beginning of fifth grade.

Table 1

<table>
<thead>
<tr>
<th>Groups and Assessment Dates</th>
<th>EXPLORE Test Administered in 8th grade</th>
<th>PALS Survey Administered in either 8th or 9th grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 1: Cluster Grouped (began 2006-2007)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group A1 4th grade (n=39)</td>
<td>2010-2011</td>
<td>2010-2011</td>
</tr>
<tr>
<td>Group B1 5th grade (n=42)</td>
<td>2009-2010</td>
<td>2010-2011</td>
</tr>
<tr>
<td><strong>Group 2: Ability Grouped (began 2008-2009)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group A2 4th grade (n=48)</td>
<td>2012-2013</td>
<td>2012-2013</td>
</tr>
<tr>
<td>Group B2 5th grade (n=67)</td>
<td>2011-2012</td>
<td>2012-2013</td>
</tr>
</tbody>
</table>

Group 1 was identified as gifted in fourth or fifth grade at the beginning of the school year 2006-2007. They were not ability grouped for reading instruction from 2006-2011. Of the 81 students in Group 1, 38% were male and 62% were female. During the 2010-2011 school year, 39 were in eighth grade and 42 were in ninth grade. Seventeen percent of these students had free/reduced lunch status. Their race/ethnicity makeup was 65% white, 16% Hispanic, 9% multiracial, 6% black and 4% Asian.

Group 2 students were also identified during their fourth or fifth grade school year in 2008-2009, but they were ability grouped from 2008-2012. Group 2 consisted of 48 eighth-grade students and 67 ninth-grade students. Of the 115 students in this group, 42.6% were
male and 57% were female; 15.7% of these students had free/reduced lunch status. Their racial makeup was 72% white, 12% Hispanic, 7% multiracial, 1.7% black, 4% Asian, 1.7% Native Hawaiian, and 1.7% American Indian (see Table 2). Gifted students in Group 1 (cluster grouped) and Group 2 (ability grouped) did not differ in student characteristics. Chi test for independence (with Yates Continuity Correction) indicated no significant association between males and females ($\chi^2 = .21, p = .65$), grade 8 and grade 9 ($\chi^2 = .55, p = .46$), white and nonwhite ($\chi^2 = .72, p = .40$) and low-SES and not ($\chi^2 = .08, p = .78$).

Table 2

<table>
<thead>
<tr>
<th>Student Characteristics</th>
<th>Group 1: Cluster Grouped</th>
<th>Group 2: Ability Grouped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Students</td>
<td>81</td>
<td>115</td>
</tr>
<tr>
<td>Grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>39</td>
<td>48</td>
</tr>
<tr>
<td>9</td>
<td>42</td>
<td>67</td>
</tr>
<tr>
<td>Gender (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>38</td>
<td>42.6</td>
</tr>
<tr>
<td>Female</td>
<td>62</td>
<td>57</td>
</tr>
<tr>
<td>Free/Reduced (%)</td>
<td>17</td>
<td>15.7</td>
</tr>
<tr>
<td>Race/Ethnicity (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>65</td>
<td>72</td>
</tr>
<tr>
<td>Hispanic</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>Multiracial</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Black</td>
<td>6</td>
<td>1.7</td>
</tr>
<tr>
<td>Asian</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Native Hawaiian</td>
<td></td>
<td>1.7</td>
</tr>
<tr>
<td>American Indian</td>
<td></td>
<td>1.7</td>
</tr>
</tbody>
</table>

Note.  female = 1, male = 0; white = 0, non-white = 1; low SES = 1, not low SES = 0
Measures

Motivational Characteristics

For the purposes of this study, personal achievement goal orientation, self-efficacy, and perceived classroom goal structure were measured using 33 items from the Patterns of Adaptive Learning Scales (PALS) survey (Midgley et al., 2000b). Anderman et al. (2003) confirmed that for middle-school students in English class, PALS had moderate stability over time for both genders and high- and low-ability students. They also found it had acceptable construct validity and reliability (Anderman et al., 2003). All items were scored on a 5-point Likert-type scale with responses ranging from 1 = strongly disagree to 5 = strongly agree. Composite measures were constructed by taking the mean across items. Table 3 contains psychometric information related to each composite measure. The student survey can be seen in Appendix A.

Mastery goal orientation was measured with five items. Mastery goal orientation is when students’ purpose or goal in an educational setting is to develop their competence. They seek to extend their mastery and understanding (Midgley et al., 2000b). In this study, the focus was on achievement goals related to reading. A sample item for mastery goal orientation is: “One of my goals in class is to learn as much as I can” (Midgley et al., 2000b, p. 11). Internal consistency, as measured by Cronbach’s alpha was .90 for the current sample, which is comparable to prior studies (.85, reported in Midgley et al., 2000b).
Table 3

Psychometric Properties of the Major Study Variables Constructed by Mean

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Items</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Alpha</th>
<th>PALS Mean</th>
<th>PALS Standard Deviation</th>
<th>PALS Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Efficacy</td>
<td>5</td>
<td>4.15</td>
<td>.89</td>
<td>.85</td>
<td>4.2</td>
<td>.71</td>
<td>.78</td>
</tr>
<tr>
<td>Classroom Mastery Goal Structure</td>
<td>6</td>
<td>4.24</td>
<td>.07</td>
<td>.82</td>
<td>4.11</td>
<td>.72</td>
<td>.76</td>
</tr>
<tr>
<td>Classroom Performance Approach Goal Structure</td>
<td>3</td>
<td>3.85</td>
<td>.77</td>
<td>.68</td>
<td>3.34</td>
<td>.98</td>
<td>.70</td>
</tr>
<tr>
<td>Classroom Performance Avoid Goal Structure</td>
<td>5</td>
<td>2.50</td>
<td>.30</td>
<td>.87</td>
<td>2.03</td>
<td>.9</td>
<td>.83</td>
</tr>
<tr>
<td>Mastery Goal Orientation</td>
<td>5</td>
<td>4.16</td>
<td>.13</td>
<td>.90</td>
<td>4.15</td>
<td>.88</td>
<td>.85</td>
</tr>
<tr>
<td>Performance-Approach Goal Orientation</td>
<td>5</td>
<td>2.90</td>
<td>.39</td>
<td>.88</td>
<td>2.46</td>
<td>1.15</td>
<td>.89</td>
</tr>
<tr>
<td>Performance-Avoid Goal Orientation</td>
<td>4</td>
<td>2.92</td>
<td>.85</td>
<td>.60</td>
<td>2.4</td>
<td>1.04</td>
<td>.89</td>
</tr>
<tr>
<td>Challenge Seeking</td>
<td></td>
<td>.72</td>
<td>.45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACT EXPLORE Reading Test</td>
<td>30</td>
<td>87.13</td>
<td>11.03</td>
<td>14.22</td>
<td>3.60</td>
<td>.83</td>
<td></td>
</tr>
</tbody>
</table>

Performance-approach goal orientation was measured with five items. Performance-approach goal orientation is when students’ purpose or goal in an educational setting is to demonstrate their competence (Midgley et al., 2000b). In this study, the focus was on achievement goals related to reading. A sample item for performance-approach goal orientation is: “One of my goals is to show others that I’m good at my class work” (Midgley et al., 2000b, p. 12). Internal consistency, as measured by Cronbach’s alpha was .88 for the current sample, which is comparable to prior studies (.89, reported in Midgley et al., 2000b).
Performance-avoid goal orientation was measured with four items. Students with this type of orientation have a purpose or goal in an educational setting is to avoid the demonstration of incompetence (Midgley et al., 2000b). In this study, the focus was on achievement goals related to reading. A sample item that measured performance-avoidance goal orientation is: “One of my goals is to keep others from thinking I’m not smart in class” (Midgley et al., 2000b, p. 13). Internal consistency, as measured by Cronbach’s alpha was .60 for the current sample, which is comparable to prior studies (.89, reported in Midgley et al., 2000b).

Self-efficacy was measured with five items. Self-efficacy is the students’ perceptions of their competence to do their class work (Midgley et al., 2000b). In this study, the focus was on class work related to reading. A sample item that measured self-efficacy is: “I’m certain I can master the skills taught in class this year” (Midgley et al., 2000b, p. 20). Internal consistency, as measured by Cronbach’s alpha was .90 for the current sample, which is comparable to prior studies (.78, reported in Midgley et al., 2000b).

Perception of classroom mastery goal structure was measured with six items. Classroom mastery goal structure is related to students’ perceptions that the purpose for engaging in academic work in the classroom is to develop competence (Midgley et al., 2000b). In this study, the focus was on achievement goals related to reading. An example of an item that assessed perception of classroom mastery goal structure is: “In our class, how much you improve is really important” (Midgley et al., 2000b, p. 17). Internal consistency, as measured by Cronbach’s alpha was .82 for the current sample, which is comparable to prior studies (.76, reported in Midgley et al., 2000b).
Perception of classroom performance-approach goal structure was measured with three items. Classroom performance-approach goal structure relates to students’ perceptions that the purpose of engaging in academic work in the classroom is to demonstrate competence (Midgley et al., 2000b). In this study, the focus was on achievement goals related to reading. An item that assessed perception of classroom performance-approach goal structure is: “In our class, it’s important to get high scores on tests” (Midgley et al., 2000b, p. 18). Internal consistency, as measured by Cronbach’s alpha was .68 for the current sample, which is comparable to prior studies (.70, reported in Midgley et al., 2000b).

Perception of classroom performance-avoidance goal structure was measured with five items. Classroom performance-avoidance goal structure relates to students’ perceptions that the purpose for engaging in academic work in the classroom is to avoid demonstrating incompetence (Midgley et al., 2000b). In this study, the focus was on achievement goals related to reading. An item that evaluates perception of classroom performance-avoidance structure is: “In our class, it’s very important not to look dumb” (Midgley et al., 2000b, p. 19). Internal consistency, as measured by Cronbach’s alpha was .87 for the current sample, which is comparable to prior studies (.83, reported in Midgley et al., 2000b).

Challenge seeking is demonstrated by gifted student selection of honors English classes in high school. Honors English classes are classes that follow the regular curriculum but have added rigor with additional topics or depth for high ability students. Jones, Vanfossen, and Ensinger (1995) found that students’ chances of being in the highest-level academic track increased if they had greater educational expectations in eighth grade. In the district in which this study was situated, prerequisites for honors courses included high scores
on standardized tests and strong classroom performance in middle school, along with the students’ desire to participate. After a course recommendation is formed, students make the final decision on their class selection. They are allowed to select or deselect honors level courses.

Achievement was measured by the ACT EXPLORE test to assess reading achievement. It is administered at the eighth-grade level in October of each school year. The reading assessment test session is 30 minutes long. This assessment consists of 30 multiple-choice items over three reading passages of prose/fiction, social studies, and humanities. Test version 05B was used for all students in both groups. The national percentile (NP) is used to report these data.

Procedures

The PALS survey was administered in April of 2011 to students who had been eligible for gifted services from fourth or fifth grade through eighth grade and cluster grouped for instruction (Group A1 and Group B1). A second group of gifted students who were ability grouped from late elementary through eighth grade (Group A2 and Group B2) completed the survey in April of 2013.

Parents of students who were surveyed were contacted by the school district via mail to inform them that their student would be asked to complete a survey. The letter also explained that the collected data would be confidential and would be used to evaluate gifted programming in the district. Parents were told that participation was voluntary and that their students could opt out of the survey. Several weeks later, the PALS survey was completed.
during the school day. At each school, all eighth- and ninth-grade students identified as gifted were invited to a common area (in most cases the school cafeteria) where the survey and a pencil were given to each student. The students were told that the survey was not a test, but their experiences and opinions would be important to informing future decisions for gifted programming. They were told all of their responses would remain anonymous and their teachers and parents would not know how they responded to any of the questions. The students were directed to complete a sample item and ask any questions they had related to the directions. The proctor circulated while the students completed the surveys. As each student finished the survey, it was turned in. Students returned to their regularly scheduled class when the survey session was finished. Afterward, the district gifted coordinator recorded student data. For this study, the school district student identification numbers were replaced with random, untraceable numbers.

The ACT EXPLORE test was given to all eighth-grade students, not just those identified as gifted students, during a specified period of the school day during the month of October. Students were told that the test results would help the high school know them better. Teachers acted as proctors and distributed the test materials. Teachers read directions to the students and timed the assessment. Afterward each teacher collected the student materials. Tests were collected at each school site and then sent to ACT for scoring. Results were received by the school district within a month. The researcher was given permission to analyze the data from the school district database, as access to and use of this database for district purposes is part of the researcher’s job.
The freshman-year English class selection for students included in the sample was located in each student’s cumulative folder stored at the high school. The researcher located the data and recorded it on the spreadsheet with the survey results and test results prior to creating fictional identification numbers for each student.

Summary

Investigating differences in motivational and learning outcomes based on background characteristics of gifted learners may help educators carefully consider those same outcomes when offering gifted learners different educational environments. Additionally, this study judged the outcome differences at the end of middle school compared to those outcomes a year after participation when students were in high school. The goal was to identify the best learning environment for gifted learners from late elementary school through middle school.
CHAPTER 4

RESULTS

The purpose of this study was to investigate the effects of learning environments for gifted students. Students who had been identified as gifted and placed in cluster-grouped classes were compared to gifted students enrolled in ability-grouped reading classes for four or more consecutive school years. Students’ self-efficacy, personal achievement goal orientation, achievement, and challenge seeking were compared. It was anticipated that ability-grouped gifted students would demonstrate greater self-efficacy, personal mastery goal orientation, and higher achievement in reading and greater challenge seeking compared to cluster-grouped gifted students. This hypothesis was based on evidence suggesting that ability-grouped learning environments better meets gifted learners’ unique needs. Additionally, students’ perceptions of classroom achievement goal structure were compared between classroom environments (cluster versus ability grouping) to investigate whether they differed.

Background Characteristics Related to Motivational Processes and Achievement of Gifted Students

The first question asked if self-efficacy, personal achievement goal orientation, achievement, challenge seeking and perception of classroom achievement goal structure vary by demographic characteristics (gender, race/ethnicity, or SES) of gifted adolescent students.
To answer this first research question, independent-samples t-tests were performed using IBM SPSS Statistics, version 22. Prior to this analysis, chi square analysis indicated there were no differences between grades or between groups on any of the background variables.

Significance was determined by a 2-tailed test to ascertain whether specific subgroups of the samples show significantly different patterns of self-efficacy, personal achievement goal orientation, achievement, challenge seeking or perception of the achievement goal structure of their classrooms. Effect sizes were determined using eta-squared values and Cohen’s d guidelines.

As can be seen in Table 4, there was a statistically significant gender difference in challenge seeking such that females took freshman honors English more than males at a rate of 64.5% of females versus 35.5% of males. This difference represents a very small effect size (eta-squared = .005), with only .5% of the variance in challenge seeking explained by gender. There were no significant differences with regard to self-efficacy or achievement.

Furthermore, there were no significant differences found in self-efficacy, challenge seeking, or achievement when considering race/ethnicity or socioeconomic level among gifted students in this study.

Table 5 shows the results of independent samples t-tests investigating the differences of gender, race/ethnicity, and socioeconomic level to personal achievement goal orientation. No statistically significant differences were found with respect to personal mastery goal orientation, personal performance-approach goal orientation, or personal performance-avoidance goal orientation when considering gender, race/ethnicity, or socioeconomic status.

Table 4
Means Comparisons of Self-Efficacy, Challenge Seeking, and Achievement by Gender, Race/Ethnicity, and SES

<table>
<thead>
<tr>
<th></th>
<th>Gender</th>
<th>Race/Ethnicity</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male n=80</td>
<td>Female n=116</td>
<td>White n=136</td>
</tr>
<tr>
<td>Self-Efficacy 1.4-5</td>
<td>M 4.14</td>
<td>4.15</td>
<td>4.19</td>
</tr>
<tr>
<td></td>
<td>SD .73</td>
<td>.69</td>
<td>.66</td>
</tr>
<tr>
<td></td>
<td>t -0.9</td>
<td>1.26</td>
<td>10.3</td>
</tr>
<tr>
<td>Challenge %</td>
<td>35.5</td>
<td>64.5</td>
<td>73.9</td>
</tr>
<tr>
<td>Seeking Honors SD</td>
<td>.49</td>
<td>.41</td>
<td>.43</td>
</tr>
<tr>
<td>English = 1</td>
<td>t 2.49*</td>
<td>1.90</td>
<td>10.3</td>
</tr>
<tr>
<td>Achievement 44-100</td>
<td>M 86.12</td>
<td>87.84</td>
<td>87.02</td>
</tr>
<tr>
<td></td>
<td>SD 10.57</td>
<td>11.34</td>
<td>10.92</td>
</tr>
<tr>
<td></td>
<td>t -1.04</td>
<td>-.20</td>
<td>.75</td>
</tr>
</tbody>
</table>

Note. female = 1, male = 0; white = 0, non-white = 1; low SES = 1, not low SES = 0. n = 196. * p < .05.

Table 5

Means Comparisons of Achievement Goal Orientation by Gender, Race/Ethnicity, and SES

<table>
<thead>
<tr>
<th></th>
<th>Gender</th>
<th>Race/Ethnicity</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male n=80</td>
<td>Female n=116</td>
<td>White n=136</td>
</tr>
<tr>
<td>Mastery Goal 1-5</td>
<td>M 4.10</td>
<td>4.21</td>
<td>4.13</td>
</tr>
<tr>
<td>Orientation SD</td>
<td>.82</td>
<td>.74</td>
<td>.79</td>
</tr>
<tr>
<td>Range = 1-5</td>
<td>t -1.02</td>
<td>-.87</td>
<td>-.51</td>
</tr>
<tr>
<td>Performance-Approach</td>
<td>M 2.89</td>
<td>2.91</td>
<td>2.96</td>
</tr>
<tr>
<td>Orientation SD</td>
<td>.98</td>
<td>1.02</td>
<td>1.00</td>
</tr>
<tr>
<td>Range = 1-5</td>
<td>t -.19</td>
<td>1.22</td>
<td>-.22</td>
</tr>
<tr>
<td>Performance-Avoidance</td>
<td>M 2.84</td>
<td>2.98</td>
<td>2.98</td>
</tr>
<tr>
<td>Orientation SD</td>
<td>.86</td>
<td>.85</td>
<td>.82</td>
</tr>
<tr>
<td>Range = 1-5</td>
<td>t -1.16</td>
<td>1.49</td>
<td>.07</td>
</tr>
</tbody>
</table>

Note. female = 1, male = 0; white = 0, non-white = 1; low SES = 1, not low SES = 0. n = 196

Third, the results of the independent samples t-tests comparing perceptions of classroom goal structure based on gender, race/ethnicity, and socioeconomic levels are shown
in Table 6. No statistical differences were found for perceived classroom mastery goal structure, classroom performance-approach goal structure or classroom performance-avoidance goal structure based on gender, race/ethnicity or socioeconomic status.

Table 6

Means Comparisons of Perceived Classroom Goal Structure by Gender, Race/Ethnicity, and SES

<table>
<thead>
<tr>
<th></th>
<th>Gender</th>
<th>Race/Ethnicity</th>
<th>SES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male (n=80)</td>
<td>Female (n=116)</td>
<td>White (n=136)</td>
</tr>
<tr>
<td>Classroom Mastery Goal Structure</td>
<td>M 4.15</td>
<td>4.29</td>
<td>4.23</td>
</tr>
<tr>
<td>Range = 1-5</td>
<td>SD .71</td>
<td>.61</td>
<td>.66</td>
</tr>
<tr>
<td>Classroom Performance-Approach Goal Structure</td>
<td>t -1.44</td>
<td>-.13</td>
<td>-.13</td>
</tr>
<tr>
<td>Range = 1.33-5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom Performance-Avoidance Goal Structure</td>
<td>M 3.94</td>
<td>3.80</td>
<td>3.86</td>
</tr>
<tr>
<td>Range = 1-5</td>
<td>SD .76</td>
<td>.78</td>
<td>.79</td>
</tr>
<tr>
<td></td>
<td>t 1.24</td>
<td>.20</td>
<td>.20</td>
</tr>
</tbody>
</table>

Note. female = 1, male = 0; white = 0, non-white = 1; low SES = 1, not low SES = 0. n = 196
Motivational Outcomes Associated with Grouping of Gifted Students

The second research question focused on whether gifted middle school students who experienced cluster-grouped reading instruction (Groups A1 and B1) differed from gifted middle school students who were ability grouped for reading instruction (Groups A2 and B2) on self-efficacy, personal achievement goal orientation, achievement, and challenge seeking outcomes. This study considered this by looking at the two different samples of students: those who were surveyed immediately following participation (Groups A1 and A2) and those who were surveyed one year after participation (Groups B1 and B2).

Examination of Differences Immediately After Participation

First the study considered if, while controlling for any differences in student background factors, the self-efficacy, personal achievement goal orientation, achievement, and challenge seeking of gifted students who attended cluster-grouped (Group A1) reading classes in the middle grades differed from that of gifted students who attended ability-grouped (Group A2) reading classes in the middle grades immediately after participation as eighth-grade students. To answer this question, standard multiple regression and logistic regression (for challenge seeking) were used to analyze data. Each motivational characteristic served as a dependent variable, while gender and learning environment group served as predictor variables. After assumptions were checked and the model was evaluated, each independent variable’s results were considered by examining the standardized betas for each variable and R square values for each equation.
Table 7 displays the standard OLS multiple regression results beginning with self-efficacy with group as a control measure. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. The model was not significant.

Table 7
Regression Results of Group Related to Self-Efficacy, Achievement, and Achievement Goal Orientations for Immediately Following Participation

<table>
<thead>
<tr>
<th>Ability Group</th>
<th>Self-Efficacy</th>
<th>Mastery Goal Orientation</th>
<th>Performance-Approach Goal Orientation</th>
<th>Performance-Avoidance Goal Orientation</th>
<th>Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>beta</td>
<td>.02</td>
<td>-.21*</td>
<td>.03</td>
<td>-.07</td>
<td>-.06</td>
</tr>
<tr>
<td>R square</td>
<td>.00</td>
<td>.04*</td>
<td>.00</td>
<td>.01</td>
<td>.00</td>
</tr>
</tbody>
</table>

Note. N=91. *p<.05.

OLS multiple regression was also used to assess the ability of group to predict levels of personal mastery goal orientation. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. Results show that the model was significant and that group explains 4% of the variance in personal mastery goal orientation with Group A1 (cluster-grouped gifted students) reporting higher levels of personal mastery goal orientation than Group A2 (ability-grouped gifted students), F (1, 86) 3.85, p < .05.

Prediction of personal performance-approach goal orientation by group was also tested using standard OLS multiple regression. Preliminary analyses were conducted to ensure no
violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity. The model was not significant.

Similarly, prediction of personal performance-avoidance goal orientation by group was also tested using standard OLS multiple regression. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. The model was not significant.

Standard OLS multiple regression was used to test whether group predicted achievement as measured by the EXPLORE test. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. The model was not significant.

Finally, logistic regression was performed to assess the impact of group and gender on the likelihood that students would select freshman honors English classes in high school. The full model for challenge seeking was statistically significant $\chi^2 (2 \ N = 85) = 7.25, p < .05$. The model as a whole explained between 8.2 % (Cox and Snell R square) and 13.2% (Nugelkerke R square) of the variance in enrollment in freshman honors English class and correctly classified 81.2 % of the cases. Ability group had an odds ratio of 3.71. Gender was not a statistically significant predictor of enrollment in freshman honors English.

Examination of Differences One Year After Participation

The second part of Research Question 2 considered whether controlling for differences in gender, self-efficacy, personal achievement goal orientation, achievement, and challenge seeking of gifted students who attended cluster-grouped reading classes in the middle grades...
(Group B1) differed from that of gifted students who attended ability-grouped reading classes in the middle grades (Group B2) who were surveyed one year after participation. To answer this question, standard OLS multiple regression was used to analyze data. Each motivational characteristic served as a dependent variable, while background characteristics and learning environment group served as independent variables. After assumptions were checked and the model was evaluated, each independent variable’s results were considered by examining the standardized betas for each variable and R square values for each equation.

Table 8 shows the results of this analysis beginning with self-efficacy with group as a control measure. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. The model was significant; the total variance explained by the model was 6.9%, $F(1, 107) = 7.90, p < .01$. Students in Group B2 (ability-grouped gifted students) reported higher levels of self-efficacy than cluster-grouped gifted students (Group B1).

Table 8

Regression Results of Group Related to Self-Efficacy, Achievement, and Achievement Goal Orientations for One Year Following Participation

<table>
<thead>
<tr>
<th>Ability Group beta</th>
<th>Self-Efficacy</th>
<th>Mastery Goal Orientation</th>
<th>Performance-Approach Goal Orientation</th>
<th>Performance-Avoidance Goal Orientation</th>
<th>Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.26**</td>
<td>.43**</td>
<td>.26**</td>
<td>.16</td>
<td>-.07</td>
</tr>
<tr>
<td>R square</td>
<td>.07**</td>
<td>.18**</td>
<td>.07**</td>
<td>.03</td>
<td>.01</td>
</tr>
</tbody>
</table>

Note. n = 109. * p < .05, ** p < .01.
OLS multiple regression was also used to assess the ability of group to predict levels of personal mastery goal orientation. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. Results show that the model was significant and that group explains 18.6% of the variance in the model for personal mastery goal orientation with Group B1 (cluster-grouped gifted students) reporting higher levels of personal mastery goal orientation and Group B2 (ability-grouped gifted students), $F(1, 107) = 23.75, p < .01$.

The ability of group to predict personal performance-approach goal orientation was also measured using standard OLS multiple regression. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. The model was significant with 6.5% of variance in the model for performance-approach goal orientation was also explained by group with students in group B2 reporting higher levels of personal performance-approach goal orientation that students in group B1, $F(1, 107) = 7.48, p < .01$.

Similarly, the ability of group to predict personal performance-avoidance goal orientation was also measured using standard OLS multiple regression. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. While the model was not significant, $F(1, 107) = 2.90, p > .05$.

Standard OLS multiple regression was used to measure the ability of group to predict achievement as measured by the EXPLORE test. Preliminary analyses were conducted to
ensure no violation of the assumptions of normality, linearity, multicollinearity, and
homoscedasticity. The model was not significant, $F(1, 99) = .48, p > .05$.

Finally, logistic regression was performed to assess the impact of group and gender on
the likelihood that students would select freshman honors English classes in high school. The
full model for challenge seeking was not statistically significant $\chi^2(2 \ N = 108) = 3.46, p >
.05$. The model as a whole explained between 3.2 % (Cox and Snell R square) and 4.3 %
Nugelkerke R square) of the variance in enrollment in freshman honors English class and
correctly classified 64.8 % of the cases. Neither gender nor group was statistically significant
in the model.

Classroom Achievement Goal Structure

The third question, exploratory in nature, asked whether gifted students who
experienced cluster-grouped reading instruction (Groups A1 and B1) had different
perceptions of classroom goal structure than gifted students who were ability grouped for
reading instruction (Groups A2 and B2). Again, this question was considered by looking at
two different situations of students: some were surveyed immediately following participation
(Groups A1 and A2) and others were surveyed one year after participation (Groups B1 and
B2).

Perception of Classroom Goal Structure Immediately After Participation

First, the study considered, controlling for any differences in student background
factors, the differences in perception of classroom goal structure of gifted students who
attended cluster-grouped reading classes in the middle grades (Group A1) from gifted
students who attended ability-grouped reading classes in the middle grades (Group A2) immediately after participation. To answer this question, standard OLS multiple regression was used to analyze data. Perception of classroom goal structure served as a dependent variable, while each background characteristic and classroom group served as independent variables. After assumptions were checked and the model was evaluated, each independent variable’s results were determined by examining the standardized betas for each variable and R square values for each equation.

Table 9 shows the results of OLS multiple regression used to assess the ability of group to predict levels of perception of classroom mastery goal structure. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. Results show that the model was not significant, $F(1, 86) = 0.10, p > .05$.

### Table 9
Regression Results of Group and Race/Ethnicity Related to Classroom Achievement Goal Structure for Immediately Following Participation

<table>
<thead>
<tr>
<th></th>
<th>Classroom Mastery Goal Structure</th>
<th>Classroom Performance Approach Goal Structure</th>
<th>Classroom Performance Avoidance Goal Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>White (vs. not) beta</td>
<td>--</td>
<td>--</td>
<td>-.36**</td>
</tr>
<tr>
<td>Ability Group beta</td>
<td>.03</td>
<td>.19</td>
<td>.03</td>
</tr>
<tr>
<td>R square</td>
<td>.00</td>
<td>.04</td>
<td>.00</td>
</tr>
</tbody>
</table>

Note. white = 0, non-white = 1. n = 91. * $p < .05$, ** $p < .01$
The ability of group to predict perception of classroom performance-approach goal structure was also measured using standard OLS multiple regression. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. While the model was not significant, F (1, 86) = 3.28, p > .05.

Similarly, the ability of group and race/ethnicity to predict perception of classroom performance-avoidance goal structure was also measured using standard OLS multiple regression. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. While group was not a significant variable in the model, F (2, 85) = 6.15, p > .05, race/ethnicity was a significant predictor in the model of perception of classroom performance-avoidance goal structure, with 12.6% of the variation explained by the non-white characteristic.

Perception of Classroom Goal Structure One Year after Participation

The third question also asked whether, controlling for any differences in student background factors, differences existed in perception of classroom achievement goal structure of gifted students who attended cluster-grouped reading classes in the middle grades (Group B1) from gifted students who attended ability-grouped reading classes in the middle grades (Group B2) one year after participation. To answer this question, standard OLS multiple regression was used to analyze data. Perception of classroom achievement goal structure served as a dependent variable, while each background characteristics and learning environment group served as independent variables. After assumptions were checked and the
model was evaluated, each independent variable’s results were determined by examining the standardized betas for each variable and R square values for each equation.

Results for these tests are shown in Table 10 OLS multiple regression was used to assess whether group predicted students’ perception of classroom mastery goal structure. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. The model for classroom mastery achievement goal structure was significant with 4.7% of the variance explained by group in the model for perception of classroom mastery goal structure, F (1, 107) 5.28, p < .05. Students who had been ability-grouped reported higher levels of perception of classroom mastery goal structure than cluster-grouped students.

Table 10

Regression Results of Group and Race/Ethnicity Related to Classroom Achievement Goal Structure for One Year After Participation

<table>
<thead>
<tr>
<th></th>
<th>Classroom Mastery Goal Structure</th>
<th>Classroom Performance-Approach Goal Structure</th>
<th>Classroom Performance-Avoidance Goal Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>White (vs. not) beta</td>
<td>--</td>
<td>--</td>
<td>.05</td>
</tr>
<tr>
<td>Ability Group beta</td>
<td>.22*</td>
<td>.01</td>
<td>.03</td>
</tr>
<tr>
<td>R square</td>
<td>.05*</td>
<td>.00</td>
<td>.00</td>
</tr>
</tbody>
</table>

*Note. white = 0, non-white = 1. n = 109. * p < .05.

Group predicted students’ perception of classroom performance-approach goal structure in standard OLS multiple regression. Preliminary analyses were conducted to ensure
no violation of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. The model was not significant, F (1, 107) = .01, p > .05.

Similarly, a model using group and race/ethnicity to predict students’ perception of classroom performance-avoidance goal structure was tested using standard OLS multiple regression. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity. Neither race/ethnicity nor group significantly predicted students’ perception of classroom performance-avoidance goal structure, F (2, 106) = .21, p > .05.

Summary

Data analysis showed that when looking at background characteristics in this sample of gifted students, there were significant results in the area of challenge seeking when gender was considered. Using regression analysis, some significant differences by group were found among students who were surveyed immediately following participation (Groups A1 and A2). For those students surveyed immediately after participation, ability-grouped gifted students (Group A2) were more likely to report challenge-seeking behavior and less likely to report mastery goal orientation. For gifted students who were surveyed the following year (Groups B1 and B2), students in ability-grouped classrooms (Group B2) reported greater self-efficacy, personal mastery goal orientation, and personal performance-approach goal orientation than students who were cluster grouped (Group B). Finally, perception of classroom performance-avoidance goal structure was explored. Survey results immediately following participation found students with non-white status showed lower performance-avoidance goal structure.
One year following participation, gifted students who had been placed in ability-grouped classrooms (Group A2) reported greater mastery achievement goal structure than gifted students who had been cluster grouped (Group A1). Discussion and implications of these results follow in Chapter 5.
CHAPTER 5

DISCUSSION

This study investigated whether gifted students placed in ability-grouped classrooms reported different motivational characteristics than students who were cluster grouped. Teaching gifted students in the most appropriate learning environment promises to benefit our society and to help maintain our ability to be globally competitive. A challenging, appropriate learning environment may aid gifted students in many ways. In addition to maintaining or increasing achievement, a strong sense of self-efficacy may counteract the perfectionism sometimes present in gifted students (Hewitt & Flett, 1991). Additionally, mastery goal orientation helps mitigate gifted-student underachievement and encourages students to seek challenge. Classroom goal structure is important because it may influence individual goal orientation. This study sought to identify an association between educational environments and the motivational processes and achievement of gifted students.

Background Characteristics Related to Motivational Processes and Achievement of Gifted Students

The first question asked if self-efficacy, achievement goal orientation, achievement, challenge seeking, and perception of classroom goal structure varied by demographic characteristics (gender, race/ethnicity, or SES) of gifted students.
Self-Efficacy

While self-efficacy of gifted students is usually higher than that of other students (Zimmerman & Pons, 1990), this study found that self-efficacy of the gifted students in the sample had very similar self-efficacy to the norms supplied by PALS. This study asked if self-efficacy differed in gifted students based on their background characteristics. While some studies found nongifted females had higher self-efficacy in the area of reading (Bussey & Bandura, 1999; Joet, Usher, & Bessoux, 2011; Pajares, 1997; Pajares, Johnson, & Usher, 2007), this study did not find a difference based on gender. All of the students in this study were labeled “gifted and talented” and all had academic strength in the content of reading. Students’ self-knowledge of their high ability may impact their self-efficacy in a positive way, therefore possibly eliminating the differences in self-efficacy sometimes found between genders.

The study also sought to identify differences in the self-efficacy of gifted students based on race/ethnicity or socioeconomic status. Little previous research has investigated the self-efficacy of gifted students based on race/ethnicity or socioeconomic level. This study contributed to filling that void. Past studies reported mixed results regarding the relationship between low-SES nongifted students and their self-efficacy. In this study, no self-efficacy differences were found in the self-efficacy of gifted students by either minority or socioeconomic status.
Challenge Seeking

One previous study (Wilson, Stocking, & Goldstein, 1994) looked at challenge seeking among gifted students and found that gifted females demonstrated more challenge seeking than gifted males. The current study found the same result with females exhibiting higher levels of challenge-seeking behavior. However, the effect of gender was slight.

Researchers have consistently found that non-white and low SES students are underrepresented in higher-level classes (Cockrell & Olszewski-Kubilius, 2012; Oakes, 1992; VanTassel-Baska, Patton, & Prillaman, 1991). In this study, non-white students were less represented in honors classes at a level approaching, but not reaching, significance. Additionally, socioeconomic level did not influence challenge-seeking behavior, as shown by selection of honors freshman English classes. This result does not align with other research regarding low-SES students accessing fewer higher-level courses in high school. All students in this study were labeled gifted and talented and were given modified learning experiences through either cluster or ability grouping. These learning experiences may have contributed to more underrepresented students taking upper level English classes at high school. All students in this study, including non-white and low SES, may have been better prepared for demanding classes.

Achievement

Unlike other studies that found gifted female students showed higher achievement in the area of reading than gifted male students (Plucker, Burroughs & Song, 2010), the analysis conducted in this study found no differences in achievement based on gender. No significant
difference was found based on race/ethnicity either. While other research studies found that non-white general education students showed lower levels of achievement (McCoach et al., 2010), the analysis conducted in this study did not. Last, no differences were found based on socioeconomic level, despite research that claimed that low-SES students tend to score lower (Willms, 2006). These results for gifted students are very positive, showing that male, low-SES and non-white gifted students may be impervious to the academic struggles for achievement of their non-gifted peers.

**Achievement Goal Orientation**

Little attention has been given to the personal achievement goal orientation of gifted students based on gender. While this study contributed to filling that void, no significant differences were found for gifted students based on gender. Furthermore, no differences were found based on race/ethnicity or socioeconomic level. These findings support the argument of Witkow and Fuligni (2007) that there are more similarities than differences among groups of gifted students.

**Perception of Classroom Goal Structure**

The classroom goal structures perceived by the gifted students in this study were not related to students’ background characteristics. There was no difference in the students’ perception of classroom mastery goal structure based on their gender, race/ethnicity, or socioeconomic level. The student perception of classroom performance-approach structure at a higher level by gifted male students was approaching significance. Student perception of
classroom performance-approach structure was not perceived differently based on race/ethnicity or socioeconomic level. Last, student perception of classroom performance-avoidance goal structure being perceived more strongly by whites was approaching significance and was found significant in gifted students surveyed immediately following participation. Gifted student background characteristics of gender and socioeconomic level did not relate to a difference in perception of classroom performance-avoidance goal structure. This means that the gifted students in this sample may not have perceived that the classroom grouping of ability or cluster influenced how they felt the classroom goal structure was oriented.

Grouping of Gifted Students

Ability grouping of gifted students is one suggested instructional strategy to meet gifted students’ needs (Hallinan et al., 2003). Research findings regarding ability grouping gifted students have been mixed. Few previous studies compared ability-grouped gifted students to their cluster-grouped gifted peers, as this one did. This study contributes to the literature by investigating and comparing the levels of motivational processes and achievement outcomes experienced by gifted students who were taught in these different environments for several years. The second research question asked if the motivational characteristics and achievement of gifted students who attended cluster-grouped reading classes in the middle grades differed from that of gifted students who attended ability-grouped reading classes in the middle grades.
Ability Grouping and Self-Efficacy

The benefit of a strong self-efficacy is the persistence it generates when students are faced with challenging situations (Pajares et al., 2007). A strong self-efficacy may be especially beneficial to students as they face the transition from middle school to high school. Classroom environments can affect students’ self-efficacy in several important ways. The sources of self-efficacy include mastery experiences, vicarious experiences, verbal persuasion, and students’ physiological states (Pajares, 1997). According to previous studies, an ability-grouped classroom for gifted students may have a positive impact on all four of these sources (Burns & Mason, 2002; Midgely & Maehr, 1998; Pajares, Johnson, & Usher, 2007). Thus, being in a classroom with only gifted peers was hypothesized to have a positive impact on the self-efficacy of gifted students. This study found partial support for that hypothesis in that the self-efficacy of ability-grouped gifted students one year after participation (Group B2) was significantly higher than the self-efficacy of cluster-grouped gifted students (Group B1) one year after participation. There was not, however, a significant difference in the self-efficacy of ability-grouped gifted students (Group A2) and cluster-grouped gifted students (Group A1) immediately after participation. This may be explained by the fact that the ability-grouped gifted students had experienced more challenge in their classroom and consequently did not consider themselves at mastery level or observe mastery among their peers (vicariously). One year later, following experience in a mixed-ability classroom, those students (Group B2) may have perceived greater mastery and thus have developed a stronger sense of self-efficacy. An alternate idea may be that gifted students who
had been ability grouped were better prepared for high school and felt stronger self-efficacy because of that preparation.

Ability Grouping and Achievement Goals

Students oriented toward mastery goals typically experience more motivation and achievement at school than students who are not so inclined (Elliot & Dweck, 1988). Mastery goals can be increased by assigning students appropriate and challenging assignments, evaluating students in a manner that encourages ongoing learning rather than competition, and offering students more choice (Ames, 1992). This study found that mastery goals were higher in ability-grouped gifted students (Group B2) one year after participation. Conversely, ability-grouped gifted students (Group A2) who were evaluated immediately after participation had significantly lower mastery goal orientation than cluster-grouped gifted students (Group A1) immediately after participation. This is the opposite of findings by Paulick, Waterman, and Nuckles (2013) who reported that mastery goal orientation followed a downward progression as high-level tracked students moved to higher-grade levels. The lower mastery goal orientation of the ability-grouped gifted students (Group A2) immediately after participation may be due to the effect found by Senko and Hulleman (2013): gifted students whose rivals are also gifted may be less likely to expect to attain a goal and may not even pursue it since performance goals rely on normative information. The ability-grouped gifted students had only other gifted students to compare their ability in the reading classroom for four to five years. Therefore, their norming group was a group of highly-capable students like themselves so they may not have understood their abilities compared to the regular population. They may
not have been oriented to their own learning and goal setting because of the unrealistic view of themselves. The cluster-grouped gifted students (Group A1) had heterogeneous learners to which to compare themselves. They may have had a more realistic view of their ability and therefore were able to set goals for themselves and set a tone of mastery learning for themselves.

Additionally, personal performance-approach achievement goal orientation was also higher for ability-grouped gifted students (Group B2) one year after participation, while there was no difference for students (Groups A1 and A2) immediately following participation. Personal performance-approach orientation has both adaptive and maladaptive components (Midgley et al., 2000b). Since these students (Group B2) were new to high school and no longer ability grouped with other gifted students, they may have been concerned with maintaining their status as gifted students among others who did not know their former status (prior to high school, the ability-grouped classrooms had special names, and it was widely understood that the students in them were gifted).

Lack of significance in personal performance-avoidance achievement goal orientation between groups was also an affirmative finding. It is widely believed that performance-avoidance orientation may hinder a learner and cause anxiety (Elliot & McGregor, 2001). Gifted students who were in ability-grouped classrooms (Groups A2 and B2) with other gifted students may have felt threatened or experienced a greater fear of looking dumb as opposed to gifted students who were cluster grouped (Groups A1 and B1) in a classroom with mixed-ability grade level peers. The finding that ability-grouping gifted students with other gifted
students did not display an increase in personal performance-avoidance achievement goal orientation is encouraging information.

**Ability Grouping and Reading Achievement**

Because many studies demonstrate a positive relationship between ability grouping and reading achievement, it was expected that ability-grouped gifted students would show higher reading achievement than cluster-grouped gifted students. This was not found. The lack of differences in reading ability both immediately following participation and a year later may have been influenced by the assessment used. Since the EXPLORE test is given to eighth-grade students during their eighth-grade year, there may not have been enough variance at the top of the test for the gifted students in this study. The gifted students in this study had very high standardized test scores in order to become eligible for gifted programming. Many traditional, on-level tests then have a ceiling effect for gifted students, which means that growth and change is difficult to measure. The ceiling effect of the EXPLORE test may have prevented this study from finding achievement differences between the two groups. Alternatively, there may not have been a difference in achievement between the two groups. The standard deviation of 11.03 indicates that there may have been enough variance to show differences in growth between groups.

**Ability Grouping and Challenge Seeking**

Gifted students may become at-risk learners when they are not in an appropriate learning environment (Rogers, 2002; Siegle & McCoach, 2009; Winebrenner, 2000). In one
study, gifted students who achieved in school explained the importance of being grouped together in honors and advanced classes and noted that underachievement actually began in elementary school when the gifted students were not provided the appropriate level of challenge (Reis & Renzulli, 2011). Since the ability grouping for students in this study began in elementary school, it was expected that more ability-grouped gifted students than cluster-grouped gifted students would show challenge-seeking behavior by selecting honors freshman English classes rather regular freshman English classes. This was true for the students (Group A2) immediately following participation, but not for the students (Groups B1 and B2) surveyed one year after participation. Higher levels of gifted student challenge-seeking behavior is beneficial because it is contrary to under-achievement behavior. Underachievement can be a problem that impedes gifted learners from reaching their potential.

Perceived Classroom Achievement Goal Structure

Individuals have reasons for performing learning tasks. They may have mastery learning goals such as wanting to learn a new skill or increasing their intelligence, or they may act according to performance goals such as by wanting to earn the highest score in the class or not look dumb. Just as students operate under these goals, classrooms may be oriented toward one type or another. Individuals receive messages from many sources, including their teachers, classmates, the classroom media, or even the school culture. Individuals interpret and are influenced by these messages. The third research question of this study asked if gifted students who experience cluster-grouped reading instruction have different perceptions of
classroom goal structure than gifted students who were ability-grouped for reading instruction. Again, this exploratory question was considered by looking at two sets of students who experienced different educational environments: some were surveyed immediately following participation (Groups A1 and A2) and others were surveyed one year after participation (Groups B1 and B2).

Many researchers have questioned the relationship between perception of classroom goal structure and personal achievement goal orientation. Perceived classroom mastery goal structure was shown to predict student adoption of personal mastery achievement goal orientation (Murayma & Elliot, 2009; Rolland, 2012). In this study, it was found that a year after participation, ability-grouped students (Group B2) showed higher levels of perceived classroom mastery goal structure. That same group (Group B2) showed higher levels of personal mastery goal orientation and personal performance-approach goal orientation. Based on a follow-up analysis, this study indicates that there may be a relationship between classroom mastery goal structure and personal mastery goal orientation.

A previous study found that the relationship between student perception of classroom mastery goal structure and personal mastery goal orientation was even stronger when student perception of performance-avoidance goal structure was less emphasized in the classroom (Schwinger & Stiensmeier-Pelster, 2011). The opposite could also be true: when performance-avoidance goal structure is emphasized in the classroom, personal mastery goal orientation could decrease. This may explain the different student perceptions of classroom performance-avoidance structure by race/ethnicity. In Groups A1 and A2, of those who were surveyed immediately following participation, white gifted students reported higher levels of
perceived classroom performance-avoidance goal structure than non-white gifted students. At the same time, the ability-grouped gifted students (Group A2), immediately following participation, displayed lower levels of mastery goal orientation. This is one connection that warrants further investigation.

Implications for Practice

Implications for Middle to High School Transition

The gifted students who were included in this study were in either eighth or ninth grade at the time of the PALS survey. This study considered each grade level based on the differences in school structure. The gifted eighth-grade students were all attending middle schools in a cluster-grouped classroom (Group A1) or an ability-grouped classroom (Group A2) and had experienced the same classroom grouping structure since fourth grade. The ninth-grade gifted students also had been either cluster (Group B1) or ability grouped (Group B2) from fifth grade through eighth grade, but they were first surveyed and their responses were collected during their ninth-grade year when they were freshmen in high school.

The transition from middle school to high school is difficult for many students, including those labeled gifted (Mizelle, 1999). However, there are instances in which gifted students may have a less difficult time than their nongifted grade level peers (Midgley et al., 2000a). Overall, there is little research done for gifted students on this important transition time, especially compared to research done on the transition from elementary into middle school and from high school to college.
In other transition studies, personal achievement goal orientation did seem to be influenced by classroom achievement goal structure. In other words, if the students perceived classroom emphasis on social comparison, they were less apt to take risks and seek challenges (performance-avoidance orientation). In those studies, students did not perceive a difference in classroom achievement goal structure between eighth and ninth grades, although teachers did report a greater focus on competition at the high school level than at other levels (Midgley et al., 2000a). This study also discovered a relationship between personal mastery achievement goal orientation and perception of classroom mastery goal structure among gifted students. In a follow-up analysis to this study, that relationship was evident among ninth-grade students who had ability grouped for reading instruction from fifth through eighth grades (Group B2). The same relationship was not displayed as who students reported higher levels of personal performance-approach goal orientation did not report greater levels of perceived classroom performance-approach goal structure.

Implications for Gifted Education

Background Characteristics of Gifted Students

Little research exists that investigates the self-efficacy of gifted students based on gender, race/ethnicity, and socioeconomic status. While background characteristics of gender, race/ethnicity, and socioeconomic status have been shown to have an impact on motivational processes in mixed-ability student samples, this study did not find those relationships for gifted students. This supports the idea that giftedness and participation in gifted programs
may be a more predictive student characteristic than demographic background factors based on gender, race/ethnicity, or socioeconomic level.

Insignificant attention has been given to the personal achievement goal orientation of gifted students based on gender. While this study addressed that oversight, no variations in goal orientation were found for gifted students based on gender, race/ethnicity, or socioeconomic status as background characteristics.

In this study, challenge-seeking behavior did not differ by race/ethnicity or socioeconomic status of gifted students. Again, this study contributes to literature on gifted students as related to background characteristics.

**Ability Grouping for Gifted Students**

Several findings present the benefits for gifted students who were in ability-grouped classrooms for reading instruction for four or five years. One year after participation, self-efficacy, personal mastery goal orientation, and personal performance-approach goal orientation were higher in ability-grouped gifted students (Group B2) than cluster-grouped gifted students (Group B1). Midgley et al. (2000a) found that in Michigan, the students had no change in self-efficacy as they transitioned into high school. In this study, the self-efficacy of the ability-grouped students was higher than those students who had been cluster grouped. This higher level of self-efficacy presented itself during the critical time of middle to high school transition. Ability grouping gifted students may have lasting benefits for higher self-efficacy, a speculation that will need to be tested in future research.
Both mastery goal orientation and performance-approach goal orientation have beneficial qualities for learners. According to Elliot and McGregor (2001), students with higher personal mastery goal orientation show deeper processing, and students with higher personal performance-approach goal orientation have greater achievement scores. Since this study showed a relationship between ability grouping and both of these adaptive personal achievement goal orientations, gifted learners may benefit over the long term from the ability-grouped learning environment.

Additionally, this study suggests that there may be a relationship between personal mastery goal orientation and self-efficacy, as found by Anderman et al. (2003). Since others also have found a relationship between personal performance-approach goal orientation and self-efficacy (Anderman et al., 2003), a follow-up analysis was conducted and that relationship was also confirmed in this study.

Ability grouping may increase levels of challenge-seeking behavior in gifted students. Gameron (1992) found a 15% increase in honors English class enrollment by students who had been in a high-ability group in eighth grade prior to high school. One set of ability-grouped students in this study enrolled in honors English classes at a higher rate than gifted cluster-grouped students. Since freshman English class recommendations are not contingent on middle-school gifted identification or middle-school English class placement, this suggests that gifted students who were ability-grouped prior to high school may benefit over the long term by taking honors high school classes. The significant findings were for the students who were surveyed immediately after participation. Cluster-grouped students (Group A1) took
honors high school classes at a rate of 70.3%, while ability grouped students (Group A2) took honors high school classes at 89.6%.

Assessment of Achievement

The goal of gifted programming is to keep identified gifted students scoring at high levels of achievement over many years throughout the middle grades. Reis and McCoach (2000) describe several reasons why gifted students do not always achieve high levels of performance. One reason is the mismatch between the school curriculum and the learner. Students often choose not to participate in “inappropriate and un-motivating” curricula (p. 156). While it was hoped that the classroom environment of ability-grouped gifted students would remedy this issue, this study was not able to measure any differences in achievement. Because reading achievement was measured with the on-level EXPLORE test, any differences in achievement that may have existed may not have been measured. Based on these results, it is suggested that the achievement of gifted students be measured with standardized tests that do not have a limit or cap based on the current grade level of the students.

Future Studies

Many ideas for follow-up studies emerged from this research. Research on gifted education and students tends to be sparse in the area of motivational processes. The evaluation of the level of motivational processes may play an important role in determining the best education for gifted students.
First, a similar cross-sectional study that investigates differences among level of giftedness is warranted. The sample population could be tiered by their level of giftedness. The same motivational processes and achievement could be examined for each tier. By looking at the levels of giftedness, rather than putting all levels together as this study does, the best educational environment may be determined for the different levels assuming each tier may have different needs based on ability.

A longitudinal study would be valuable. In the case of changing programming, it is difficult to predict in advance what change will occur. To do a longitudinal study in this circumstance, the PALS survey would have needed to be administered each year or at least at the beginning and end of programming. Measuring the change throughout late elementary school into the beginning of high school may be very informative. Besides the impact of the difference in learning environments, a variety of information about gifted students may be procured by utilizing PALS surveys on an annual basis. For example, the changes in gifted students’ motivational processes may be compared as they transitioned from elementary school into middle school and then again into high school. Specific classrooms associated with teachers can be analyzed with the longitudinal data. Additionally, change over time from one group to the other could be evaluated.

Another follow-up study that would be useful is to investigate reasons why there were no gender or other background characteristic differences in self-efficacy of gifted students. There are many findings that suggest gender differences of nongifted students in the motivational processes and achievement. Using a qualitative method to bring out the reasons for similarities in self-efficacy, personal goal orientation, achievement, and perception of
classroom goal structure of gifted students may reveal why differences were not found in this study. Information about those reasons may help educators better meet the learning needs of gifted students in general.

Additionally, it would benefit the field of gifted education to know if there are differences based on the background characteristics of gifted students in motivational processes and achievement in content areas beside language arts. This study focused on one subject area and found few differences among gifted students. Other researchers have found significant differences of motivational processes and achievement of heterogeneous samples students based on their background characteristics. Currently, there is a focus on science, technology, engineering and mathematics (STEM) education and careers in the United States. It would be useful to focus on gifted students in those areas to investigate if their background characteristics influence their educational experience.

When significant results were found for students one year after participation in the areas of personal mastery achievement goal orientation, a question arose about whether gifted students in honors English classes showed greater personal mastery achievement goal orientation than gifted students who are in regular freshman English classes regardless of their classroom experiences prior to high school. Sections of the PALS survey could be administered to gifted students in each class, and those results could be compared. This information would be beneficial to educators in the field of gifted education, but it would also inform high school guidance counselors who help incoming freshman make their high school class selections.
Related to the previously suggested research, another interesting question exists: what is the relationship between student perception of classroom performance-avoidance goal structure and personal mastery goal orientation for gifted students? Is there a relationship between personal performance-approach goal orientation and student perception of classroom mastery goal structure? Again, sections of the PALS survey could be administered and results shared. This information is especially useful to teachers of gifted students. Since teachers have the ability to set the tone and climate in their classrooms (Schwinger & Stiensmeier-Pelster, 2011) that then influences the student perception of classroom achievement goal structure. They need to be aware of the impact that classroom goal structure may have on the personal achievement goal orientation of their gifted students.

In this study, little attention was given to the curriculum and gifted students’ learning experience in either cluster-grouped classrooms or ability-grouped classrooms. Many studies have documented the benefits of differentiated curriculum (e.g., Tomlinson, 2014). Experts in the field of gifted education promote the use of pre-assessment as a way to determine student learning needs. After needs are determined, the teacher could make adjustments to the content, process, or product to meet individual or group needs (Tomlinson, 2014). A comparative analysis that evaluates student learning experience determined by use of differentiated lessons to classroom environment may be revealing. Additionally, including motivational processes of self-efficacy, personal achievement goal orientation, challenge seeking, achievement, and perception of classroom achievement goal structure in the analysis may offer insight to the field of gifted education. Revealing the impact of both a differentiated
learning experience within the different groupings of gifted students may help educators provide to most effective academic experience for gifted learners.

Finally, considering other motivational constructs like expectancy-value theory when evaluating gifted students’ learning experiences and programming would be valuable to the field of gifted education. Combating underachievement by examining the many different constructs that may impact motivation may help identify remedies that benefit a variety of gifted students.

Limitations

This study was conducted in a natural academic environment with data points collected to evaluate gifted programming by the school district. It was not a controlled experiment, but rather it used students in an authentic academic setting. That change in programming allowed the researcher to compare data collected from similar students who had different class groupings. It would not be ethical to group gifted students in different classroom environments over the long term to compare the effectiveness of the environments. School districts attempt to provide the programming to students they believe is in the best interest of the learner. Because this was a real learning setting instead of an experimental design, the results do not necessarily suggest causality.

Related to the placement of this study in a natural environment is the absence of pre-programming surveys and consistent achievement test data. Thus, the differences that were found in this study may have existed in these groups prior to participation in gifted programs. Again, the results do not suggest causality.
Another limitation is that descriptions of student survey results, including self-efficacy, personal achievement goal orientation, and perceived classroom achievement goal structure, are based on students’ self-reported data. There are limitations when data are self-reported. At times, students may have selective memory regarding their reading classrooms, they may report based on perceptions not limited to their reading classroom, they may not remember the classroom from a year earlier, or they may exaggerate their reported results. Additionally, classroom perceptions are based on student perception and may not be consistent with an observer’s opinion.

In addition, the characteristics and size of the sample may have influenced the findings. The sample size of approximately 45 students per grade level for each group may not represent gifted students in the area of reading. The low number of participants in each group may inaccurately represent gifted student motivational processes and achievement as well their perception of classroom goal structure.

There were many teachers and different classrooms to which students were assigned during the time of this study. The students in cluster groups (Groups A1 and B1) may not have had the same teachers as students in ability groups (Groups A2 and B2). Therefore, particular teachers, rather than the effect of grouping, may have influenced student perception of classroom goal structure.

Additionally, personal mastery-avoidance achievement goal orientation and perception of classroom mastery-avoidance goal structure were not measured for this study. The survey tool Patterns of Adaptive Learning Scales did not include this component. No data and no
survey items measuring this variation of goal orientation or perception of classroom goal structure were available.

Last, as mentioned in the implications section, utilizing on-level achievement tests with gifted students may be confining due to the ceiling effects of these tests. The ceiling effect means that growth and differences are difficult to measure because the test is too easy for students. Since most of these students would normally score at the top of standardized tests regardless of classroom environment, it may not be possible to show differences in achievement using the EXPLORE test results. Additionally, many of the measures had very little variance as shown by the low standard deviations. Based on this, there may have been differences that were not identified in this study because of the limits of the measurement tools.

Conclusions

Background characteristics of gifted students had little to no influence over their self-efficacy, personal achievement goal orientation, achievement, or challenge-seeking behavior based on data collected in this study. Gifted students who had been ability grouped showed greater challenge-seeking behavior but lower personal mastery achievement goal orientation immediately following participation. Ninth-grade gifted students who had experienced ability-grouped classrooms in the middle grades reported higher levels of self-efficacy, personal mastery goal orientation, personal performance-approach goal orientation, and classroom mastery goal structure than gifted students who had been cluster grouped in the middle grades.
Overall, this study’s results have implications both for the transition of gifted students from middle school to high school and for the education of gifted students. Research studies that compare gifted students to similar gifted students are rare. Thus, this study makes a contribution to the field of gifted education. Helping gifted students reach their potential has benefits for them, but also to society in general. They are our greatest resource.
REFERENCES


APPENDIX

PALS學生調查
STUDENT SURVEY

The first question is an example.

I like strawberry ice cream.

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NOT AT ALL TRUE  SOMewhat TRUE  VERY TRUE

HERE ARE SOME QUESTIONS ABOUT YOURSELF AS A STUDENT IN THIS CLASS. PLEASE CIRCLE THE NUMBER THAT BEST DESCRIBES WHAT YOU THINK.

1. I'm certain I can master the skills taught in class this year.

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2. I would avoid participating in class if it meant that other students would think I know a lot.

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3. It's important to me that I don't look stupid in class.

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4. Even if I do well in school, it will not help me have the kind of life I want when I grow up.

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5. If other students found out I did well on a test, I would tell them it was just luck even if that wasn't the case.

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NOT AT ALL TRUE  SOMewhat TRUE  VERY TRUE
6. When I’ve figured out how to do a problem, my teacher gives me more challenging problems to think about.

1 2 3 4 5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

7. It’s important to me that other students in my class think I am good at my class work.

1 2 3 4 5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

8. It’s important to me that I learn a lot of new concepts this year.

1 2 3 4 5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

9. My teacher presses me to do thoughtful work.

1 2 3 4 5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

10. I’m certain I can figure out how to do the most difficult class work.

1 2 3 4 5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

11. Some students fool around the night before a test. Then if they don’t do well, they can say that is the reason. How true is this of you?

1 2 3 4 5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

12. My chances of succeeding later in life don’t depend on doing well in school.

1 2 3 4 5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

13. My teacher asks me to explain how I get my answers.

1 2 3 4 5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE
14. Some students purposely get involved in lots of activities. Then if they don't do well on their class work, they can say it is because they were involved with other things. How true is this of you?

1  2  3  4  5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

15. When I'm working out a problem, my teacher tells me to keep thinking until I really understand.

1  2  3  4  5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

16. Some students look for reasons to keep them from studying (not feeling well, having to help their parents, taking care of a brother or sister, etc.). Then if they don't do well on their class work, they can say this is the reason. How true is this of you?

1  2  3  4  5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

17. My teacher doesn't let me do just easy work, but makes me think.

1  2  3  4  5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

18. I wouldn't volunteer to answer a question in class if I thought other students would think I was smart.

1  2  3  4  5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

19. If I did well on a school assignment, I wouldn't want other students to see my grade.

1  2  3  4  5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

20. One of my goals in class is to learn as much as I can.

1  2  3  4  5
NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE
21. One of my goals is to show others that I'm good at my class work.

   1  2  3  4  5
   NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

22. It's very important to me that I don't look smarter than others in class.

   1  2  3  4  5
   NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

23. Doing well in school doesn't improve my chances of having a good life when I grow up.

   1  2  3  4  5
   NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

24. One of my goals is to master a lot of new skills this year.

   1  2  3  4  5
   NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

25. Getting good grades in school won't guarantee that I will get a good job when I grow up.

   1  2  3  4  5
   NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

26. One of my goals is to keep others from thinking I'm not smart in class.

   1  2  3  4  5
   NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

27. Even if I am successful in school, it won't help me fulfill my dreams.

   1  2  3  4  5
   NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE

28. If I were good at my class work, I would try to do my work in a way that didn't show it.

   1  2  3  4  5
   NOT AT ALL TRUE  SOMEWHAT TRUE  VERY TRUE
29. It's important to me that I thoroughly understand my class work.

1. Not at all true
2. Somewhat true
3. Very true

30. One of my goals is to show others that class work is easy for me.

1. Not at all true
2. Somewhat true
3. Very true

31. Some students let their friends keep them from paying attention in class or from doing their homework. Then if they don't do well, they can say their friends kept them from working. How true is this of you?

1. Not at all true
2. Somewhat true
3. Very true

32. Doing well in school won't help me have a satisfying career when I grow up.

1. Not at all true
2. Somewhat true
3. Very true

33. Some students purposely don't try hard in class. Then if they don't do well, they can say it is because they didn't try. How true is this of you?

1. Not at all true
2. Somewhat true
3. Very true

34. One of my goals is to look smart in comparison to the other students in my class.

1. Not at all true
2. Somewhat true
3. Very true

35. One of my goals in class is to avoid looking smarter than other kids.

1. Not at all true
2. Somewhat true
3. Very true

36. Some students put off doing their class work until the last minute. Then if they don't do well on their work, they can say that is the reason. How true is this of you?

1. Not at all true
2. Somewhat true
3. Very true
37. It's important to me that I look smart compared to others in my class.

1 2 3 4 5
NOT AT ALL TRUE  SOMewhat TRUE  VERY TRUE

38. It's important to me that I improve my skills this year.

1 2 3 4 5
NOT AT ALL TRUE  SOMewhat TRUE  VERY TRUE

39. It's important to me that my teacher doesn't think that I know less than others in class.

1 2 3 4 5
NOT AT ALL TRUE  SOMewhat TRUE  VERY TRUE

40. I can do almost all the work in class if I don't give up.

1 2 3 4 5
NOT AT ALL TRUE  SOMewhat TRUE  VERY TRUE

41. My teacher makes sure that the work I do really makes me think.

1 2 3 4 5
NOT AT ALL TRUE  SOMewhat TRUE  VERY TRUE

42. One of my goals in class is to avoid looking like I have trouble doing the work.

1 2 3 4 5
NOT AT ALL TRUE  SOMewhat TRUE  VERY TRUE

43. Even if the work is hard, I can learn it.

1 2 3 4 5
NOT AT ALL TRUE  SOMewhat TRUE  VERY TRUE

44. My teacher accepts nothing less than my full effort.

1 2 3 4 5
NOT AT ALL TRUE  SOMewhat TRUE  VERY TRUE

45. I can do even the hardest work in this class if I try.

1 2 3 4 5
NOT AT ALL TRUE  SOMewhat TRUE  VERY TRUE
THE FOLLOWING QUESTIONS ARE ABOUT THIS CLASS AND ABOUT THE WORK YOU DO IN CLASS. REMEMBER TO SAY HOW YOU REALLY FEEL. NO ONE AT SCHOOL OR HOME WILL SEE YOUR ANSWERS.

46. In our class, trying hard is very important.

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<td>SOMEWHAT TRUE</td>
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47. In our class, showing others that you are not bad at class work is really important.

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48. In our class, how much you improve is really important.

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49. In our class, getting good grades is the main goal.

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50. In our class, really understanding the material is the main goal.

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51. In our class, getting right answers is very important.

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52. In our class, it's important that you don't make mistakes in front of everyone.

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53. In our class, it's important to understand the work, not just memorize it.

1 2 3 4 5
NOT AT ALL TRUE SOMewhat TRUE VERY TRUE

54. In our class, it's important not to do worse than other students.

1 2 3 4 5
NOT AT ALL TRUE SOMewhat TRUE VERY TRUE

55. In our class, learning new ideas and concepts is very important.

1 2 3 4 5
NOT AT ALL TRUE SOMewhat TRUE VERY TRUE

56. In our class, it's very important not to look dumb.

1 2 3 4 5
NOT AT ALL TRUE SOMewhat TRUE VERY TRUE

57. In our class, it's OK to make mistakes as long as you are learning.

1 2 3 4 5
NOT AT ALL TRUE SOMewhat TRUE VERY TRUE

58. In our class, it's important to get high scores on tests.

1 2 3 4 5
NOT AT ALL TRUE SOMewhat TRUE VERY TRUE

59. In our class, one of the main goals is to avoid looking like you can't do the work.

1 2 3 4 5
NOT AT ALL TRUE SOMewhat TRUE VERY TRUE