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Investigation of Teacher Perceptions of Gifted Education: How Teacher Perceptions Influence the Use of Specific Research-Based Teaching Strategies Tailored to Challenge Learning in AG Students

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Investigation of Teacher Perceptions of Gifted Education: How Teacher Perceptions
Influence the Use of Specific Research-Based Teaching Strategies Tailored to Challenge
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By
Ian Robert Olsen

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Approval Page

This dissertation was submitted by Ian Robert Olsen under the direction of the persons listed below. It was submitted to the Gardner-Webb University School of Education and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Gardner-Webb University.

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Abstract

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The research study examined teacher perceptions of gifted instruction. It focused on teacher perceptions of the needs of gifted students; teacher confidence in adapting instruction to meet the needs; and teacher perceptions of which research-based instructional strategies are best implemented.

The purpose of this study was to determine if AG teacher perceptions of instructional strategies influence the implementation of them. This study combined literature research, survey data, and interview data all shedding light on the need to improve academic instruction for all AG students (Bangel, Moon, & Capobianco, 2010; Manning, 2006; McKinsey & Co., 2009). The research and data demonstrated a lack of preparation for teachers who instruct AG students (Bain, Bliss, Choate, & Sager Brown 2007). The priority is to increase teacher preparation at the college level and continue to fund certification partnerships with universities and ongoing support from the district in the form of professional development and district in-services. Literature research supports the implementation and frequent use of the six research-based instructional strategies presented in this study. The study found two of the six instructional strategies had low perception translating into poor implementation.

Contrary to many beliefs, AG students will not succeed on their own; they require specific instructional and psychological needs to continue to compete internationally with other nations (Subotnik, Olszewski-Kubilius, & Worrell, 2011; Xiang, Dahlin, Cronin, Theaker, & Durant, 2011). Renzulli (2005) described this as a *quiet crises* that if unchecked will leave a drought of specialized and creative work force that made America great.

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Chapter 1: Introduction

Introduction

This study evolved from the continued witnessing of academically gifted (AG) students floundering to succeed and reach their full potential in the middle school setting. The current educational arena did not give credence to this as a problem due to AG students' superior intellectual capacity, which set them up for *success* within the framework and benchmarks required as well as with standardized testing (Hoover-Schultz, 2005; Loveless, Duffett, & Farkas, 2008; Renzulli, 2005). The need existed so focus would be placed on why this was happening predominantly in American education. In addition, international comparisons were highlighted to demonstrate America's AG students perform at an inferior level when compared to international AG students in math, reading, and science.

A distinctly smaller proportion of American AG students reach their full potential compared to internationally gifted students (McKinsey & Co., 2009; Olszewski-Kubilius & Clarenbach, 2012). In recent years, the primary objective and focus for American education has been on schools and students failing to perform at proficient levels on federal and state-mandated tests. This focus has neglected the support and needs of the high-performing and AG students who perform well above proficiency but struggle to make growth as compared to international high-performing students (Xiang, Dahlin, Cronin, Theaker, & Durant, 2011).

By not meeting the AG student needs, society is losing valuable contributions from these exceptional children. They are not aspiring to greater educational challenges and heights, leading to a great loss of human capital which has a direct correlation to economic success in the U.S. (McKinsey & Co., 2009). Society is doing a grave injustice

to future societal growth and prosperity by not rectifying this within U.S. schools. Gifted students are a valuable resource that the U.S. does not have the liberty to neglect and disregard. If left unchallenged and without tried and true research-based instructional techniques and strategies, these exceptional students regress or develop into underachievers (Xiang et al., 2011).

In their research, Bangel, Moon, and Capobianco (2010) indicated much of the reason for the decline in AG students to be commensurate with other countries was due to lack of adequate teacher training, teacher perception, and teacher methodology. Teachers are often ill prepared (Bangel et al., 2010). AG students possess unique characteristics and require specific instruction to function at a successful intellectual level (Cross, 1997; Rogers, 2007).

Statement of the Problem

Recent data analysis demonstrated AG students were not making growth or reaching their full potential as compared to their international counterparts (McKinsey & Co., 2009; Olszewski-Kubilius & Clarenbach, 2012). A substantial portion of AG students are underachieving or not growing to their full potential. Loveless et al. (2008) found,

> Gaps are narrowing because the gains of low-achieving students are outstripping those of high achievers by a factor of two or three to one. The nation has a strong interest in developing the talents of its best students to their fullest to foster the kind of growth at the top end of the achievement distribution that has been occurring at the bottom end. International comparisons of top students around the world invariably show American high-achievers falling short. (p. 35)

The following quote documented and cited research demonstrating AG students are not

reaching their full potential in America. Renzulli (2005) exposed America's harmful effect on gifted education and students as a *quiet crisis*:

> By the time the damage is done it will be too late to reverse a trend that may place our country in jeopardy. Unchecked, this trend will leave a dearth of scientists, engineers, inventors, entrepreneurs, and creative contributors to all areas of the arts and sciences. These kinds of contributions are precisely the things that made America a prosperous and powerful nation through the Twentieth Century. Our innovation stimulated a powerful knowledge driven economy and shaped a country that made its fame and fortune by creating things rather than merely making them. Neglect of our most Gifted and Talented Students, including those who come from limited economic circumstances, will make it impossible for America to compete in a global economy that is driven by new ideas. (p. 32)

Subotnik, Olszewski-Kubilius, and Worrell (2011) reinforced the fear that AG students did not receive adequate educational support to thrive. Subotnik et al. claimed policy and research communities in the U.S. were unwilling to concentrate efforts to improve policy for academic giftedness programs. This unwillingness derived from the common mindset that AG students would thrive and succeed in any learning environment with little to no support. The widely held belief is AG students come from educated households with greater access to human capital wealth (Subotnik et al., 2011). Subotnik et al. furthered, "These arguments run counter to psychological science indicating the need for all students to be challenged in their schoolwork and that effort and appropriate educational programing, training and support are required to develop a student's talents and abilities" (p. 3).

Hoover-Schultz (2005) defined what constituted AG students. Students who

exhibit the ability to absorb and understand information at higher levels combined with continual exceptional performance on achievement assessments and IQ tests are consistently classified in schools as AG students (Hoover-Schultz, 2005). AG students have specific needs and require a uniquely rigorous curriculum to ensure a challenging education that promotes high achievement and high growth, as stated by Rayneri, Gerber, and Wiley (2006). The researchers posited, "Without appropriately stimulating environments, gifted students become frustrated, bored, and unmotivated" (Rayneri et al., 2006, p. 2).

Despite showing high achievement by classroom and standardized norms, AG students failed to continue upward growth patterns and mobility toward full potential. Xiang et al. (2011) stated a school's primary objective must be to maintain a student's ability level or increase a student's trajectory. AG students who failed to reach their potential represent a loss in human capital for the U.S., and schools should implement strategies that allow AG students to flourish (Xiang et al., 2011).

Research continued to show a large portion of gifted students were underachieving or not growing to their full potential. Hoover-Schultz (2005) estimated the underachievement of gifted students could equate to as many as half the students in gifted programs, where they were ignored or neglected. Hoover-Schultz stated, "10% to as high as 50% of AG-Academically gifted students do not reach their full potential or reach an underachievement status" (Hoover-Schultz, 2005, p. 46). Hoover-Schultz demonstrated that the implications of underachieving gifted students could have a devastating effect on student growth as a whole.

Reis and McCoach (2000) reviewed literature of gifted underachievement and recommended a definition of underachievement used and accepted in many empirical

studies. The definition is as follows.

> Underachievers are students who exhibit a severe discrepancy between expected
>
> achievement (as measured by standardized achievement test scores or cognitive or
>
> intellectual ability assessments) and actual achievement (as measured by class
>
> grades and teacher evaluations). To be classified as an underachiever, the
>
> discrepancy between expected and actual achievement must not be the direct
>
> result of a diagnosed learning disability and must persist over an extended period
>
> of time. Gifted underachievers are underachievers who exhibit superior scores on
>
> measures of expected achievement. (Reis & McCoach, 2000, p. 157)

A large body of research has focused on the underachievement of gifted students.
The trending research focused on whether the growth was positive, stagnant, or
regressive in gifted students. Xiang et al. (2011) researched the achievement of high-
performing students at the individual level.

The purpose of Xiang et al.'s (2011) study determined if gifted students
maintained their gifted status or reverted below the 90th percentile: "Three in five
students identified as high-achieving in the initial year of the study remained high-
achieving in the final year . . . roughly 30 to 50 percent of students in the initial high-
achieving group lost their top-tier academic status over time" (p. 2). In addition, Xiang et
al. (2011) reported two in five students identified as high achieving in initial grades and
lost high-achieving status 4 years later.

Underachievement and poor growth of gifted students did not just take place in
isolated districts or individual states; a pattern across the nation, as a whole, was
apparent. The data and research that follow showed that the U.S. continued to lag behind
other countries regarding AG students (Loveless et al., 2008):

If America is to remain internationally competitive with other advanced nations, we must maximize the academic potential of our top students. Over the last decade, however, federal and state education accountability systems particularly in the wake of the No Child Left Behind Act (NCLB) of 2001 have placed primary emphasis on moving low-performing students toward proficiency. The sanctions stemming from these systems have cast greater attention on schools that fail to attain proficiency for most students a necessary and noble endeavor. But they have also fueled concerns that the academic needs of high-performing learners, who in many states are largely unaffected by accountability systems, have been neglected. (Xiang et al., 2011, p. 5)

In an analysis of the No Child Left Behind Act (NCLB, 2002), Loveless et al. (2008) analyzed assessment data and reported the impact and effect these had on high-achieving students. There was a large discrepancy between the growth of gifted students and the lowest achieving students: "While the nation's lowest-achieving youngsters made rapid gains from 2000 to 2007, the performance of the top students was languid" (Loveless et al., 2008, p. 2). Moreover, NCLB did not benefit underachieving gifted students, as shown by Loveless et al. (2008) and Jolly and Makel (2010). Jolly and Makel stated, "NCLB's expectation of many high-ability and gifted children was underachievement. When examining recent NAEP score trends, students who scored in the 'advanced' level in fourth grade but did not receive adequate academic support, saw their scores steadily decline" (p. 36).

Olszewski-Kubilius and Clarenbach (2012) displayed a national comparison between the U.S. and other countries. U.S. AG students do not compare appropriately in producing students who exhibit elevated levels of academic achievement. While U.S.

AG students succeeded in advanced K-12 coursework and were successful in college and graduate programs, under scrutiny, national and international test data demonstrated that a fraction of a percent of U.S. students aspired to maximum levels of achievement (Olszewski-Kubilius & Clarenbach, 2012).

Nationally, top student performance has declined, specifically in math. There were significant differences between the performance of students from the U.S. on national and international tests compared to performance of other countries. The U.S. student achievement scores on international and national tests lag behind their peers (McKinsey & Co., 2009). McKinsey and Co. (2009) exposed a staggering gap among U.S. best students and the top students of other nations:

> United States has among the smallest proportion of 15-year-olds performing at the highest levels of proficiency in math. Korea, Switzerland, Belgium, Finland, and the Czech Republic have at least *five times* the proportion of top performers as the United States. (p. 8).

Olszewski-Kubilius and Clarenbach (2012) presented the 2009 Programme for International Student Assessment (PISA) data that demonstrated other countries such as New Zealand, Shanghai-China, Canada, Singapore, Finland, and Japan produced higher percentages of students who performed at the top achievement levels in reading, math, and science compared to the U.S.

The AG student population is too large and too important to disregard in terms of attention, assistance, and allocations. They need all the aforementioned to flourish. The National Association for Gifted Children (n.d.) calculated, "Academically gifted and talented students in this country make up approximately six to ten percent of the total student population (three to five million students)" (para. 2). Three to five million

students are too many to disregard. This inattention and apathy could potentially have a

drastic effect on our Gross Domestic Product (GDP).

McKinsey and Co. (2009) provided strong evidence that the performance of AG

students directly correlated to the U.S. GDP. They stated that if the U.S. increased the

performance of AG students to the level of other nations such as Finland or Korea

between 1983 and 1989, the GDP of the U.S. in 2008 would have increased $1-2 trillion

higher, which represented 9-16% of the GDP (McKinsey & Co., 2009). The decline of

AG student performance in the U.S. directly affected the GDP and economy, as indicated

in aforementioned research.

Purpose of the Study

The purpose of this mixed-methods study focused on gaining insight from

teachers who instructed AG students in the middle school setting to determine if their

perceptions of the instructional needs of AG students influenced utilization (or

nonutilization) of successful research-based instructional strategies. The information

gathering and analysis by means of teacher surveys, teacher interviews, and research

provided insight and understanding as to why AG students were, in comparison to other

countries, underachieving (Hoover-Schultz, 2005). It led to a renewed sense of urgency

to increase awareness, understanding, and support for teachers and students alike.

The information and research so far cited demonstrated the need to focus

educational attention on AG students in the U.S. The purpose of this study investigated

teacher perceptions of gifted education and how those perceptions influenced the use of

specific research-based teaching strategies tailored to challenge learning in AG students.

It added to the body of knowledge regarding teacher perceptions of gifted instruction in

the middle school setting. The researcher interviewed and surveyed teachers who

instructed AG students to determine if their perceptions of gifted education influenced specific research-based instructional strategies implemented in their classrooms.

AG students require specific instruction in order to function at a successful intellectual level (Cross, 1997; Rogers, 2007). There are specific research-based teaching strategies used that challenge the learning of AG students. Some of those strategies include but are not limited to differentiation, grouping, acceleration, preassessing, goal setting, and inquiry-based/higher order thinking. This study investigated teacher understandings of gifted students, teacher abilities to implement instructional strategies, and teacher preferences regarding specific gifted teaching strategies.

Two major obstacles teachers faced were a lack of understanding regarding the needs of AG students and an absence of awareness of viable AG research-based teaching strategies. Berman, Schultz, and Weber (2012) and Swanson (2006) exposed this weakness and provided a few strategies to overcome the lack of understanding AG students. They also provided reliable time-tested strategies that worked for AG students.

The first major contributing factor related to unfulfilled academic growth in AG students was a lack of teacher preparation and understanding of gifted student needs and requirements (Berman et al., 2012). Berman et al. (2012) solidified this premise by utilizing qualitative data in the form of teacher quotes; commenting on the uncertainty, unfamiliarity, and lack of confidence they experienced when teaching AG students. It was critical that teacher education preparatory programs contained content and experiences that fostered an understanding of AG student needs.

Classroom teachers find it challenging to modify curriculum for AG students without specific training or preparation (Berman et al., 2012). Teacher preparation programs do little to educate and prepare future educators to challenge and differentiate

instruction to meet the needs of AG students. There are few programs at the

undergraduate collegiate level focusing on teaching AG students. More curriculum and

instruction need to be dedicated to teaching AG students in the teacher preparation

programs. All teachers could benefit from professional development specifically

designed to assist teachers in their quests for excellence in teaching AG students (Shagrir,

2011).

> Gifted child education currently lacks space and place in the general teacher
>
> education curriculum, even though federal law mandates teachers are competent
>
> and skilled in identifying and providing Instructional Strategies to service the
>
> needs of GT learners. For many teacher candidates, the GT children in their
>
> classrooms are viewed as nothing more than peer-tutoring candidates who are
>
> ahead of the game. They are not viewed as children being handicapped by an
>
> unchallenging educational environment or a lack of awareness by those charged
>
> with keeping students' best interests in mind—their teachers. (Berman et al.,
>
> 2012, p. 24)

Teacher preparation/preservice programs do not prepare educators to serve the

needs of AG students (Berman et al., 2012). Teachers require training to understand the

AG student and learn specific strategies that are effective with AG students. VanTassel-

Baska and Brown (2007) stated that researched-based practice was vital to education.

There are curriculum and instructional models that are effective and proven to work with

gifted learners. Researchers stated, "It is our duty to employ them and the principles on

which they are based with consistency and rigor. Only then will gifted learners achieve

at optimal levels of learning" (VanTassel-Baska & Brown, 2007, p. 354).

Teacher perception of a strategy has a direct relationship to implementation

(Siegle, Wilson, & Little, 2013). Oerwhelming research and publication of *A Nation Deceived* (i.e., the Templeton National Report on Acceleration) exposed the value of acceleration in gifted education (Colangelo, Assouline, & Gross, 2004). Teacher perceptions supersede the evidence that the strategy is often underutilized. Perceptions and beliefs play a large role in teacher decisions to implement and utilize specific strategies (Siegle et al., 2013). For example, "acceleration is an underutilized strategy for meeting the academic needs of gifted and talented students" (Siegle et al., 2013, p. 27).

Wai, Lubinski, Benbow, and Steiger (2010) considered acceleration as the premier instructional practice to employ when working with gifted students. Acceleration, differentiation, preassessment, goal setting/planning, inquiry-based/higher order thinking, and homogeneous/heterogeneous grouping were the research-based strategies investigated in this dissertation. Research cited demonstrated that these could be effectively utilized in challenging learning for AG students.

Research Questions

1. How do AG teacher perceptions of AG education influence instructional implementation and instructional practice?

2. How can AG teacher demographic information be utilized to help predict which AG teachers require intense AG support or training?

Theoretical Framework

This study's purpose was to add to the body of knowledge and research surrounding the relationship between teacher perception, instructional implementation, and AG instructional practice. The Figure demonstrates the relationship between the three variables in this research study.

```
┌─────────────────────────────────────┐  ┌─────────────────────────────────────┐
│ Teacher Perception                  │  │ Instructional Implementation        │
│   • Experience                      │  │   • Confidence                      │
│   • Background              ◄─────►  │  │   • Instructional Time Spent        │
│   • Pre/Post-                       │  │   • Fidelity of Actual Practice     │
│     Certification                   │  └─────────────────────────────────────┘
│     Training                        │        ┌───────────────────────────┐
│   • Understanding AG                │        │ AG Instructional Practice │
└─────────────────────────────────────┘        │   • Differentiation       │
                                               │   • Acceleration          │
                                               │   • Grouping              │
                                               │   • Pre-Assessment        │
                                               │   • Goal Setting          │
                                               │   • Higher Order Thinking │
                                               └───────────────────────────┘
```
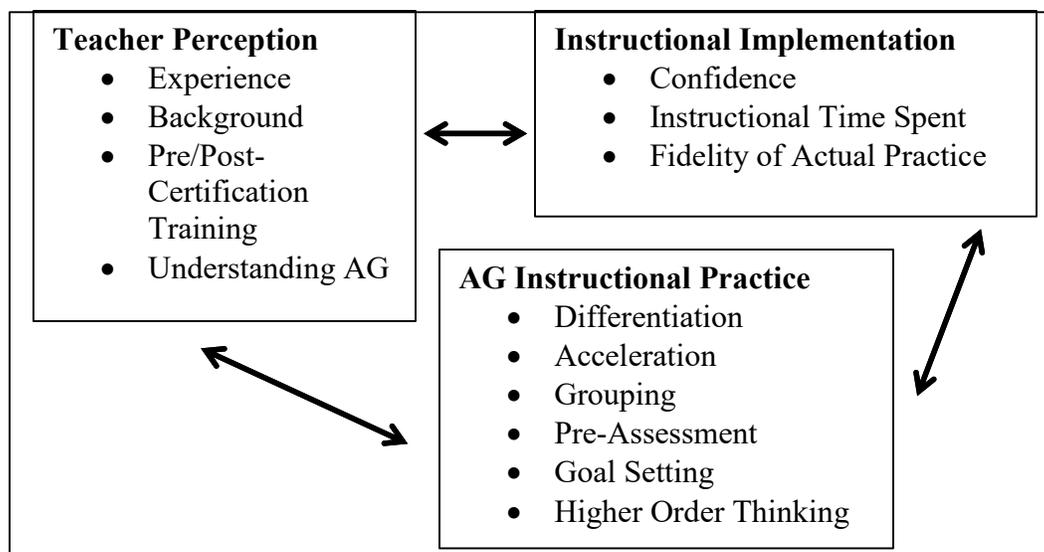
Figure. Theoretical Framework.

Research cited by Tomlinson (1999), Rogers (2007), and McCoach and Siegle (2003) demonstrated that AG students require challenging and engaging instruction. Teachers need to employ specific research-based instructional strategies to transform learning so AG students are engaged and challenged. Many factors contributed to teacher actual implementation of AG instructional practices. The first factor, teacher perception, considered a holistic cross section of experience and background gathered from teacher demographics. The second factor, instructional implementation, was surveyed through the Survey of Practices with Students of Varying Needs (SOP; Tomlinson et al., 1995) with confidence, instructional time spent, and fidelity of actual practice. The third factor, AG instructional practice, was also surveyed by the SOP (Tomlinson et al., 1995).

AG instructional practices fell under the umbrella of utilizing differentiation of strategies for AG students. Differentiation was the instructional concept/method that provided a variety of strategies that AG teachers could utilize to promote unique learning opportunities for AG students. The specific research-based strategies included

differentiation, acceleration, grouping, preassessing, goal setting, and inquiry-based/ higher order thinking.

An historical educational theory was the foundation for the theoretical framework of this mixed-methods study: Vygotsky's (1980) sociocultural cognitive theory (Ormrod, 2000). His cognitive theory presented the perspective that adults promoted and challenged student cognitive development deliberately upon pursuing new knowledge (Ormrod, 2000). Vygotsky's theory tied directly into two strategies used to promote challenging learning opportunities for AG students: utilizing preassessments and grouping of AG students.

Prior to initiating new contexts for students to experience learning, teachers must ascertain student depth of knowledge using a preassessment. Once a student's level is understood, the teacher can employ a method such as differentiation, acceleration, grouping, inquiry-based/higher order thinking, or goal setting which can provide AG students with a challenging experience (Ormrod, 2000).

Vygotsky's (1980) theory sustained the premise to utilize specific homogeneous or heterogeneous groupings to increase the social interaction among students as they cooperate to learn new concepts or information. Specific grouping among similar or dissimilar students should promote social cooperative interactions to increase understanding or awareness of new information (Fiedler, Lange, & Winebrenner, 2002; Shields, 2002).

Definitions

Acceleration. Acceleration is based on the introduction of advanced content and/or topics presented at greater depth to students. It also involves a student progressing faster through educational content or a program at an earlier age (Siegle et al., 2013).

AG students. AG students exhibit an ability to absorb and understand information at a much higher than average level, combined with continual exceptional performance on achievement assessments and IQ tests (Hoover-Schultz, 2005, p. 46).

Academic underachievement. This represents inconsistent differences between ability and performance. A student who is competent or highly adept fails to perform in school (Matthews & Mcbee, 2007, p. 167). This refers to students who demonstrate a detectable difference between expected achievement and actual achievement (Reis & McCoach, 2000).

Differentiation. Differentiation is the teacher's ability to match instruction to student needs. It is a mindset for educators who acknowledge that students are unique and have individual needs that must be met to reach maximum potential (Tomlinson & Allen, 2000). Anderson (2007) stated, "Differentiated instruction stems from beliefs about difference among learners, how students learn, difference in learning preferences, and individual interests" (p. 50).

Goal setting. The theory of goal setting is entrenched in cognitive psychology. It postulates that conscious goals produce accomplishment. Goal setting within the growth plans is key to assisting gifted students to reach their full potential (Morisano & Shore, 2010). Moreover, "When students value academic goals, they become motivated to achieve scholastically. This motivation promotes the development of self-regulation skills which help students achieve their academic goals" (McCoach & Siegle, 2003, p. 151).

Grouping. Grouping is a method of selecting students to be in specific groups based on one category or characteristic (Shields, 2002).

Heterogeneous. This is a grouping technique where a variety of students are

mixed in a group. An example of this is to mix low, medium, and high ability level students to obtain a diversified group (Thanh & Gillies, 2010).

Homogeneous. This is a grouping technique where all the students in the group demonstrate the same, or similarities to, the grouping variable. An example of this is to have a group dedicated to only high ability students and a different group of students grouped by low ability (Shields, 2002).

Inquiry-based questioning. Inquiry-based questioning "is a strategy that calls for teachers to organize questions in deliberate ways in order to elicit high-level thinking. Some questioning may be organized through models that are hierarchal in orientation, moving students from lower to higher level thinking" (VanTassel-Baska, 2014, p. 48).

Preassessment. Preassessments are comprised of posttests, graphic organizers, journals, concept maps, or learning style inventories which provide the instructor formative information demonstrating student mastery or depth of knowledge (Rakow, 2012). Researchers stated, "A student is pre-assessed to determine whether grade-level proficiency in specific academic areas has been achieved" (Colangelo et al., 2004, p. 185).

PISA. The PISA is an international test for 15 year olds in reading, mathematics, science, and problem solving (Organization for Economic Cooperation and Development, 2014).

Teacher preparation/professional development. Teacher preparation/ professional development is the act of expanding educator knowledge base through writing, presenting, researching, or collaborating with colleagues on educational content (Shagrir, 2011).

Teaching strategy. Teaching strategy is the vector used to deliver information,

content, process, or objectives to students (Tomlinson, 1999).

Significance

This research study investigated and analyzed the relationship between teacher perceptions, instructional implementation, and researched-based AG instructional practice. It also aimed to inform educators of specific AG instructional practices designed to challenge AG students. The study added to the body of knowledge in teacher perception, instructional implementation, and research-based AG instructional practice.

Each factor, as referenced in the Figure of this research study, demonstrated a key role in instructionally challenging AG students. Teacher perception is a combination of experiences and training composed to form the teacher's belief of AG instructional practices. Lack of quality preparation and training contributed to poor understanding of an AG student's needs or even a negative perception of them. Regarding the component, influence/accountability utilized confidence, AG time allocated, and fidelity of implementation. They contributed to the implementation process of effective AG instructional practices. Utilizing specific research-based AG strategies demonstrated a challenging environment in which AG students prosper.

This study also gave valuable insight and information to district leaders about teacher perceptions and understanding of AG instructional practices. District leaders could use the data to make informed decisions to support and provide better resources for AG teachers to challenge, support, and positively affect AG instruction.

Summary

As mentioned and addressed previously in this chapter, AG students struggle to reach their full potential in the U.S. Multiple variables are attributed to AG students struggling to meet full potential. For the purpose of this research, how teacher

perceptions influence the implementation of AG instructional practices was the focus. The three factors within this research study included teacher perception, influence/accountability, and research-based AG instructional practices. The research questions served to support and guide this investigation. In the next chapter, the literature review will serve as the foundation with consideration of the variables listed above, and it will contain a presentation of current academic research and studies related to the theme of AG instruction.

Chapter 2: Literature Review

Introduction

This chapter contains an intensive and exhaustive review of the information, and literature written regarding AG students provided support for this study. This chapter also contains a brief historical perspective of gifted education, then transitions into the status of gifted education in the U.S.

The literature review demonstrates how teachers of AG students have distinct perceptions of teaching strategies or lack thereof. The literature supported the need to alter perceptions and to use long-utilized and successful strategies to increase performance levels of AG students, thereby comparing favorably with their global counterparts. To achieve this end goal, the focus needed to be current and with a sense of urgency to implement aforementioned (and later specified) strategies for success.

AG students in the U.S. found it difficult to meet their full potential and lack sufficient growth (Hoover-Schultz, 2005; Loveless et al., 2008; Renzulli, 2005). Further study investigated, validated, and verified reasons for this lag in global parity. Teachers of AG students in the middle school setting were interviewed and surveyed to garner understanding and insight into the problem and hopefully raise awareness and give support so the needs of AG students are met. To understand better the plight of these students, a brief definition and description of an AG student is warranted:

Giftedness is the manifestation of performance or production that is clearly at the upper end of the distribution in a talent domain even relative to that of other high-functioning individuals in that domain. Further, giftedness can be viewed as developmental, in that in the beginning stages, potential is the key variable; in later stages, achievement is the measure of giftedness; and in fully developed

talents, eminence is the basis on which this label is granted. Psychosocial

variables play an essential role in the manifestation of giftedness at every

developmental stage. Both cognitive and psycho-social variables are malleable

and need to be deliberately cultivated. (Subotnik et al., 2011, p. 7)

Gifted students often exhibit one or more of the following characteristics: over

excitability, perfectionism, depression, and hypersensitivity. Teachers need to be better

prepared in collegiate settings as well as have continuing educational opportunities to

better comprehend the intricacies, idiosyncrasies, and needs of the students they serve

(Cross, 1997; Rogers, 2007; Subotnik et al., 2011). Bangel et al. (2010) emphasized the

lack of and urgent need for training by indicating, "little has been done to provide

preservice and in-service teachers with knowledge needed to provide an adequate

education for their gifted students. . . Practicum opportunities are necessary for the

successful transfer of knowledge into practice" (p. 218).

Overview of Literature

If America is to remain internationally competitive with other advanced nations,

we must maximize the academic potential of our top students. Over the last decade,

however, federal and state education accountability systems—particularly in the wake of

NCLB (2002)—have placed primary emphasis on moving low-performing students

toward proficiency. The sanctions stemming from these systems have cast greater

attention on schools that fail to attain proficiency for most students—a necessary and

noble endeavor; however, they have also fueled concerns that the academic needs of

high-performing learners, who in many states are largely unaffected by accountability

systems, have been neglected (Xiang et al., 2011, p. 5).

The importance of gifted and talented educational programs was defended by

Subotnik et al. (2011). Subotnik et al. revealed the resistance of the research community to address the support needed by gifted and talented students. Avoiding the needs and support of American AG students has debased those very students in the global educational arena.

> In fact, high-ability students in the U.S. are not faring well on international comparisons. The scores of advanced students in the United States with at least one college-educated parent were lower than the scores of students in 16 other developed countries regardless of parental education level. (Subotnik et al., 2011, p. 4)

Renzulli (2005) referred to the total investment in U.S. education totaling $350 billion. Only a fraction of that budget was allocated for gifted programs and research. Renzulli stated that America's talented students were failing to compete nationally in math and science, ranking the U.S. close to the lowest of all industrial nations. From the total U.S. educational budget, $350 billion allocated, only $11.2 million trickled down to gifted programs. Renzulli (2005) continued, "Massive investments in the American education system are currently directed toward improving the basic skills of struggling learners" not to gifted students (p. 40). The author stated, "Current estimates of federal education spending indicate that only two cents of every $100 is dedicated to the education of gifted and talented students" (Renzulli, 2005, p. 40). The following quote succinctly demonstrates the negative effect of NCLB on AG student funding.

> The No Child Left Behind federal mandate (2001) did not intend to leave any children behind, nor was it designed to curb the progress of those at the top of the learning curve. However, since this law was passed, it is apparent that the focus of many schools in the U.S. has shifted toward providing time, attention,

resources, and policies in the direction of students scoring under the 40% level of achievement in reading and mathematics. This focus is necessary in order to avoid governmental sanctions influencing school funding and parental choice to choose a different school if their child is not achieving at this level of competence. (Beisser, 2008, p. 1)

Lack of support for gifted and talented primary and secondary education from state or federal funding was evident (Renzulli, 2005). The U.S. had yet to validate the support of gifted and talented programs by providing substantial funding (Subotnik et al., 2011). Researchers stated, "The fact that only six states currently mandate services for gifted students and also fully fund those mandates suggests that there remains little commitment to these learners" (Subotnik et al., 2011, p. 9).

In spite of concerns for the future of innovation in the U.S., the education research and policy communities have been generally resistant to addressing academic giftedness in research, policy, and practice. The resistance is derived from the assumption that academically gifted children will be successful no matter what education environment they are placed in, and because their families are believed to be more highly educated and hold above-average access to human capital wealth. These arguments run counter to psychological science indicating the need for all students to be challenged in their schoolwork and that effort and appropriate educational programing, training and support are required to develop a student's talents and abilities. (Subotnik et al., 2011, p. 3)

Reference to this lack of attention to America's AG students as a *quiet crisis* was crucial. If not recognized and reversed, it could lead to drastic negative effects (Renzulli, 2005). Renzulli (2005) exposed a quiet crisis if gifted and talented education and programs

continue to receive minimal encouragement:

> Unchecked, this trend will leave a dearth of scientists, engineers, inventors, entrepreneurs, and creative contributors to all areas of the arts and sciences. These kinds of contributions are precisely the things that made America a prosperous and powerful nation through the Twentieth Century. Our innovation stimulated a powerful knowledge driven economy and shaped a country that made its fame and fortune by creating things rather than merely making them. Neglect of our most gifted and talented students, including those who come from limited economic circumstances, will make it impossible for America to compete in a global economy that is driven by new ideas. (p. 32)

Loveless et al. (2008) supported this concern in the following quote: "While the nation's lowest-achieving youngsters made rapid gains from 2000 to 2007, the performance of the top students was languid" (p. 2).

Renzulli (2005) exposed a transitional America from historical dominance in leadership, interventions, and discoveries to an America that was an observer and consumer, in the process of abandoning of leadership. Attention to gifted education and the development of programs to enhance AG student learning were required to counteract America's decline. Renzulli (2005) argued that America was once an innovative leader, but now was mediocre and losing ground to other nations due to lack of attention with gifted education. Researchers stated, "There have always been individuals in our midst who inspire us with awe or envy based on their speed of learning, graceful performance, or innovative ideas" (Subotnik et al., 2011, p. 4).

In 2013, Kell, Lubinski, and Benbow published a research article analyzing the accomplishments of individuals with profound mathematical or verbal reasoning abilities

who were tracked for close to 3 decades. The researchers stated, "Their awards and creative accomplishments by age 38, in combination with specific details about their occupational responsibilities, illuminate the magnitude of their contribution and professional stature" (Kell et al., 2013, p. 648). The top 1 of 10,000 individuals within the study held key leadership responsibilities "in business, health care, law, the professoriate, and STEM (science, technology, engineering, and mathematics) [which] suggest that many are outstanding creators of modern culture, constituting a precious human-capital resource" (Kell et al., 2013, p. 648).

Kell et al. (2013) stressed the importance of developing human capital within the talented and motivated individuals as a critical key to assist a nation's GDP. The researchers stated, "Some societies are operating under the assumption that those best equipped to leverage exceedingly rare human-capital resources will be the ones most likely to maintain and advance the economic, physical, and social well-being of their citizens" (Kell et al., 2013, p. 648). They analyzed data gathered from their research and demonstrated students identified as early as 13 years old with profound mathematical and verbal reasoning cultivate into a substantial adult work force in corresponding fields (Kell et al., 2013). The researchers posited,

> Young adolescents with profound talent in mathematical and verbal reasoning hold extraordinary potential for enriching society by contributing creative products and competing in global economies. Many hold important leadership roles and are entrusted with obligations and responsibilities essential for individual and organizational well-being. Above-level assessment techniques are an efficient means of identifying large numbers of profoundly talented young adolescents. The evidence examined here suggests that they constitute the far

edge of a population whose continued success will be further emphasized—

globally—for the foreseeable future. (Kell et al., 2013, p. 658)

Historical Perspective

Beisser (2008) provided the following summary of a brief history on these issues:

Several significant events precede the contemporary gifted education movement

in the U.S. In an 1869 study called "Hereditary Genius" by Sir Frances Galton, it

was determined that genius was genetic or caused by hereditary factors.

Researchers were interested in how to determine who was highly intelligent.

From this, the Stanford-Binet Intelligence test was developed in 1900 then

revamped in 1916. In 1925, Lewis M. Terman began the classic 30- year study of

identified gifted students. These individuals, selected by a single intelligence

quotient (IQ), were followed into adulthood. . . . Interestingly, the Soviets

launched Sputnik into outer space in 1957, causing sudden increase in the U.S.

mathematics and science curriculum, particularly in coursework that was

condensed for high school and college students. Education of America's best and

brightest students took center stage. Gifted programs sprang up in public schools.

Private schools were founded and attention to gifted learners flourished. (p. 5)

The next event of historical significance to follow was the 1972 Maryland Report

on the Education of the Gifted and Talented. It was a groundbreaking U.S. document

citing the majorities of AG students in the U.S. were not obtaining the quality education

required to support their needs (Beisser, 2008). The next historically significant

publication was the 1983 *A Nation At Risk* that published an examination of the U.S.

educational system. It found "that the U.S. was losing ground compared to other nations

in educating its youth, particularly the gifted ones" (Beisser, 2008, p. 6). In 1993, again,

an executive summary was published, *National Excellence: A Case for Developing America's Talent*, that exposed the U.S. education system was wasting gifted and talented student potential by not challenging them (Beisser, 2008). In addition, Colangelo et al. (2004) found that AG students in the U.S. were not served and proposed acceleration as a viable practice.

The five academic and historical-research perspectives Subotnik et al. (2011) summarized included "high IQ; emotional fragility; creative-productive giftedness; talent development in various domains; unequal opportunities" (p. 9). For the purpose of this research, the first three listed above were relevant and were examined. These have direct correlation here. The first, high intellectual ability, was determined by means of a specific assessment: an IQ test. Terman (1916) was a pioneer in perfecting the IQ test and designing a landmark research study in 1921 that followed a large group of students identified with academic potential (Subotnik et al., 2011). Terman's research study spanned the lifetime of the students with high academic potential and discovered students with a high IQ also exhibited specific emotional and social needs (Subotnik et al., 2011).

The second historical research perspective on giftedness indicated that AG students with a high IQ also experienced emotional fragility (Subotnik et al., 2011). Cross (1997) described the phenomenon that gifted students displayed as an overexcitability with components of perfectionism, excessive self-criticism, and intensified emotions. Subotnik et al. (2011) connected validating parallel studies from Terman's (1916) research that demonstrated students with a high IQ inherently possessed emotional characteristics and high sensitivity.

The third historical perspective on giftedness took place when Renzulli (1977) "proposed a dichotomy between school-house giftedness (manifested by high test scores)

and creative-productive Giftedness (manifested in recognized high level performance and innovative ideas)" (Subotnik et al., 2011, p. 5). This idea was a shift in what the research community thought about giftedness and gifted education. Renzulli (1977) argued that giftedness was not solely based on intelligence or academic ability but also had characteristic components such as task persistence, creativity, and motivation that needed to be nurtured in gifted educational programs (Subotnik et al., 2011).

Renzulli (2012) developed a three-ring concept of giftedness which attempted to frame the main components of human potential into creative output. He stated, "Three-ring conception of giftedness is based on an overlap and interaction between and among the three clusters of traits that create the conditions for making giftedness" (Renzulli, 2012, p. 153). The three-ring conception was composed of three interrelating groups of characteristics: "above average ability, task commitment, and creativity" (Renzulli, 2012, p. 153). Renzulli (2012) explained, "Above average ability encompasses both general (e.g., verbal and numerical reasoning, spatial relations, memory) and specific (e.g., chemistry, ballet, musical composition, experimental design) performance areas and is the most constant of the rings" (p. 153). Moreover,

> Task commitment represents a nonintellective cluster of traits found consistently
> in creative productive individuals (e.g., perseverance, determination, will power,
> positive energy). It is best summarized as a focused or refined form of
> motivation—energy brought to bear on a particular problem or specific
> performance area. The significance of this cluster of traits in any definition of
> giftedness derives from myriad research studies as well as autobiographical
> sketches of creative productive individuals. Simply stated, one of the primary
> ingredients for success among persons who have made important contributions to

their respective performance areas is their ability to immerse themselves fully in a

problem or area for an extended period of time and to persevere even in the face

of obstacles that would inhibit others.

Creativity is that cluster of traits that encompasses curiosity, originality,

ingenuity, and a willingness to challenge convention and tradition. For example,

there have been many gifted scientists throughout history, but the scientists whose

work we revere, whose names have remained recognizable in scholarly

communities and among the general public, are those scientists who used their

creativity to envision, analyze, and ultimately help resolve scientific questions in

new, original ways. (Renzulli, 2012, p. 153)

Gifted Definition

Hoover-Schultz (2005) stated, "Students that exhibit ability to absorb and

understand information at a staggering level combined with continual exceptional

performance on achievement assessments and IQ tests consistently are classified in

schools as Academically gifted students" (p. 46). Gifted students possessed unique

characteristics and required specific instruction to function at a successful intellectual

level (Cross, 1997; Rogers, 2007). AG students often exhibit perfectionism, depression,

and hypersensitivity (Cross, 1997; Rogers, 2007; Subotnik et al., 2011). Rogers (2007)

analyzed research on AG students conducted since 1861 and proposed suggestions to aid

gifted and talented students. The suggestions included successful instructional delivery,

instructional management options, and curriculum adaptation strategies (Rogers, 2007).

Rogers's (2007) first suggestion, based on her research, determined gifted and

talented students required daily challenges to avoid depression, stress, boredom, or

psychological distress. Cross (1997) supported this by demonstrating that gifted and

talented students possess unique characteristics that developed into their personality traits. Understanding these personality traits and needs was key to developing curriculum and instruction tailored to gifted and talented student needs.

The characteristics that gifted and talented students exhibited, according to Cross (1997), included overexcitability, asynchronous development, perfectionism, excessive self-criticism, and multipotentiality. Cross stated, "Overexcitabilities are described as expanded awareness, intensified emotions, and increased levels of intellectual and physical activity" (p. 184). To further document that AG students have hyper/over sensitivity, Subotnik et al. (2011) stated that gifted students with a high IQ were unique and demonstrated a high sensitivity.

Terman's (1916) longitudinal study of individuals with high-IQ demonstrated a high proclivity to be superior in emotional and social functioning, along with intellectual functioning. Cross (1997) stressed that a psychological need gifted students have is the perfectionism trait: "Perfectionism is being dissatisfied with the difference between one's ideal performance and one's perception of his or her actual performance" (p. 184). Because of gifted and talented students exhibiting a perfectionistic trait congruently, an excessive self-criticism can emerge (Cross, 1997). Gifted and talented students are "highly critical of themselves when they fall short of accomplishing an ideal performance. Because they may also have perfectionistic tendencies, their self-assessment will often be very disappointing, yielding the excessive self-criticism" (Cross, 1997, p. 184).

Underachievement Definition

Colangelo (2002) spoke about underachievement in gifted students:

Gifted students are vulnerable to a number of issues and situations that can

hamper their cognitive as well as affective development. Gifted students are vulnerable to underachievement … The outcome of underachievement is always the same— performance below expectation. However, the reasons and sources for underachievement are varied and complex. (p. xi)

Matthews and Mcbee (2007) referred to gifted underachievement as inconsistent differences between ability and performance. A student who was competent or highly adept and failed to perform in school was considered underachieving.

Underachievers are students who exhibit a severe discrepancy between expected achievement (as measured by standardized achievement test scores or cognitive or intellectual ability assessments) and actual achievement (as measured by class grades and teacher evaluations). To be classified as an underachiever, the discrepancy between expected and actual achievement must not be the direct result of a diagnosed learning disability and must persist over an extended period of time. Gifted underachievers are underachievers who exhibit superior scores on measures of expected achievement. (Reis & McCoach, 2000, p. 157)

McCoach and Siegle (2003) examined specific detectable differences between gifted achievers and gifted underachievers. The researchers compared goal valuation, attitudes toward school and teachers, motivation, academic self-perceptions, and self-regulation. The study investigated the question as to why gifted students with great performance ability failed to reach full potential.

Colangelo (2002) summarized possible reasons for underachievement. Colangelo assessed it as being complicated, resulting from any of the following: social isolation, family difficulties, learning disability, lack of rigorous curriculum, peer pressure, learning disability, poor goal, lack of goals, requesting attention, or intentional underachievement.

McCoach and Siegle (2003) stated,

> All individuals have the ability to learn and attain self-fulfillment; however, many
> children are at risk of failing to achieve their academic potential. Gifted students
> are one group of exceptional learners who are not normally considered at risk for
> academic failure or problems. However, the under achievement of academically
> gifted students is an area of concern and frustration for many parents, teachers,
> and counselors. (p. 144)

McCoach and Siegle (2003) cited research that suggested gifted underachievers
exhibited low self-concept, displayed poor attitudes concerning school, displayed
problems with authority (e.g., teacher and school staff), and demonstrated higher levels or
negative attitudes concerning school compared to the higher achievers demonstrated
(McCoach & Siegle, 2003). McCoach and Siegle (2003) stated,

> Gifted achievers and gifted underachievers differed on the attitudes toward
> school, attitudes toward teachers, motivation/self-regulation, and goal valuation
> factors. Goal valuation and motivation/self-regulation helped differentiate gifted
> achievers from gifted underachievers with greater than 81% accuracy, using
> logistic regression techniques. (p. 152)

Specific High Yielding AG Strategies Overview

AG students required specific teaching strategies employed by educators to ensure
students reached their full potential and influenced the development of their brains
(McAllister & Plourde, 2008). Gifted students demonstrated the ability to process greater
quantities of information in less time, think abstractly in complex fashion, grasp
information the first time, and possibly know half of the curriculum at the start of the
school year (Jolly & Makel, 2010). McAllister and Plourde (2008) exposed research

regarding lack of brain development in gifted students if the students were not stimulated and challenged. When "gifted children are given content or tasks that are too easy, which is very common in a mixed-ability classroom, they may not become engaged in the activity and consequently will not be learning" (McAllister & Plourde, 2008, p. 40).

Gifted and talented students experienced internal stress, psychological distress, depression, or boredom if they were not challenged to progress (Rayneri et al., 2006; Rogers, 2007). Rogers (2007) stated, "It is clear that significantly greater development occurs when a concerted effort has been made at both school and in the home to provide the talented child with increasingly complex knowledge and skills" (p. 383). Rogers stated that gifted students, if provided with a talented development program, could experience one-half (0.49) to 3 years of supplementary year's achievement growth. The variance of growth depended on the intensity or challenge within the talent development program (Rogers, 2007).

Gifted and talented students required strategies to promote brain development, new learning, and avoid stress or depression (McAllister & Plourde, 2008; Rayneri et al., 2006; Rogers, 2007). McAllister and Plourde (2008) revealed that inadequate instruction and curriculum in regular education classes deprived AG students of the basic requirements to flourish. Regarding elementary mathematics, McAllister and Plourde stated that over half of the routine curriculum could be abolished for AG students. They also believed AG students could finish a year's worth of mathematic curriculum in half the school year (McAllister & Plourde, 2008). It was necessary for educators to be knowledgeable in gifted and talented teaching strategies and training for AG students to demonstrate an advancement of these levels (Bangel et al., 2010).

Teachers were at a disadvantage because little time was allocated in preservice

educational training (Bangel et al., 2010). Manning (2006) stated, "Lacking awareness of the characteristics and instructional requirements of high ability students, teachers are at a disadvantage" (p. 65). In addition, Bangel et al. (2010) posited,

> Because of reductions in funding for gifted programming and the structure of inclusive classrooms, large numbers of gifted students are receiving most, if not all, of their academic instruction in the standard classroom with teachers who are not trained in gifted education. (p. 209)

Teacher Preparation /Professional Development

Disappointing statistics demonstrated that teachers were not educated or trained in gifted education (Bain, Bliss, Choate, & Sager Brown 2007). Bain et al. (2007) conducted a research study that surveyed future educators to agree or disagree that gifted children were likely to succeed, even if they did not receive gifted services. A staggering 76% of preservice teachers agreed that gifted students would succeed even without any special services (Bain et al., 2007). This statistic supported the notion that future educators know little about the needs of U.S. AG students. Continual research demonstrated that instructional strategies such as acceleration, homogeneous grouping, or enrichment offer academic benefits (Bain et al., 2007).

If professional development was delivered with fidelity by the individuals who designed the professional development, it showed as having a positive impact on student achievement (Wayne, Yoon, Zhu, Cronen, & Garet, 2008). Wayne et al. (2008) argued that teacher professional development improves student achievement. VanTassel-Baska (2006) exposed that less than 3% of universities provided educational programs designed to prepare personnel to teach gifted and talented students. In addition, Bangel et al. (2010) displayed a staggering statistic that over 60% of elementary teachers in the third

and fourth grade received no staff development in gifted education.

VanTassel-Baska (2006) conducted a program evaluation of seven gifted programs in 20 school districts and found concerns regarding the value of offered professional development. The evaluation discovered the amount of in-service was inadequate to assist with enhancing the instruction for AG students (VanTassel-Baska, 2006). It also demonstrated an overall trend for in-service opportunities to be decided based on teacher interest with little to no follow-up for facilitation or implementation in the classroom (VanTassel-Baska, 2006). The findings showed lack of statewide professional development for gifted teachers and a lack of cohesive training among those that were offered (VanTassel-Baska, 2006).

The researchers stated, "Little has been done to provide preservice and in-service teachers with the knowledge needed to provide an adequate education for their gifted students" (Bangel et al., 2010, p. 219). Teacher education programs must include coursework and experiences focused on the nature and needs of AG learners to meet these learners' needs in common classroom settings (Bangel et al., 2010). The researchers posited, "Indeed, federal law mandates it. The expectation that general educators can differentiate curriculum without specific training to meet the needs of GT learners is a pipe dream" (Berman et al., 2012, p. 24).

AG students required specific educational, emotional, and social needs in a classroom; and teachers who were not trained or educated about these needs were not prepared to challenge and support AG student learning (Bangel et al., 2010; Berman et al., 2012; Subotnik et al., 2011). Researchers posited, "Our work points out that teacher education programs must include coursework and experiences focusing on the nature and needs of GT learners if we expect to meet these learners' needs in common classroom

settings" (Berman et al., 2012, p. 24). Teachers who served AG students required appropriate training, education, and classroom experience to meet the needs of AG students (Berman et al., 2012). For example,

> Gifted child education currently lacks space and place in the general teacher education curriculum, even though federal law mandates teachers are competent and skilled in identifying and providing Instructional Strategies to service the needs of GT learners. For many teacher candidates, the GT children in their classrooms are viewed as nothing more than peer-tutoring candidates who are ahead of the game. They are not viewed as children being handicapped by an unchallenging educational environment or a lack of awareness by those charged with keeping students' best interests in mind—their teachers. (Berman et al., 2012, p. 24)

Park and Oliver (2009) argued that no other factor mattered more compared to the teacher in successfully educating the gifted student:

> Therefore, teachers of gifted students need to implement specially adapted pedagogical procedures for teaching a subject in order for their gifted students to reach their potential. To this end, in order to meet gifted students' special learning needs, the teachers need ongoing professional development related to their knowledge for teaching as well as ongoing reflection on their practice. (p. 334)

Bangel et al. (2010) developed a preservice program to increase the level of understanding gifted education for undergraduates in an elementary education setting. The study investigated two training strategies: One was a practicum hands-on approach, and the second was an intensive online course framing concepts of gifted education. The

combination of content and the ability to use the information in the practicum provided a direct relationship to meeting the needs of AG students:

> Practicum opportunities are necessary for the successful transfer of knowledge into practice. Findings from both the first phase and current phase of this study indicated this model of teacher training was successful in providing preservice teachers with a means of advancing their pedagogical and professional knowledge in both general as well as gifted education. (Bangel et al., 2010, p. 218)

Park and Oliver (2009) stressed three knowledge components necessary for educators to be successful in teaching gifted students. These included "(a) subject matter content knowledge, (b) pedagogical content knowledge, and (c) knowledge of gifted students" (Park & Oliver, 2009, p. 334).

The first crucial component that teachers needed in educating gifted students was vast knowledge of the subject matter. Knowledge would foster a deeper inquiry of questioning and engaging AG students (Park & Oliver, 2009). The second crucial component was pedagogical content knowledge (PCK), which referenced the ability to transfer subject/content knowledge into student understanding (Park & Oliver, 2009). Shulman constructed the idea of PCK in 1986 (as cited by Park & Oliver, 2009). PCK is "a distinctive body of knowledge for teaching in order to acknowledge the importance of the transformation of subject matter knowledge per se into subject matter knowledge for teaching" (Park & Oliver, 2009, p. 336). Researchers used PCK to stress the importance of understanding pedagogical teaching strategies combined with a teacher's understanding of content knowledge which created the optimum learning opportunity for students. Park and Oliver (2009) strongly suggested that AG teachers must possess PCK.

Knowledge of gifted students was the third essential component for educating

gifted students (Park & Oliver, 2009). Teachers need to understand the gifted learner's

needs, capabilities, difficulties, interests, and characteristics in order to be successful

(Park & Oliver, 2009). The researchers stated, "Fears of elitism cause many educators to

view gifted education as involving special privilege for the 'already advantaged' . . . .

The field of gifted education, assessing, predicting, and perhaps changing the attitudes of

general education teachers represents an important endeavor" (McCoach & Siegle, 2003,

p. 246). The mindset that all gifted and talented students fit one form must be challenged

with professional development for general education teachers as well as gifted teachers.

Swanson (2006) stated, "As gatekeepers for gifted programs, teacher development is one

key to finding those minority gifted learners. The project reveals potential ways to

challenge teachers' assumptions about minority and low-income students" (p. 24).

Comprehensive View of Each Strategy

Tomlinson (1999) stated that when AG instructional strategies were implemented

with fidelity in the classroom, it allowed teachers to increase interest, fluctuate ability

level, or adapt to learning styles of students. Specific research-based strategies that have

been effectively challenging AG students include differentiation, acceleration,

preassessment, goal planning, inquiry-based/higher order thinking, and grouping. Each

one of these strategies is researched and reviewed below.

Differentiation. Tomlinson and Allen (2000) defined differentiation as the

teacher's ability to match instruction to the needs of a specific student or group of

students. It is not a set of strategies to utilize in the classroom but instead is a mindset for

educators to acknowledge that these students are unique and have individual needs to be

met in order to reach maximum potential (Tomlinson & Allen, 2000). For example,

"Differentiated instruction stems from beliefs about difference among learners, how

students learn, difference in learning preferences, and individual interests. By its nature, differentiation implies that the purpose of schools should be to maximize the capabilities of all students" (Anderson, 2007, p. 50). Anderson (2007) stated that the key elements of differentiated instruction included choice, flexibility, ongoing assessment, and creativity within the lesson.

The differentiation elements were utilized by the teacher to differentiate the content, by the student to demonstrate knowledge or in the process of development of student knowledge (Anderson, 2007). An example of this is "teachers may choose to differentiate the content by using flexible grouping, affording students to work in alike groups using books on tape or the Internet as a means for developing understanding and knowledge of the topic or concept" (Anderson, 2007, p. 50). Moreover,

> Deferential differentiation of curriculum and instruction respects every student's
> need to engage in educational activities that recognize their learning preferences
> in their zones of proximal development. Such activities begin with an awareness
> of what students want so their preferences can be integrated into their learning. It
> does not mean teachers capitulate to students' desires. It means teachers
> acknowledge students' interests and preferred approaches to learning; they
> collaborate with students respectfully and creatively in the design and evaluation
> of instruction, retaining their professional imperative to ensure academic
> standards are met. Required outcomes can be achieved, however, deferentially,
> including the student more than in traditional, teacher-driven approaches to
> Differentiation. (Kanevsky, 2011, p. 280)

Kanevsky (2011) proposed to survey gifted student interests regarding learning preferences to limit options for differentiation within a class. Kanevsky exposed trends

from the differentiation survey of gifted students. The researcher compared survey results of students identified as gifted (SIG) to students not identified as gifted (SNIG) based on a variety of differentiation strategies teachers employed. The survey results from the Kanevsky research study demonstrated significant differences between SIG differentiation preferences and SNIG differentiation preferences. Of the 56 differentiation preferences in the survey, 14 differentiation preferences displayed a higher fondness with SIG compared to SNIG students, which is a 25% difference. The item SIG students preferred least was working under pressure in order to catch up from being absent. The item SIG students preferred the most was self-pacing:

> The SIG were higher on all but 2 of these 14 items, and the majority of the items focused on qualities of the content. More of the SIG preferred complex content and problems (+19.8%), pursuing their own interests (+11.7%) in "weird" topics (+18%), understanding the interconnections between ideas (+16.4%), collaborating with others, but not all of the time (+13.9%), authentic, expert knowledge (+12.8%), finding creative solutions to challenging problems (+11.5%), and determining the format of their product (+12.4%). These findings are not surprising given that the SIG were selected for participation in special programming partially based on their capacity for conceptual thinking, complex problem solving, and creativity. (Kanevsky, 2011, p. 286)

Kanevsky (2011) stated in the summary, SIG students "think in more complex ways and are faster learners than their peers . . . disliked waiting for others to catch up and wanted to learn with students who matched their pace" (p. 295). Compiled in the summary, Kanevsky exposed that SIG students preferred a component of ownership in how and what they learned. Assessing SIG student differentiation preferences informed

teachers how to serve their SIG students instructionally. Kanevsky (2011) stated, "In classrooms, the individual is the most appropriate unit of analysis for differentiating curriculum. The best practice is to assess and respond to each student's learning preferences rather than applying the outcomes of this study to nonparticipants" (p. 296).

Acceleration. Researchers stated,

Acceleration is an intervention that moves students through an educational program at rates faster, or at younger ages, than typical. It means matching the level, complexity, and pace of the curriculum to the readiness and motivation of the student. Examples of Acceleration included early entrance to school, grade skipping, moving ahead in one subject area, or Advanced Placement (AP). Acceleration is educationally effective, inexpensive, and helped level the playing field between students from rich schools and poor schools. (Colangelo et al., 2004, p. 5)

Steenbergen-Hu and Moon (2011) conducted a meta-analysis of 38 primary research studies surrounding acceleration that took place between 1984 and 2008:

The findings of this meta-analysis suggest that acceleration influences high-ability learners in positive ways, especially on academic achievement. An important message for educators, parents, and students is that high-ability learners can benefit from acceleration both in the short-term and in the long run. Specifically, accelerated students tend to outperform students who are not accelerated in their performance on standardized achievement tests, college grades, degrees obtained, status of universities or colleges attended, and career status. (p. 39)

Howley (2002) conducted a program evaluation on gifted acceleration in a rural county in West Virginia. Her research demonstrated strong achievement gains in

elementary gifted students when acceleration was applied with fidelity: "On average, their gain in reading on the Woodcock-Johnson was about 1.8 years. In math, it was about 1.9 years and in written language, 2.0 years" (Howley, 2002, p. 159). Howley exposed a variance between school implementation within the county, but all schools within the county had a similar focus. The focus encompassed four common features to ensure the use of successful acceleration strategy.

First, all students in the acceleration for AG students had an Individualized Education Plan (IEP) meeting with parents, teacher, and principal. Second, students were provided instructional material in basic skills that met their instructional level in each subject. Third, progress monitoring was conducted by the gifted teacher at each school. Fourth, gifted students took both a pretest and posttest in the Woodcock-Johnson Test of Achievement to document progress. Howley (2002) stated some disparity between programs is acceptable, but "most important is the requirement that each gifted student receive instruction in basic skill subjects at levels that closely approximated his or her instructional levels in these subjects" (Howley, 2002, p. 160).

VanTassel-Baska and Brown (2007) analyzed nine curriculum models that were designed to promote success for gifted students and argued six of the nine models had strong research supporting evidence. From the analysis of the curriculum models by VanTassel-Baska and Brown, the strategy of acceleration was revealed as the most effective: "The strongest body of research evidence supports the use of advanced curricula in core areas of learning at an accelerated rate for high ability learners" (p. 351). VanTassel-Baska and Brown suggested a best practice would be "to group gifted students instructionally by subject area for advanced curriculum work that would be flexibly organized and implement based on students' documented level of learning within the

subject area" (p. 351).

Rogers (2007) provided examples of acceleration options as early entrance to school, subject acceleration, university-based programs, distance online learning, international baccalaureate program, dual enrollment, and mentorships. All had positive effects which resulted in academic gains. Wai et al. (2010) also documented acceleration as having a positive effect on student learning. Wai et al. found acceleration was considered the revered instructional practice to employ when working with gifted students.

Preassessment. Preassessments are comprised of pretests, graphic organizers, journals, concept maps, or learning style inventories which provide the instructor formative information demonstrating student mastery or depth of knowledge (Rakow, 2012). Preassessment is essential in the instruction of AG students (Johnsen, 2013; Rakow, 2012; Rogers, 2007). Moreover, "The use of pre-assessment is the most important practice in differentiating the standards" (Johnsen, 2013, p. 7). Johnsen (2013) stated that the use of assessments was necessary to drive instruction of gifted and talented students: "Teachers must use pre-assessments to determine which students need accelerated pacing" (p. 7). Preassessment is a crucial component in unearthing where a gifted student's level of understanding is: "A student is pre-assessed to determine whether grade-level proficiency in specific academic areas has been achieved" (Colangelo et al., 2004, p. 185).

Colangelo et al. (2004) discussed why preassessing is important for gifted and talented students: "A student's instruction entails reduced amounts of introductory activities, drill, and practice, based on preassessment of the student's mastery of the intended curricular standards" (p. 185). Colangelo et al. proposed that preassessments

provided advanced students the ability to demonstrate mastery of specific concepts and

content for gifted and talented students to pursue alternate rigorous coursework. In

addition, "More traditional assessments should incorporate above-level content so that

gifted students are able to show what they already know and can do" (Johnsen, 2013, p.

7).

Rakow (2012) stressed the importance of preassessment of gifted or advanced

learners. The assessments should be administered 1 or 2 weeks prior to the delivery of

instruction. This timeline provides the teacher time to assess and determine the

instruction the AG student requires. For example, "The pre-assessment should start with

outcomes for a unit or topic–or even for the whole school year–including both state and

national standards" (Rakow, 2012, p. 35). Rakow argued the importance of

preassessment to gain insight for differentiating instruction for gifted and talented

students: "If there's no pre-assessment, there's no significant" (p. 37).

Goal setting/growth plan. A growth plan is based on goals a student creates that

are embedded in social, personal, educational, and possibly career development

combined with short- or long-term objectives (Feldhusen & Wood, 1997). It is a

systematic plan for a student's educational development designed with the assistance of

guidance counselors, the individual student, and the AG teacher. Development of growth

plans is necessary for gifted students to attempt to reach self-regulated learning.

Morisano and Shore (2010) explained that the theory of goal setting was

entrenched in cognitive psychology which was ingrained in the idea that conscious goals

produced accomplishment. Goal setting within the growth plans are key to assisting AG

students to reach their full potential (Morisano & Shore, 2010). McCoach and Siegel

(2003) compared underachieving and high-achieving gifted students related to goal

setting.

In their study, McCoach and Siegle (2003) found, "When students value academic goals, they become motivated to achieve scholastically. This motivation promotes the development of self-regulation skills to achieve their academic goals" (p. 151). Morisano and Shore (2010) investigated personal goal setting to determine whether it could be a useful intervention for AG students. The study assessed how it affected the brain, especially when the personal goals were written out with self-regulation. The researchers stated, "Personal goal-setting exercises have typically been reserved for university students or adults, research into the heightened cognitive and metacognitive capabilities of gifted children indicates that they might benefit from such focus at an earlier age" (Morisano & Shore, 2010, p. 250). In addition,

> The process of setting goals and organizing plans likely minimizes intrusive and avoidant thinking. Such invasive thoughts often characterize stress and can lead to impairments in cognitive functioning; in diminished memory, attention, and planning abilities. These types of impairments can, in turn, contribute to inefficient study habits, disorganization, and mediocre academic performance; that is, academic underachievement. When these intrusive thoughts decline, cognitive resources (such as working memory) are freed up. Furthermore, when more cognitive resources are available, one is likely to be more successful in endeavors requiring mental power; for example, challenging school assignments, creative projects, and the establishment of more demanding goals. (Morisano & Shore, 2010, p. 252)

The creation of academic goals motivated both underachieving and high-achieving gifted students; however, McCoach and Siegle (2003) recommended that when

working with underachieving gifted students, staff must gather insights to discover the motivations of those students. It helped when designing the student's specific academic goals: "A key to the problem of underachievement may involve individual learning style preferences" (Rayneri et al., 2006, p. 105). Rayneri et al. (2006) exposed the necessity to survey students with learning style indicators to aid educators with goal setting. It provides valuable insight into understanding specific learning needs of gifted students. Furthermore,

> Teachers and counselors who work with gifted underachievers should assess whether gifted underachievers value the goals of school and whether they are motivated to attain those goals. Students must either value the work they have been given or value the outcome (extrinsic rewards) of that work. If they value neither the task nor the outcome, they will not possess the motivation to put forth their best effort when completing the task. We believe that many students underachieve because they find no intrinsic or extrinsic benefits to school. Therefore, interventions for bright underachievers should include goal setting and future planning activities. In addition, interventions that make classes more enjoyable and intrinsically motivating for students may help to reverse academic underachievement. (McCoach & Siegle, 2003, p. 151)

Feldhusen and Wood (1997) stressed the importance of utilizing growth plans with gifted students. They stated that AG students required individual growth plans developed by the student and staff member, similar to special needs students who were supported with IEPs to be successful (Feldhusen & Wood, 1997). Feldhusen and Wood suggested that educators should plan for gifted students yearly, as this planning remained critical to individual student talent development. Providing students opportunities to

participate in goal development improved goal commitment. Feldhusen and Wood stressed to contain personal, social, educational, and career development components within the learning goals of gifted students. Surveys, personal interest questionnaires, and learning style indicators provide data for gifted students, parents, and staff members to construct learning goals:

> Gifted and talented youth should be encouraged and taught to formulate long term academic, career, personal, and social goals after self analysis of their own talents, interests, learning styles, and past achievements. The payoff is both immediate in providing focus to current educational activities and enhancing current school achievement, and long term in paving the way to career development successes and attainment of the personal satisfactions that one's abilities have been well used. (Feldhusen & Wood, 1997, p 48)

Goal setting/growth plans built with student input provided AG students with the necessary motivation to reach planned goals. McCoach and Siegle (2003) found a large discrepancy between gifted high-achievers and gifted underachievers in goal evaluation and self-regulation. Gifted students, especially the underachieving gifted students, required assistance to design and facilitate academic plans and goals. McCoach and Siegle posited, "Gifted achievers and gifted underachievers differed on the attitudes toward school, attitudes toward teachers, motivation/self-regulation, and goal valuation factors. Goal valuation and motivation/self-regulation helped differentiate gifted achievers from gifted underachievers with greater than 81% accuracy, using logistic regression techniques" (p. 152). Observing the results from McCoach and Siegle's study reinforced the idea of gifted underachievers requiring substantial assistance in valuing the academic goals.

Inquiry based/higher order thinking. VanTassel-Baska (2014) stated, "Inquiry-based strategies are the most effective modes of delivery in working with the gifted students. The characteristics of the gifted reveal a strong basis for understanding the power of question-asking as a part of differentiating curriculum" (p. 48). VanTassel-Baska (2014) argued higher-level inquiry was crucial in encouraging learning in the gifted population:

> Thus, question-asking is a critical component of promoting artful inquiry among gifted learners. It is a strategy that calls for teachers to organize questions in deliberate ways in order to elicit high-level thinking. Some questioning may be organized through models that are hierarchal in orientation, moving students from lower to higher level thinking. (p. 48)

VanTassel-Baska (2014) exposed four research-based higher order questioning strategies designed to promote inquiry and learning among gifted students. Guilford, blooms taxonomy, Paul model of reasoning, and student self-reflection questioning were the four question strategies that VanTassel-Baska (2014) recommended to promote inquiry and learning for gifted students. Each model VanTassel-Baska (2014) referred to is summarized below in Table 1.

Table 1

Summary of Higher Order Questioning Strategies

Guilford	Bloom's Taxonomy	Paul Model of Reasoning	Self-reflection
1. Cognition	1. Knowledge	1. The issue	1. What do we know
2. Convergence	2. Comprehension	2. Concepts	2. What do we need to know
3. Divergence	3. Application	3. Purpose	3. How might we find out
4. Evaluative	4. Analysis	4. Point of view	
	5. Synthesis	5. Assumptions	
	6. Evaluation	6. Data and evidence	
	7. Creation	7. Inference	

The use of deliberate questions is a critical strategy for getting gifted students to

learn about their world in more complex and in-depth ways. It provides multiple pathways for challenging the gifted through their content learning. It enhances their thinking by deliberately focusing attention on issues and problems that require solution in the real world. Questions can be improved by using a model for construction, as models provide the scaffold for specific types of thinking; however, higher level questions that probe ideas or issues not fully known also provide an important entry into meaningful thinking for the gifted (VanTassel-Baska, 2014, p. 50).

Grouping: Homogenous, heterogeneous, and clustering. Grouping is a student placement strategy within a classroom (Rogers, 2007). Homogenous grouping places students with similar characteristics together. Heterogeneous grouping places students with a variety of characteristics together. Cluster grouping places a small group of students with similar characteristics together in a class of heterogeneous students (Fiedler et al., 2002).

Fiedler et al. (2002) stated, "Equality in education does not require that all students have exactly the same experiences. Rather, education in a democracy promises that everyone will have an equal opportunity to actualize their potential, to learn as much as they can" (p. 111). Fiedler et al. refuted the misconceptions surrounding homogenous mixtures of students, citing major concerns that homogenous grouping promoted tracking and elitism. Homogeneous grouping does not have to demonstrate the components of tracking, where students are assigned a track allowing little to no movement from year to year, which can promote the negative alienation of students (Fiedler et al., 2002). Homogeneous grouping or "ability grouping does not imply permanently locking student out of settings that are appropriately challenging for them; it means placing them with others whose learning needs are similar to theirs for whatever length of time works best"

(Fiedler et al., 2002, p. 109). Fluid grouping of different students, differentiation, small grouping, and cluster grouping within the classroom counteract the tracking characteristics (Fiedler et al., 2002). For example,

> Gifted and talented programs constantly battle the elitist persona or giving preference to specific students and once again, a homogeneous grouping must refute this argument. Being able to function at an advanced level intellectually does not, automatically, make an individual better than anyone else. It merely implies a difference that requires an educational response that may be erroneously interpreted by some as giving one group an unfair advantage. Gifted students may be better at many academic tasks, but this does not imply that they should be seen as being better than anyone else. (Fiedler et al., 2002, p. 109)

Maintaining a heterogeneous grouping had negative effects among AG students (Fiedler et al., 2002; Shields 2002). Fiedler et al. (2002) stated, "Education in a free society should not boil down to choice between equity and excellence. . . . As research clearly indicates, gifted students benefit from working together. Therefore, it is imperative that ability grouping for gifted be continued" (p. 111).

Shields (2002) argued that research demonstrated that a homogenous grouping of gifted and talented students might serve the needs of gifted and talented students better and can have a positive effect on academic achievement. Fiedler et al. (2002) concluded that gifted and talented students demonstrated increased academic achievement, along with better academic attitudes when grouped with similarly gifted students. Shields conducted research to provide insight into student perceptions of homogenous and heterogeneous grouping of students. Shields found, "Students in the Homogeneous classes perceived that their teachers held higher expectations of them than did students

who were heterogeneously grouped" (p. 115). The study provided positive student insight with homogeneous grouping. Students perceived teachers of homogeneous grouping classes in fifth and eighth grade held higher academic accountability of students. They also experienced higher reinforcement with teacher feedback, combined with increased academic learning time (Shields, 2002).

Shields (2002) stated, "The existing research clearly shows that some form of homogeneous grouping benefits the most able and gifted students in terms of their academic achievement, as well as their attitudes concerning themselves as learners, and regarding their school experiences" (p. 119). Bain et al. (2007) corroborated the benefit of homogeneous grouping to promote academic benefits. Shields demonstrated in the research study that students not identified as gifted and talented students suffered no social or emotional concerns when gifted and talented students were separated homogeneously.

Rogers (2007) posited, "The research on the ability grouping and performance grouping of gifted learners is extensive and substantially positive" (p. 388). Rogers categorized gifted and talented student grouping strategies as full-time grouping, ability grouping, performance grouping, within-class grouping, cluster grouping, and pull-out grouping. Researchers stated, "Many gifted students do not have their learning needs met in the typical classroom and rarely experience academic challenge" (Eddles-Hirsch, Vialle, Rogers, & McCormick, 2010, p. 108).

> The evidence is clear that powerful academic effects and small to moderate affective effects are produced when gifted children are grouped with like-ability or like-performing peers and exposed to differentiated learning tasks and expectations. It is also clear that grouping has positive effects whether full-time,

or part-time, although logically the more time this occurs for Gifted children, the more positive the effects on them, socially and emotionally. (Rogers, 2007, p. 389)

Summary

This literature review provided a concise overview of concerns surrounding AG students not reaching their full potential nationally and internationally. The literature review research examined the historical past, concerns for the future, and research-based instructional strategies to assist teachers who instruct AG students. Initially delivered was the foundation of the literature review by researching the historical perspective of AG instruction over time. The historical perspective regarding AG instruction offered insight into challenges the AG community has faced in the past. The next research presented was a comprehensive understanding of the AG student. Within the comprehensive understanding, it was critical to provide research surrounding misconceptions of AG students and their time-honored and genuine characteristics. Finally, research surrounding the six instructional strategies that demonstrated success when utilized consistently with AG students was presented.

This study intended to gain insight into teacher perceptions of the six instructional strategies tailored to challenge learning in AG students. The research study objective was to understand teacher perceptions of the six strategies, awareness of these, and confidence to use or modify these. VanTassel-Baska (2006) stressed that gifted education was a right, not a privilege, which school districts were required to provide. Gifted students have unique characteristics that require specific instructional strategies tailored to their meet their needs while challenging their intellectual level (Cross, 1997; Rogers, 2007).

Chapter 3: Methodology

Introduction

AG students in the U.S. are struggling to grow and are falling short of their potential (Loveless et al., 2008; Renzulli, 2005; Hoover-Schultz, 2005). This study investigated and surveyed teachers who instructed gifted students to determine if their perceptions of gifted education influenced research-based instructional strategies implemented in the classroom. The information gathered and analyzed from teacher perceptions and strategies implemented for gifted students provided insight and understanding to support and better serve the needs of gifted teachers. This chapter outlines the process, procedures, and tools used to collect and analyze data gathered from teachers who serve AG students in the middle school setting. This was a mixed-method research study that attempted to gain insight into teacher perceptions of gifted instruction and strategies in the middle school setting.

Instrument

The instrument utilized was a two-part survey, located in Appendix A. The first part inquired about specific demographics from the participants. It gathered information on gender, age, ethnicity, and teaching experience. Other questions within the survey provided the researcher specific information about participant experiences with teaching gifted and talented students. The additional information gathered and data collected provided deeper understanding with an intent to discover trends in teacher preconceived notions.

The second part of the survey was a combination of two surveys with five sections. Sections 1-4 were comprised from SOP (Tomlinson et al., 1995). Section 5 was selected from the Teacher Demographics, Instructional Strategies, and Learning

Skills Survey (Noble, 2010). The researcher requested permission by email to Dr. Tomlinson located in Appendix B. The permission was granted by Dr. Tomlinson to use the SOP survey February 24, 2016, found in Appendix C. Dr. Tomlinson corresponded with written permission through email to the researcher. Dr. Tomlinson stated in the email: "You have permission to use the 1995 Survey of Practices with Students of Varying Needs in your dissertation work as you have described it in your email."

Section 5 of the survey used questions selected from the Teacher Demographics, Instructional Strategies, and Learning Skills Survey (Noble, 2010). Permission was based on an educational copyright that used 10% or less of the original document for nonprofit or educational use. Noble's (2010) survey contained over 75 questions, of which this study only utilized four questions, which was well below the 10% criteria.

"*The Survey of Practices With Students of Varying Needs* (SOP) was developed by the NRC/GT staff at the University of Virginia to assess attitudes and beliefs about academically diverse learners and differentiated instruction appropriate for meeting their needs" (Tomlinson et al., 1995, p. 20). Megay-Nespoli (2001) stated the SOP had face value, content validity, and a Cronbach's alpha reliability validity estimate of 0.76 ($p <$ .01) for the 35-item survey. The researcher selected questions from the SOP that related to AG students or AG instruction from the SOP and excluded unrelated questions similar to the research conducted by Bangel (2007), Caldwell (2012), and Pierce and Adams (2003). In all three of these research studies, the SOP survey was reduced in size and only questions that related to AG instruction or teacher perceptions were used. The combined Cronbach's Alpha for Parts I, III, and V was 0.850 for the survey used in this research study. The individual parts of the survey were as follows: Part I had a 0.776 score; Part III had a 0.922 score; and Part V had a 0.494 score.

The SOP contained five sections of diverse questions to gain insight and input from teachers. Part I of the SOP assessed attitudes toward (a) gifted learners, (b) learners who struggle, and (c) adjusting (differentiation) instructional strategies to accommodate the needs of gifted learners (Tomlinson et al., 1995). Part II of the SOP required teachers to rank the type of student with whom they spent the greatest amount of time with special education, average, or gifted students (Tomlinson et al., 1995). Part III asked respondents to rate personal confidence in their ability to adapt instruction to meet the needs of gifted diverse learners. Teachers used a five-point Likert-type scale rating from *no confidence* to *very confident* to self-assess confidence in their ability to adapt instruction for gifted students (Tomlinson et al., 1995). Part IV of the SOP surveyed respondents to indicate which instructional strategies they would employ with three different levels of students: gifted, average, and special education students (Tomlinson et al., 1995).

Part V was developed by Noble (2010) during the creation, defense, and completion of his dissertation at the University of Southern California from a theoretical perspective. This researcher only used four questions from the frequency of instructional strategies/skills section of Noble's survey. The four questions in Section 5 required teachers of AG students to rate the frequency of utilizing specific instructional strategies/skills used in a lesson on a five-point Likert scale. *Hardly ever used, use once in a while, often use, regularly use,* and *use nearly every lesson* were the choices attributed to a five-point Likert scale (Noble, 2010).

For this research study, only 14 of 35 questions in Part I of the original SOP survey related specifically to AG students and instruction. The researcher only used these 14 questions in Part I of the original SOP survey because these related to AG

instruction. Three other studies used similar strategy isolated questions from the SOP that were only related to AG instruction and education. The researcher selected questions from the SOP that related to AG students or AG instruction from the SOP and excluded unrelated questions similar to the research conducted by Bangel (2007), Caldwell (2012), and Pierce and Adams (2003). In all three of these research studies, the SOP survey was reduced in size and only questions that related to AG instruction or teacher perception were used. For this study, Part I of the revised SOP employed 14 questions. Seven of the questions focused around AG education, and seven focused on differentiation. Questions 1, 4, 6, 10, 11, 12, and 13 related to AG education. Questions 2, 3, 5, 7, 8, 9, and 14 focused on differentiation.

Some questions from Part I were negatively worded and reverse scored to ensure results could be calculated to demonstrate the real positive or negative perception of the respondent. The reversed scored questions were Questions 1, 4, 6, 8, 9, 10, 11, 13, and 14. Each reverse scored question had an "R" beside the question to assist in reference. A 5-item Likert-type scale provided participants a choice ranging from *strongly agree* to *strongly disagree*. A strongly disagree response from a negative statement carried the identical score, as would strongly agree to a positive statement. Participants who responded with *do not know* were recorded as a zero, providing neither a positive nor negative result.

Part I of the SOP had two functions. The first function observed overall trends and patterns from all 14 questions directed to teachers who instructed AG students. The second function had a two-part subscale within the survey. The second function divides the 14 questions into two seven-question subsets to demonstrate teacher input on perception of AG instruction and differentiation. For the second function of the SOP, a

scale was used to demonstrate a positive or negative teacher perspective for AG instruction or differentiation. The range was 0 to 28 overall for both categories. The ranges were as follows: 22 to 28 very positive, 15 to 21 positive, 8 to 14 negative, and 0 to 7 very negative.

Context

This research study focused on the middle school level with gifted and talented math or language arts teachers in the fourth largest urban setting in North Carolina. Teachers who participated in the study completed surveys providing information about teacher demographics, teaching strategies, and perceptions of AG strategies used with students. All teachers who instructed AG students at the middle school level in the district had the opportunity to participate in this study.

This study was conducted in 17 middle schools in an urban district in North Carolina. The district employs 4,000 classroom teachers. The district's budget totals $502 million. The district's total K-12 demographics for the 2015 to 2016 school year were as follows: 40% White, 28% African-American, 24% Hispanic, 4% multiracial, and 2% Asian. Below is a breakdown of the information from each school in Table 2.

Table 2

Middle School District Demographic Summary

	Middle School	% Fully Licensed Teachers	Advanced Degrees	National Board Certified	% Teacher Turnover	Total Enrollment	Total AG students
1	District	94	453	72	11	12465	2116
2	School A	93	32	2	11	920	138
3	School B	98	37	7	6	710	42.6
4	School C	94	29	2	9	856	42.8
5	School D	97	34	5	12	882	449.82
6	School E	99	34	9	4	1264	366.56
7	School F	93	28	2	10	754	135.72
8	School G	99	33	9	14	1171	292.75
9	School H	82	17	5	11	410	20.5
10	School I	95	37	4	8	963	57.78
11	School J	86	43	6	14	776	162.96
12	School K	78	27	2	13	497	24.85
13	School L	96	33	7	10	1199	131.89
14	School M	96	29	6	7	708	49.56
15	School N	92	40	6	24	578	92.48

The district provides students and parents with a school of choice. Parents have the ability to choose from neighborhood schools, a school in a local zone, or from a magnet school. Most zones have three to four choices of schools for parents and students.

Seventeen middle schools in the district served 1,951 AG students over those three grade levels for the 2013-2014 school year. In 2014-2015, the district served 2,116 AG students. Of the 17 total, 14 schools use the traditional middle school model of Grades 6-8. The other three were a combination of grades. Two of the schools used a Grades 6-12 model and one used a K-8 grade model. The district served 603 AG sixth graders, 657 AG seventh graders, and 690 AG eighth graders for the 2015-2016 school year. The research study analyzed responses from the teachers who participated in the survey or interview.

Participants

There were 17 middle schools within the school district, and 14 were dedicated middle schools. Of the 14 traditional middle schools, 10 agreed to participate in the research study. Any certified educator teaching AG students in sixth, seventh, or eighth grade and employed full time by the district had the opportunity to participate in the research study. The researcher worked with the district's Department of Research to get the research project approved. After district and Institutional Review Board (IRB; see Appendices D and E) approval, the researcher invited the school staff and principal to participate. The research project had two components: One was an electronic survey with the goal to have 60% participation; the second project was an interview process with 10% of the teachers who participated in the survey.

The survey was administered on October 20, 2016 to all participants of the 10 middle schools. In the first round of surveying, the participating school principals consented to the project (Appendices F), and the researcher provided a physical (hard) copy of information about the project, an electronic survey, and purpose of the study. The researcher emailed the information to all district teachers who worked with AG students using the district email (with the Department of Research's approval; see Appendices G and H). The electronic survey stayed active for 21 days. If the survey results were not returned within the allotted period, a second email prompt was sent out. This first procedure provided the researcher the quantitative information required to conduct the research project.

After the survey results were finalized on November 10, 2016, interviews were completed. The second component of the research project, an interview, provided the researcher the qualitative information needed to conduct the research project. The

process included an interview with 10% of the total amount of teachers who participated in the study. The teachers were chosen randomly by asking one additional question on the survey. The question asked them if they would participate in an interview to help the researcher understand the data generated by the survey. The individuals provided their email address, and it populated a list of teachers the researcher interviewed. If the number of teachers went over the 10%, the researcher would draw their names from a hat to randomize those to interview. The names of teachers interviewed were kept in a separate scoring book not to be published. A number system was used to maintain the confidentiality of the teachers without sharing their identities.

The interview process was comprised of questions to gain insight into teacher perceptions of specific teaching strategies. During the interview, the researcher provided an opportunity for each individual to be recorded with a digital recorder; later, it was transcribed. Each participant signed a consent form. An example of the form is located in Appendix I. Teacher feedback from the interviews provided insight into trends or follow-up questions from the survey. The researcher designed five questions for the teachers being interviewed. All of the teachers interviewed responded to the exact same questions and had a similar amount of time to complete the interview. The questions are listed below.

Interview Questions

1. Share with me an appraisal of the current AG program at this school setting and the involvement, resources, and support from the district level.

2. How familiar are you with these six strategies (show list of strategies hand out: acceleration, differentiation, goal setting, grouping, preassessment, and inquiry based/higher order thinking)? Please elaborate on how you learned

about them and learned how to effectively implement them?

3. What are some areas to improve upon and require support or professional development?

4. What are some obstacles that prevent you from supporting AG students from reaching their full potential in the classroom?

5. Is there anything more you would like to share with me or add to the discussion surrounding the AG program?

Research Design

This project was a mixed-method research study using quantitative and qualitative data gathering (Creswell & Plano-Clark, 2007; Johnson & Christensen, 2012). The explanatory sequential design was implemented for this mixed-methods research to develop a more comprehensive perspective of the research problem (Creswell, 2012). A survey was emailed to all teachers at the middle school level who taught AG students. The survey was composed of teacher demographic information, teacher attitudes toward gifted instruction, and teacher perceptions of specific AG instructional strategies. Appendix A demonstrated a framework for the survey. All middle school teachers within the district who taught AG students were provided the opportunity to take the survey.

The study is a mixed-methods research investigation utilizing qualitative and quantitative data to observe if teacher perceptions of gifted education influence instructional strategies used in the classroom. Researchers stated, "Mixed research involves the mixing of quantitative and qualitative research methods, approaches, or the paradigm characteristics'" (Johnson & Christensen, 2012, p. 33). The ability to use components of both qualitative and quantitative study helped to eliminate flaws found in both styles of research, while providing a more complete investigation (Creswell &

Plano-Clark, 2007; Johnson & Christensen, 2012). In addition, researchers stated, "Mixed methods research provides more comprehensive evidence for studying a research problem than either quantitative or qualitative research alone" (Creswell & Plano-Clark, 2007, p. 9). A blending of the two styles of research gathering provided a more comprehensive study (Creswell, 2012).

This was a mixed-method dissertation using quantitative and qualitative data gathering processes (Creswell & Plano-Clark, 2007; Johnson & Christensen, 2012). The explanatory sequential design was implemented for this mixed-methods research (Creswell, 2012). Creswell (2012) stated, "The explanatory sequential design consists of first collecting quantitative data and then collecting qualitative data to help explain or elaborate on the quantitative results" (p. 542). The premise of this mixed-methods design was to first frame the research problem with quantitative data gathering and analysis. Then, further qualitative data gathering and analysis are required to explain the research (Creswell, 2012). With the benefit of explanatory sequential design, the researcher did not need to converge the quantitative and qualitative data. Both styles remain independent and segregated in the results but support each other with analysis (Creswell, 2012).

The qualitative stage of the mixed-methods research was in the form of opportunistic sampling. Creswell (2012) stated, "Opportunistic sampling is purposeful sampling undertaken after the research begins, to take advantage of unfolding events that will help answer research questions. In this process, the sample emerges during the inquiry" (p. 209). Creswell stated that opportunistic sampling seized emerging patterns and trends. The type of qualitative data conducted was an interview. A thematic content analysis was used to interpret, analyze, and identify themes from the qualitative interview

data gathered (Creswell, 2012).

Procedures

The researcher got approval to conduct research in the school district on July 6, 2016. The researcher developed an email letter to request use of the SOP survey in February. Approval to use the SOP survey was granted by Dr. Tomlinson on February 2, 2016.

The researcher received permission to conduct research by the IRB committee on October 4, 2016. The researcher communicated with middle school principals in the district to gain permission to conduct the study at their school. The researcher conducted a face-to-face presentation to middle school principals, explaining the research study to gain their consent. Ten of the 14 middle school principals provided written consent postpresentation. A formal letter introducing the study and explaining was provided to the principals as well. If response rates were too low from principals, the researcher sent a follow-up email. If response rates remained too low, the researcher contacted the principal or visited schools to explain the study and attempted to increase response rates from the principals.

After the principal granted permission, the researcher contacted the AG coordinator at each middle school and carbon copied the principals on the email. The AG coordinators provided the researcher the names of teachers who instruct AG students at each middle school in the sixth through eighth grades. The researcher also contacted the district AG department and the instructional superintendent to verify the names of the AG teachers. The researcher sent an email directly to all teachers who instructed AG students at the participating middle schools directly. If response rates were too low from teachers, the researcher sent a second email. If response rates remained too low after the second

email, the researcher contacted the AG coordinator and principal individually to explain the study and attempt to increase response rates from the teachers.

The participating teachers from participating schools had the SOP in an electronic survey emailed to them on October 20, 2016. The information was gathered using Survey Monkey which provided a digital link for participants to complete the online survey anonymously. If response rates from participating schools and teachers remained low, a second email was sent; and if it continued as low after the second email, a paper copy was sent to teachers.

All schools were provided with the same link for the survey. The survey remained anonymous. There was no personal information kept. Survey Monkey generated a participant number for the researcher to refer to for the data analysis process. For any personal information received from participants such as emails or communication, the researcher maintained a separate confidential file which was not shared. In addition, paper copies of the survey were available to participating teachers who requested them. The paper copies of the SOP survey were sent via the district interoffice mail to the specific teacher with the instructions, requirements, and timeline for return.

After the survey results were completed, on November 10, 2016, interviews of teachers were conducted. The second component of the research project provided the researcher the qualitative information needed to conduct the research project. The process included an interview with at least 10% of teachers who participated in the survey study. The teachers were chosen randomly by asking them if they would like to participate in a follow-up interview at the end of the quantitative survey. Participant identities were confidential and no personal information was shared. The researcher kept

confidential records separate from the research paper and only refers to the interview participants as Participants 1-5. The interview process was followed specifically as stated.

Creswell (2012) stated qualitative interviews were conducted with open-ended questions in a fashion that allowed participants to voice opinions, attitudes, and perceptions in an unconstrained setting. This researcher used open-ended questions with participants to gain insight and perspective of the analyzed data from the quantitative results. One-on-one interviews were conducted and used for the qualitative portion of the research. The researcher used open-ended questions in a one-on-one style interview and then recorded data from each individual participant (Creswell, 2012).

The researcher used opportunistic sampling combined with one-on-one interviews to collect data and gather insight from participants. This qualitative research provided an opportunity for the researcher to have participants investigate and analyze patterns and trends from the quantitative data previously gathered. Gathering perceptions, observations, and analysis in a qualitative fashion combined with the quantitative data created a more comprehensive and complete investigation (Creswell & Plano-Clark, 2007; Johnson & Christensen, 2012). A thematic data analysis was employed to discover major themes developed from analyzing the qualitative data from the interviews (Creswell, 2012).

Data Analysis

The researcher used the Statistical Package for the Social Sciences (SPSS) for all quantitative data analysis. To keep all data confidential, the researcher maintained a password-protected codebook that was used only for the study and destroyed upon completion of the study. All original data documents and sources were also destroyed.

The survey consisted of demographic sections and four sections in the SOP survey. The process gathered demographic information questions that gained critical information not in the SOP survey. Descriptive statistics were also used among the four sections of the SOP to determine if relationships existed between the four sections of the survey. The factors used in the study included teacher confidence, implementation of AG instructional strategy, and perception of AG instruction and students. Descriptive statistics combined with cross tabulations were used in this study to analyze and define relationships.

The researcher conducted interviews to gather qualitative data after the quantitative survey data were collected and analyzed. The researcher created questions based on the quantitative data analysis to gain insight from AG teachers of patterns discovered. All interactions with the teachers of AG students who participated in an interview were recorded; handwritten notes were collected as well. The information gathered was compared to the quantitative data collected to better understand the results. A thematic data analysis observed major themes from the interview data and distilled it down to essential themes with adequate evidence (Creswell, 2012).

Limitations

The limitations of this study were the number of teachers who participated in the survey and the low percentage of people who participated in the interview. In addition, the schools that did not participate were a limitation.

Delimitations

Delimitations to this study involved utilizing one school district. An additional delimitation was solely focusing on middle schools. Recommendation to incorporate more districts and other grade levels in future research would be beneficial.

Summary

The purpose of this mixed-methods study was to gain insight from teachers who instruct AG students in the middle school setting and to determine if their perceptions of the instructional needs of the AG students influence utilization (or nonutilization) of successful research-based instructional strategies. The focus of the study was based on sixth through eighth grade middle school teachers who instruct AG students. This chapter described the mixed-method research procedures that were used in the study. The next chapter displays the analysis and results from the extensive data collected.

Chapter 4: Results

Introduction

This study investigated teacher perceptions of specific instructional strategies tailored to challenge AG students at the middle school setting. AG students are not making growth or reaching their full potential as compared to their international counterparts (McKinsey & Co., 2009; Olszewski-Kubilius & Clarenbach, 2012). Teacher insight and perception of specific strategies are critical in attempting to comprehend and address the problem of AG students struggling in the educational setting. Subotnik et al. (2011) documented that AG students did not receive adequate educational support to thrive.

The following represented the research questions used for this study.

1. How do AG teacher perceptions of AG education influence instructional implementation and instructional practice?

2. How can AG teacher demographic information be utilized to help predict which AG teachers require intense AG support or training?

Chapter 4 presents and analyzes relevant quantitative data collected from the five parts of the survey combined with analyzed qualitative data from five AG Teacher interviews. Parts I through IV originated from the SOP (Tomlinson et al., 1995). Part V was selected from the Teacher Demographics, Instructional Strategies, and Learning Skills Survey (Noble, 2010). The study was designed to determine if teacher perceptions influence implementation of specific research-based instructional strategies tailored for AG students.

All five parts of the survey results are displayed by means of descriptive statistics. Several sections of the survey utilized additional statistics to demonstrate validity. Part I

of the survey had two separate functions within it. The first function of Part I presented

overall trends and patterns from that part of the survey. The second function of Part I

displayed positive or negative attitudes (perception) of AG teachers from a subscale test

with seven questions each. The first subscale set of seven questions focused on AG

instruction attitudes and perceptions (heretofore referred to as AG perception). The focus

of the second subscale set of seven questions was differentiation perception.

Part II of the survey provided data to analyze AG teacher responses to the amount

of instructional time spent with special education students, average students, and AG

students. Part III of the survey required AG teachers to rate their confidence levels

regarding AG instruction and differentiation. Part IV surveyed AG teachers to determine

if they used the four research-based instructional strategies with special education or AG

students. Part V surveyed AG teachers as to the frequency of specific research-based

instructional strategies utilized in educating AG students.

The validity of the survey was demonstrated by using the Cronbach's Alpha for

Parts I, III, and V individually and then combined. Parts I, III, and V utilized a Likert

scale with ordinal measure. Part I had questions ranging from 1 to 14 with a 0.776 score.

Part III had five questions beginning with items 18 through 22 with a 0.922 score. Part V

had four questions beginning with items 27 through 30 with a 0.494 score. There were

23 combined questions in Parts I, III, and V. The combined Cronbach's Alpha for all

three parts of the survey was 0.850, signifying a relatively high internal consistency (.70

or higher considered acceptable).

The interviews were conducted and recorded utilizing five of the 46 (10.8%) AG

teachers who participated in the survey. This minimal number of participants is

discussed later as a limitation. AG teachers responded to five questions asked by the

researcher.

Demographic Findings

From the 14 traditional middle schools in the district, 10 agreed to participate. One hundred thirty middle school teachers instructed AG students at those schools. Of the 130 middle school AG teachers requested to participate in this study, only 55 actually participated. This number equates to a 42% participation rate. Of the 55 participants, only 46 individuals completed the entire survey. Nine participants completed the first 10 questions of demographics; however, they failed to complete the survey questions. The nine AG teachers who only completed the demographics section of the survey were excluded from the findings. By excluding the nine participants, the participation rate dropped to 35% (46/130).

Demographic data are summarized below. Gender was the first demographic question to be surveyed. Results demonstrated the majority of the individuals who took the survey were female at 84.8% (39/46). The next demographic data question AG teachers responded to was age. The data reflected a good representation of age distribution across all AG teachers in the study. Ages ranged from 24 to 60 years of age.

There were two types of ethnic groups represented in the survey, Caucasian (White) and African American (Black). White ethnicity was the most represented with 45 of 46 (97.8%). The next demographic surveyed was years of experience teaching AG students. Table 3 displays participant years of experience teaching AG in frequency and percent.

Table 3

Years of Experience in Teaching AG students Frequency and Percent

	Frequency	Percent
1-5 years	21	45.7
6-10 years	5	10.9
11-15 years	9	19.6
16-20 years	3	6.5
21-25 years	5	10.9
26-30 years	3	6.5

Table 3 presented six experience ranges. The teachers with the least experience in teaching AG students at 1 to 5 years of experience represented the greatest number of respondents at 21 of 46 (45.7%). The data showed the most experienced AG teachers were the least represented; conversely, the least experienced AG teachers were the most represented.

AG teachers next provided demographic data on their AG certification status. Of the teachers surveyed, 18 of 46 (39.1%) did not currently hold an AG certification. Almost two thirds of the teachers surveyed stated they did hold current AG certification with 28 of 46 (60.9%). The district supports teachers by funding an intensive AG certification process through Duke and High Point Universities. This allows teachers to instruct AG students while they work to meet requirements for AG certification. These programs provided support for the high levels of non-AG certified teachers instructing AG students. Participant 1 provided insight into the district certification process: "It was a year, but the school paid for it and I signed a contract saying that I would teach whatever they needed me to for 2 years." From the five AG teachers interviewed, four (80%) received AG certification through the district AG certification program.

Participant 4 provided insight into the high percentage of noncertified AG teachers: "I don't understand why we don't have more gifted teachers, certified teachers.

I think part of it is because there is not extra money there for it. You are putting out and you know you're not getting a whole lot in return." The researcher asked a follow-up question from Participant 4 to ascertain as to why there was such a high percent of noncertified AG teachers. The response was,

> I mean for some people it's just simply extra work and I'm not getting any money for it. I thought it would be really cool to have just because it would give me opportunity that I might not have without that certification.

Participant 4 stated the methodology and training to be certified was beneficial for all students and could be applied to all classrooms.

Next were the results from AG teachers regarding the type of classroom in which they instructed AG students. The data demonstrated four options for AG classrooms in the district: *dedicated homogeneous, dedicated heterogeneous, homogeneous pull out,* and *heterogeneous push in*. The majority of AG teachers surveyed, 43 of 46 (93.5%), instructed in a dedicated class. Dedicated homogeneous classrooms represented 20 of 46 (43.5%) AG teacher classrooms. Dedicated heterogeneous classrooms reflected a higher rate at 23 of 46 AG teacher classrooms or 50%. Four of the five (80%) AG teachers interviewed preferred a homogeneous AG classroom. Participant 2 discussed the challenges of heterogeneous grouping:

> That's a trick in itself. And I'm lucky because I have them in groups. I can't imagine a Science or Social Studies teacher who has AG, ESL, and EC all in same class . . . I know there's a lot of pros and cons that are Heterogeneous Grouping, but that takes a very talented teacher to be able to pull that off.

> Only 1 of 5 (20%) AG teachers interviewed discussed using specific grouping in

class as a strategy. Participant 5 stated the majority of AG students were grouped

homogenously in ELA-language arts and somewhat in math (most AG students are in an

accelerated math). Participant 5 supported a homogeneous mixture of students and

requested the district revisit AG services for students in other disciplines such as science

and social studies. Research cited supports difficulty faced by AG teachers who must

differentiate instruction in heterogeneous mixtures of students (Megay-Nespoli, 2001;

Tomlinson et al., 1995). Table 4 presents data on AG preparation received in

undergraduate study.

Table 4

Undergraduate Preparation Level in AG Education

	Frequency	Percent
None	14	30.4
Less Than Adequate	14	30.4
Adequate	14	30.4
Intensive	4	8.7

The results in Table 4 demonstrated 28 of 46 (60.8%) were less than adequate or

ill prepared. Only 18 of 46 (39.1%) AG teachers surveyed experienced adequate or

intense training. Research cited also supported the lack of AG preparation in

undergraduate programs (Bangel, 2007; Bangel et al., 2010). AG teachers were also

surveyed as to the level of AG training/preparation in graduate studies. The data are

displayed in Table 5.

Table 5

Graduate Preparation Level in AG Education

	Frequency	Percent
None	10	21.7
Less Than Adequate	4	8.7
Adequate	14	30.4
Intensive	18	39.1

Table 5 reflected a high frequency of AG teachers experienced more preparation

at the graduate level, where 32 of 46 (69.5%) had received intense or adequate training.

Research cited supported the data finding (Bangel, 2007; Bangel et al., 2010). A

moderate level 10 of 46 (21.7%) AG teachers experienced no AG preparation at the

graduate level. Table 6 demonstrates the demographic results from AG teachers as to

their educational background in gifted and talented education.

Table 6

Educational Background in AG

	Frequency	Percent
Professional Development–Self-Selected	8	17.4
Professional Development–District Training	17	37.0
Certification Post Bachelor/Masters	18	39.1
Minor AG	1	2.2
Masters AG	2	4.3

Table 6 indicated all but eight of 46 (17.4%) experienced some formal training.

Four of five (80%) AG teachers interviewed discussed receiving AG certification training

by the district from either High Point or Duke Universities. Finally, the last demographic

variable surveyed from AG teachers was their level of confidence in educating AG

students. The data indicated that a higher frequency of AG teachers 34/46 (73.5)

received a proficient or expert rating.

Survey Results

There were five parts to the survey. Parts I through IV originated from the SOP

(Tomlinson et al., 1995). Part V utilized the Teacher Demographics, Instructional

Strategies, and Learning Skills Survey (Noble, 2010). The researcher presented

quantitative data collected from the overall analysis of the five parts of the survey with an

analysis of individual questions as well as qualitative data from interviews of AG

teachers.

Analysis of results - Part I. Part I, Function 1 of the survey had 14 questions that probed teacher perceptions of AG instructional strategies and differentiation practices when working with AG students. The first 14 questions were stated positively or negatively in the survey. Questions in Table 7 with an "R" were reverse scored. Table 7 displays the overall results of Part I, Function 1 of the survey. The mean and the number of AG teachers surveyed are demonstrated in Table 7.

Table 7

Part I, Function 1 of SOP Mean AG Teacher Perception of Gifted Education

Question Number and Text of Question	N	Mean
Q1R gifted students can make it on their own without teacher direction	46	2.89
Q2It is important to assess students' knowledge about the topic before beginning a new unit	46	3.37
Q3 If tests indicate that a student has acquired basic skills, the teacher should omit the regular assignments and modify the curriculum for that student	46	2.80
Q4R gifted students will take their regular assignments and make them more challenging on their own	46	3.13
Q5 If students have already mastered some of the material before starting a unit, they should be given alternative assignments	46	3.02
Q6R An effective way to identify gifted students is to look for students with the highest grades	46	3.41
Q7 In the classroom, content should be varied to match students' interests and abilities	46	3.15
Q8R To assure that all students have the same knowledge base, it is appropriate to present curriculum information to all students in the same way	46	3.17
Q9R Allowing gifted students to work on assignments that are different from the rest of the students is playing favorites and fostering elitism	46	3.35
Q10R gifted students need longer assignments since they work faster	46	3.35
Q11R gifted students are easy to identify in the classroom	46	2.70
Q12 Some underachievers are actually gifted students	46	3.46
Q13R Having gifted students work on individual projects or assignments isolates them from the rest of the class	46	2.72
Q14R Grouping students is more detrimental than beneficial	46	3.17

Note. Don't Know- 0, Strongly Disagree-1, Disagree-2, Agree-3, Strongly Agree-4 *Unless question is reversed scored (R)

In Table 7, Questions 1 through 14 had a scale score from 0 to 4 with the higher the score resulting in the more positive the perception. The overall mean in Part I, Function 1 for Questions 1 through 14 fell in the agree section of the scale at 3.12, demonstrating more positive perception for AG teachers. Individual question scale scores averaged from 2.7 to 3.41 for all 14 questions.

Other research studies implementing the SOP with preservice or AG teachers exhibited similar positive perception scores (Caldwell, 2012; Pierce & Adams, 2003). Similar to Pierce and Adams (2003), this study did not demonstrate negative perceptions toward AG instruction or AG students. Few question averages (1R, 3, 11R, and 13R) fell below a 3 (i.e., agree) and were slightly trending toward 3 (i.e., agree) with results from 2.7 to 2.89. The highest average scores demonstrated included Questions 2, 6R, 9R, 10R, and 12 with an average range of 3.35 to 3.46 of 4. These were the strongest positive average results demonstrating the strongest knowledge and perception base relating to preassessment (Q2), AG perception-identification (Q6R), differentiation (Q9R), AG perception (Q10R), and AG perception underachievers (12). Table 8 presents Part I, Function 1 with percent and frequency from the survey.

Table 8

Part I, Function 1 of SOP in Frequency and Percent

	DK N/%	SA N/%	A N/%	D N/%	SD N/%
Q1R AG students make it on own	1/2.2	1/2.2	9/19.6	26/56.5	9/19.6
Q2 Preassessment	0/0	20/43.5	23/50	3/6.5	0/0
Q3 Preassessment	2/4.3	7/15.2	27/58.7	10/21.7	0/0
Q4R AG students make assignments more challenging	2/4.3	0/0	2/4.3	28/60.9	14/30.4
Q5 Alternative assignments	1/2.2	10/21.7	29/63	6/13	0/0
Q6R Identifying AG students	0/0	0/0	0/0	27/58.7	19/41.3
Q7 Differentiation of content	2/4.3	15/32.6	27/58.7	2/4.3	0/0
Q8R Present curriculum all same way	0/0	0/0	4/8.7	30/65.2	12/26.1
Q9R Different content fosters elitism	0/0	0/0	1/2.2	28/60.9	17/37
Q10R AG students need longer assignments	0/0	0/0	1/2.2	28/60.9	17/37
Q11R Identify AG students	3/6.5	0/0	9/19.6	30/65.2	4/8.7
Q12 Underachievers are AG students	0/0	23/50	22/47.8	0/0	1/2.2
Q13R Individual projects isolates AG students	3/6.5	0/0	7/15.2	33/71.7	3/6.5
Q14R Grouping AG students is detrimental	1/2.2	2/4.3	1/2.2	26/56.5	16/34.8

Note. Don't Know- 0, Strongly Disagree-1, Disagree-2, Agree-3, Strongly Agree-4 *Unless question is reversed scored (R)

Table 8 provided a summarized visual representation of how individual AG teachers responded to all 14 questions from Part I. The high frequency from Table 8 with Questions 2, 6R, 9R, 10R, and 12 translated to a uniform response style with less than a 6.5% disagreement for all five questions. The uniform response distribution

demonstrated a consistent and strong positive knowledge base of AG instruction and content for Q2 (AG perception-preassessment), 6R (AG perception-identification), Q9R (differentiation), 10R (AG perception), and Q12 (AG perception underachievers). Participant 5 stated, "I learned most of it though you could say through professional development . . . by the district" when they were asked to help explain the uniform responses to the questions.

Questions 4R, 7, 8R, and 14R all have a high similarity in how AG teachers responded, but the results were not as uniformly represented as the above-mentioned questions. The discrepancy of AG teachers who did not answer uniformly was less than 8.7%. The 91.3% frequency of agreement supports the strong knowledge base and perception of Q4R (AG perception-assignments), Q7 (differentiation-interests), Q8 (differentiation-curriculum), and Q14R (grouping).

Questions 1R, 3, 5, 11R, and 13R all displayed moderate uniformity in response from AG teachers but not as high or as uniform as the other questions previously mentioned. AG teachers' uniform frequency of 73.7-84% response rate to Questions 1R (AG perception), 3 (AG perception-preassessment, 5 (differentiation- assignments), 11r (AG perception-identification), and 13r (grouping) demonstrated moderate positive perception.

Analysis of results – Part I, Function 2. Part I, Function 2 of the survey had seven questions related to AG perception and seven questions related to differentiation perception. Questions 1, 4, 6R, 10R, 11R, 12, and 13R related specifically to teacher AG perception. Questions 2, 3, 5, 7, 8R, 9R, and 14R related specifically to teacher perceptions of differentiation. A subscale was utilized to demonstrate a positive or negative attitude toward AG perception or differentiation perception (Caldwell, 2012;

Pierce & Adams, 2003; Tomlinson et al., 1995). Since AG perception and differentiation

perception both had seven questions in Part I, Function 2, the possible ranges for the two

subscales were 0 to 28. A lower score demonstrated stronger negative perception; a

higher score demonstrated a stronger positive perception. Table 9 displays a descriptive

statistics analysis of Part I, Function 2 of the survey. No AG teacher scored below 14 on

AG perception or differentiation perception Part I, Function 2.

Table 9

Mean Part I, Function 2 Subscale Score Demonstrating Positive or Negative Perception to AG Education or Differentiation

Subscale	N	Mean	Median
AG Instruction Perception	46	21.65	21.00
Differentiation Perception	46	22.04	22.00

Note. AG Education (7) Questions 1R, 4R, 6R, 10R, 11R, 12, 13R. Differentiation (7) Questions 2, 3, 5, 7, 8R, 9R, 14R. Range 0-28: Very Negative 0-7; Negative 8-14; Positive 15-21 Very Positive 22-28.

Table 9 displayed the perception score from AG teachers on AG perception and

differentiation. The mean score for AG perception demonstrated a very positive result at

21.65 of 28 total score. The average score for differentiation perception was slightly

higher at 22.04 of 28 total score, also resulting in a very positive result. Question 3 of the

interview asked AG teachers to "rate the familiarity of six instructional strategies." All

five participants stated they were familiar with five of six (83%) of the instructional

strategies. Goal setting was the one instructional strategy that resulted in the lowest

degrees of familiarity. The AG teachers interviewed expressed the following positives

about teaching AG students: it was rewarding; they received increased student funding,

had instructional flexibility, got extra support personnel, and received professional

development. Table 10 displays results from AG teachers with the frequency and percent

for the total points scored on perception of AG education.

Table 10

Part I, Function 2 AG-Instruction Perception Total Score

Point Total	Frequency	Percent
15-21	27	58.7
22-27	19	41.3

Note. AG Education (7) Questions 1R, 4R, 6R, 10R, 11R, 12, 13R. Range 0-28: Very Negative 0-7; Negative 8-14; Positive 15-21 Very Positive 22-28.

Table 10 presented the results from the AG perception total score of Part I, Function 2 in frequency and percent. The overall AG teacher response range was 15 to 27 points of 28 possible scores. No AG teacher scored below 15 points, demonstrating a positive or very positive AG perception and knowledge base. Table 11 displays results from AG teachers on the frequency and percent for the total points scored on perception of differentiation.

Table 11

Part I, Function 2 Differentiation Perception

Point Total	Frequency	Percent
14-21	18	39.1
22-27 Points	28	60.9

Note. Differentiation (7) Questions 2, 3, 5, 7, 8R, 9R,14R. Range 0-28: Very Negative 0-7; Negative 8-14; Positive 15-21 Very Positive 22-28.

Table 11 presented the results from the total score of Part I, Function 2 in frequency and percent of AG teacher perceptions of differentiation. The data showed AG teachers have a positive to very positive differentiation perception score ranging from 14 to 27. No AG Teacher scored below 14 points.

Differentiation strategy was strongly represented and discussed by the AG teachers who were interviewed. Participant 4 stated, "Differentiation, yeah, that's like if you're not doing it you're letting everybody down." Participant 2 reiterates the importance of differentiation: "Differentiation I do a ton of . . . I think that's the county

word. So there's been a big focus on that." The survey data results, combined with

interview data, showed support for the positive perception and strong implementation of

differentiation as an instructional strategy.

Analysis of results -Part II. Part II continued as a component of the SOP

(Tomlinson et al., 1995). Participants were to rank how much time they spent with each

group of students: special education, average, and AG/gifted independent from each

other. The survey required AG teachers rank a 1 for the most time, 2 for average time, 3

for least amount of time, and 4 for equal amount of time. Table 12 has the descriptive

statistics used to demonstrate the results from Part II.

Table 12

Part II of SOP Mean Amount of Time AG Teachers Spend with Students

Questions	N	Mean
Q-15 Time with Special Education	46	2.15
Q-16 Time with Average	46	2.59
Q-17 Time with Gifted	46	2.63

Note. 1= Most Time, 2= Average Time, 3 = Least Time, 4 = Equal Time.

Table 12 results demonstrated AG teachers spend more time with special

education students as compared to average students and gifted students. Table 13

presents the frequency trends from Part II to help explain how participants responded to

Questions 15, 16, and 17.

Table 13

Part II of SOP Time Spent with Special ED, Average, and AG students in Frequency/Percent

Questions	Q15-Sp ED N/%	Q16-AVG N/%	Q17-AG N/%
Most Time (1)	22/47.8	4/8.7	6/13
Medium Time (2)	8/17.4	23/50	18/39.1
Least Time (3)	3/6.5	7/15.2	9/19.6
Equal Time (4)	13/28.3	12/26.1	13/28.3

Note. 1 = Most Time, 2 = Average Time, 3 = Least Time, 4 = Equal Time.

Table 13 displayed AG teachers selected most time spent with special education students more frequently compared to average or AG students, which supports the findings in Table 14. The data also demonstrated a significant amount of AG teachers felt AG students receive the least amount of time spent with the teacher by responding with moderate frequency (19.6%). The data above demonstrated that special education students received the most time, and AG students received the least amount of time from the teacher. Data results were supported with the literature research of Loveless et al.'s (2008) findings as well.

The qualitative data, gathered from the interview process, provided additional information to help support survey results in Tables 12 and 13. Four of five AG teachers interviewed expressed the difficulty in heterogeneous grouping of AG students. They stressed it was difficult to plan and implement lessons that provide equal time and challenge for all students in a heterogeneous grouping. Participant 4 stated,

I'll be honest speaking from the science side, I almost miss some of that homogenous grouping in Science because I was able to really, really get those kids to reach. And now it's a little bit different because I really have to focus on the kids that are below. And try to get them to reach, but they may not be able to

reach just yet to the same level the AG kids can reach.

Three of five (60%) AG teachers interviewed preferred homogeneous grouping of AG

students. Participant 4 had a strong opinion that heterogeneous grouping in science and

social studies was detrimental to the AG students. Research supports the difficulty in

differentiating for a wide variety of students (Tomlinson et al., 1995). Participants 1 and

2 concurred that the large heterogeneous classes are an obstacle and make it difficult to

meet the needs of all the students.

Analysis of results - Part III. Part III of the SOP (Tomlinson et al., 1995)

questioned teachers about their confidence in teaching AG students. Teachers

demonstrated their confidence using a scale from 1, no confidence, to 5, very confident.

Table 14 displays teacher confidence results from Part III of the survey.

Table 14

Part III of SOP Descriptive Statistics of AG Teacher Confidence

Question Number and Text of Question	N	Mean
Q-18 Confidence Adapting Lessons for AG students	46	3.30
Q-19 Confidence Accommodating Levels in Class	46	2.91
Q-20 Assessing Students/Design Appropriate Lessons	46	2.98
Q-21 Individualizing Instruction AG students	46	2.91
Q-22 Identification of AG students	46	2.93

Note. 1= No Confidence; 2= Little Confidence; 3=Confident; 4= More Confident; 5= Very Confident.

Table 14 displayed the mean and number of participants from Part III of SOP.

The mean ranged from 2.91 to 3.30 demonstrating a high affiliation toward confident.

The data showed AG teachers were confident in adapting lessons for AG students,

accommodating levels in class, assessing students, individualizing instruction, and

identifying AG students. Table 15 displays the percent and frequency results from AG

teacher participants and their confidence levels with Questions 18 to 22.

Table 15

Part III of SOP–Teacher Confidence Modifying AG Instruction or Differentiation in Frequency and Percent

Question Number and Text	No N/%	Little N/%	Confident N/%	More N/%	Very N/%
Q-18 Confidence Adapting Lessons for AG students	0/0	9/19.6	22/47.8	7/15.2	8/17.4
Q-19 Confidence Accommodating Levels in Class	1/2.2	15/32.6	22/47.8	3/6.5	5/10.9
Q-20 Assessing Students / Design Appropriate Lessons	1/2.2	13/28.3	23/50	4/8.7	5/10.9
Q-21 Individualizing Instruction AG students	1/2.2	17/37	18/39.1	5/10.9	5/10.9
Q-22 Identification of AG students	0/0	13/28.3	25/54.3	6/13	2/4.3

Note. No = 1; Little = 2; Confident = 3; More = 4; Very = 5.

The frequency and percent represented in Table 15 provided individual responses and findings for Questions 18 to 22. Few AG teachers selected no confidence for Questions 18 to 22. AG teachers responded to Questions 18 to 22 with a range of *confident* to *very confident* as the most selected options. Combining confident, more confident, and very confident selections demonstrated a strong frequency percent range, 60.9% to 80.4%. The high frequency and percent data demonstrated AG teachers rated themselves as confident to very confident with adapting lessons, accommodating levels, assessing students, individualizing instruction, and identification of AG students.

Analysis of results - Part IV. Part IV of the SOP survey required participants to select which instructional strategies they used with AG students and which instructional

strategies were used with average students. The four instructional strategies included ability grouping, curriculum compacting (acceleration), higher order thinking, and problem solving (higher order inquiry). The first instructional strategy, ability grouping, demonstrated high frequency of use with both average 37 of 46 (80.4%) and AG students 39 of 46 (84.3%). The high frequency use, combined with the small difference of 3.9% between average and AG students, demonstrated that AG teachers would use ability grouping with both groups of students.

The next instructional strategy was curriculum compacting (acceleration). Results showed that 43 of 46 (93.5%) AG teachers utilized curriculum compacting with AG students. Only 19 of 46 (41.3%) of the AG teachers indicated that they used the same instructional strategy, curriculum compacting, with average students. The data demonstrated that AG teachers selected curriculum compacting to use with AG students 52.2% more frequently than with average students. These data were consistent with research by VanTassel-Baska and Brown (2007) who stressed utilization of acceleration with AG students was critical to challenging their learning.

Higher order thinking was the next instructional strategy. The response rate for AG teachers was 44 of 46 (95.7%) of those surveyed would use higher order thinking with AG students. AG teachers responded to using higher order thinking with average students at a rate of 39 of 46 (84.8%). The data strongly showed that AG teachers would use higher order thinking strategies with both AG and average students.

The final instructional strategy that AG teachers responded to was problem-solving activities (higher order inquiry). From the AG teachers surveyed, 44 of 46 (95.7%) used problem-solving activities with AG students. When AG teachers were surveyed regarding problem-solving activities used with average students, 40 of 46 (87%)

of the AG teachers selected using it. The data demonstrated that AG teachers used

problem-solving activities (higher order inquiry) with both AG and average students with

little difference in frequency.

      Analysis of results - Part V. Part V of the survey was adapted from the Teacher

Demographics, Instructional Strategies, and Learning Skills Survey (Noble, 2010). Four

questions were used from that survey to discover how frequently teachers used specific

strategies in the classroom. The four strategies included acceleration, inquiry-based/

higher order thinking, grouping, and goal setting. Teachers rated these from 1, hardly

ever used, to 5, used nearly every lesson. Table 16 displays descriptive statistics for Q27

to Q30.

Table 16

Part V -Descriptive Statistics on Frequency Use of Instructional Strategies

Question Number and Text of Question	N	Missing	Mean	Median
Q-27 Instructional Strategy Acceleration	44	2	2.86	3.00
Q-28 Instructional Strategy Higher Order	44	2	3.68	4.00
Q-29 Instructional Strategy Grouping	44	2	3.57	4.00
Q-30 Instructional Strategy Goal Setting	44	2	2.64	2.50

Note. 1=Hardly Ever Use; 2=Use Once In a While; 3=Often Use; 4=Regularly Use; 5=Nearly Every
Lesson.

      Table 16 displayed responses to questions 27-30 indicating an average score of

2.64 to 3.68 of 5. The higher the score, the more frequently AG teachers implemented it

in the classroom. Question 27 (acceleration) and Question 30 (goal setting) both had a

low mean score, denoting that AG teachers used these strategies less frequently in the

classroom. Question 28 (inquiry-based/higher order thinking) and Question 29

(grouping) had a high mean score, signifying that AG teachers implemented these two

strategies more frequently in the classroom.

      Table 17 displays the frequency and percent for the specific use of an AG

instructional strategy. Two of the 46 AG teachers did not respond to Questions 27 to 30

Part V. The frequency and percent in Table 17 below are calculated using the 44

participants.

Table 17

Part V Frequency and Percent for Use of AG Instructional Strategy

Questions	Hardly N/%	Once In A While N/%	Often N/%	Regularly N/%	Nearly Every Lesson N/%
27. Acceleration	3/6.8	18/40.9	9/20.5	10/22.7	4/9.1
28. Higher Order	1/2.3	3/6.8	14/31.8	17/38.6	9/20.5
29. Grouping	1/2.3	5/11.4	13/29.5	18/40.9	7/15.9
30. Goal Setting	7/15.9	15/34.1	10/22.7	11/25	1/2.3

Note. 1=Hardly Ever Use; 2=Use Once In a While; 3=Often Use; 4=Regularly Use; 5=Nearly Every Lesson.

Table 17 displayed the two instructional strategies AG teachers stated they used

the most were inquiry-based/higher order thinking at 26 of 44 (59.1%) and grouping at 25

of 44 (56.8%). The qualitative interview data supported these survey findings. Five of

five (100%) AG teachers interviewed expressed high awareness of the instructional

strategy inquiry-based/higher order thinking and provided quality examples of utilization

in their classrooms. The AG teachers interviewed were familiar with grouping. The two

styles of grouping discussed by the AG teachers interviewed were either dedicated

homogeneous or dedicated heterogeneous grouping.

The interview process provided an opportunity for the five AG teachers to discuss

their familiarity/implementation of differentiation and preassessment as instructional

strategies. Five of five (100%) AG teachers were familiar with differentiation and rated

themselves confident in the use of it in class. All five participants interviewed stated that

they were familiar with preassessment, and three of five (60%) consistently utilized it

with instruction.

The data in Table 17 demonstrated the two instructional strategies AG teachers used the least: acceleration 19 of 44 (47.7%) and goal setting 22 of 44 (50%). These findings were supported by the qualitative interview data gathered. Three of five (60%) of the participants stated they were aware of the acceleration strategy but did not utilize it that often. Three of five (60%) AG teachers interviewed were not familiar with goal setting and did not implement it in their classrooms.

The five AG teachers were questioned as to why the above six instructional strategies might not be familiar, utilized, or implemented in an AG classroom. Two of the five stated that the other AG teachers might not be aware or familiar with the instructional strategy or not trained in its proper use in the classroom. Participant 2 proposed valuable implementation insight with this comment: "I think the disconnect comes between we know what we should do and what we actually do. I think that is where we need help." Two of the five (40%) AG teachers interviewed stated that it was more work to implement and utilize these strategies, and some teachers would not do the extra work.

Research Questions Data Comparison

In the next subsections, the researcher applied cross-tabulation statistics to demonstrate if a relationship existed between AG perception and specific questions relating to specific instructional strategies or to specific teacher demographics. The cross-tabulated data provided either supportive or contradictive information for the researcher to help answer the research questions.

Research Question 1. The first research question focused on teacher perception and implementation of specific instructional strategies. For this purpose, the researcher used the total points calculated from Part I, Function 2 of the SOP survey as a baseline

for AG perception. The results from Part I, Function 2 of the SOP for AG perception were all positive to very positive. No AG teacher scored below a 15, which remained positive, illustrating no negativity. The AG perception score was cross tabulated with five questions relating to five instructional strategies that require more analysis to help answer Research Question 1. The one instructional strategy not included in the cross tabulation is differentiation because the data results from the survey and interviews provide substantial evidence to answer Research Question 1.

The questions associated with the five specific instructional strategies included preassessment (Q2), acceleration (Q27), inquiry-based/higher order thinking (Q28), cooperative learning (Q29), and goal setting (Q30). Tables 18 to 22 display the results from the five instructional strategies cross tabulated with AG perceptions. Question 2 in Part I of the SOP related to preassessment. Below, Table 18 demonstrates the results from cross tabulating Question 2 (Preassessment) with the total AG perception score from Part I of the SOP.

Table 18

Q2 Preassessment Cross Tabulated with AG Perception Total Score

Q2 Preassessment		Disagree	Agree	Strongly Agree	Total
AG Perception	Score 15-21	2	15	10	27
Score	Score 22-28	1	8	10	19
	Total	3	23	20	46

Note. AG Education (7) Questions 1R, 4R, 6R, 10R, 11R, 12, 13R; Range 0-28: Very Negative 0-7; Negative 8-14; Positive 15-21; Very Positive 22-28.

Table 18 displayed results from Question 2 (preassessment) Part I of the SOP survey. It asked AG teachers to respond to this statement: "It is important to assess students' knowledge about the topic before beginning a new unit." The question speaks directly to the assessment of students prior to introduction of new information

(preassessment). All AG teachers with a positive or very positive score had a higher

frequency to agree or strongly agree to Question 2 (Preassessment). The data indicated

that a positive perception score resulted in higher agreement to utilizing preassessment

with AG students. Table 19 displays results from the cross tabulation of AG perception

scores from Part I, Function 2 as to the frequency of the use of acceleration in the

classroom.

Table 19

Q27 Acceleration Cross Tabulated with AG Perception Total Score

Q27 Acceleration		Hardly Ever Use	Use Once in a While	Often Use	Regularly Use	Nearly Every Lesson	Total
AG Perception Score	Score 15-21	2	15	3	5	1	26
	Score 22-28	1	3	6	5	3	18
	Total	3	18	9	10	9	44

Note. AG Education (7) Questions 1R, 4R, 6R, 10R, 11R, 12, 13R; Range 0-28: Very Negative 0-7; Negative 8-14; Positive 15-21; Very Positive 22-28.

Table 19 demonstrated the results from cross tabulating Q27 (acceleration) with

AG perception scores. It demonstrated a unique frequency distribution between positive

and very positive AG perception scores. The data showed that AG teachers who scored a

positive AG perception score tended to use acceleration less frequently, 17 of 26 (65%);

while AG teachers who scored a very positive perception score used acceleration more

frequently, 14 of 18 (77.8%). This pattern supports the premise that very positive AG

perception scores indicated the use of the strategy more frequently compared to AG

teachers who received a positive AG perception.

Table 20 presents results from the cross tabulation of AG perception scores from

Part I, Function 2 to the frequency of use of inquiry-based/higher order thinking

questions.

Table 20

Q28 Inquiry-Based/Higher Order Thinking Cross Tabulated with AG Perception Total Score

Q28 Inquiry-Based/ Higher Order Thinking		Hardly Ever Use	Use Once in a While	Often Use	Regularly Use	Nearly Every Lesson	Total
AG Perception Score	Score 15-21	1	3	8	10	4	26
	Score 22-28	0	0	6	7	5	18
	Total	1	3	14	17	9	44

Note. AG Education (7) Questions 1R, 4R, 6R, 10R, 11R, 12, 13R; Range 0-28: Very Negative 0-7; Negative 8-14; Positive 15-21; Very Positive 22-28

Table 20 demonstrated consistent results between positive and very positive AG

perception scores. The data showed AG teachers utilize the inquiry-based/higher order

thinking strategy more frequently and on a consistent basis no matter the AG perception

score. AG teachers who scored positive or very positive in AG perception reflected a

high implementation rate of this strategy. In addition, the results in Table 21 are from

cross tabulating AG perception scores from Part I, Function I to the frequency of use of

grouping in the classroom.

Table 21

Q29 Grouping Cross Tabulated AG Perception Total Scores

Q29 Grouping		Hardly Ever Use	Use Once in a While	Often Use	Regularly Use	Nearly Every Lesson	Total
AG Perception Score	Score 15-21	1	3	9	11	2	26
	Score 22-28	0	2	4	7	5	18
	Total	1	5	13	18	7	44

Note. AG Education (7) Questions 1R, 4R, 6R, 10R, 11R, 12, 13R; Range 0-28: Very Negative 0-7; Negative 8-14; Positive 15-21; Very Positive 22-28.

Table 21 demonstrated AG teachers who scored positive (22/26) and very positive (16/18) relative to AG perception frequently use instructional strategy grouping when combining *often use–nearly every lesson*. Little difference existed between the implementation frequency based on the AG perception score (positive 85% and very positive 89%). The data collected illustrated AG teachers who scored positive and very positive perceptions are more likely to implement grouping on a frequent basis. Furthermore, Table 22 displays a cross tabulation of AG perception scores from Part I, Function 2 to the frequency of use of goal setting in the classroom.

Table 22

Q30 Goal Setting Cross Tabulated with AG Perception Total Scores

Q30 Goal Setting		Hardly Ever Use	Use Once in a While	Often Use	Regularly Use	Nearly Every Lesson	Total
AG Perception Score	Score 15-21	3	8	7	8	0	26
	Score 22-28	4	7	3	3	1	18
	Total	7	15	10	11	1	44

Note. AG Education (7) Questions 1R, 4R, 6R, 10R, 11R, 12, 13R; Range 0-28: Very Negative 0-7; Negative 8-14; Positive 15-21; Very Positive 22-28

Table 22 demonstrated positive and very positive for scoring AG teachers use goal setting less frequently by selecting hardly ever use or use once in a while. The data showed 11 of 26 (42.3%) AG teachers with a positive AG perception selected implementing goal setting less frequently as an instructional strategy. Similarly, low implementation results were observable for AG teachers who scored a very positive AG perception, 11 of 18 (61%). The data indicated, regardless of the AG perception scores (i.e., positive and very positive), AG teachers demonstrated a low level of implementation of goal setting as an instructional strategy.

Research Question 2. Research Question 2 looked for patterns in teacher demographics to help predict which teachers required specific support or training. The baseline AG perception scores were cross tabulated with specific demographic data below in Tables 23 to 28 to assist in answering Research Question 2. These demographic question results were selected based on the variety that existed from the results of the demographic survey. Only six of the 10 original demographic question results were cross tabulated. Other demographic data were not utilized because variation was insignificant

and cross tabulation was not warranted. For example, ethnicity was not used because

97.8% (45/46) of the respondents were of White ethnicity. Table 23 demonstrates the

years of experience teaching AG instruction cross tabulated with AG perception scores.

Six bandwidths existed, each spanning 5 years in Table 23.

Table 23

*Years of Experience Teaching AG Demographic Cross Tabulated with AG Perception
Total Scores*

Years of Experience Teaching AG		1-5	6-10	11-15	16-20	21-25	26-30	Total
AG Perception Score	Score 15-21	13	3	4	2	3	2	28
	Score 22-28	8	2	5	1	2	1	18
	Total	21	5	9	3	5	3	46

Note. AG Education (7) Questions 1R, 4R, 6R, 10R, 11R, 12, 13R; Range 0-28: Very Negative 0-7;
Negative 8-14; Positive 15-21; Very Positive 22-28

**Table 23 displayed a high frequency of inexperienced teachers in AG

Perception scores. The experience bandwidths of 1-5 years of AG teaching experience

received the highest frequency for positive (13/28) and very positive (8/18) AG

perception scores. The data showed that, regardless of the AG perception, the largest

amount of AG teachers were inexperienced. Additionally, Table 24 presents the data

gathered from the cross tabulation of AG certification with AG perception scores. The

two options included *no-not certified* or *yes-certified*.

Table 24

*AG Certification Demographic Cross Tabulated AG Cross Tabulated with AG Perception
Total Scores*

AG Certification		No	Yes	Total
AG Perception Score	Score 15-21	13	14	27
	Score 22-28	5	14	19
	Total	18	28	46

Note. AG Education (7) Questions 1R, 4R, 6R, 10R, 11R, 12, 13R; Range 0-28: Very Negative 0-7;
Negative 8-14; Positive 15-21; Very Positive 22-28

Table 24 data showed a higher frequency of teachers who are AG certified,

received a very positive AG perception score at 14 of 19 (74%). AG teachers who

received a positive AG perception score demonstrated little to no difference between *yes-certified* and *no-not certified*. The pattern reflected, the higher the AG perception (very

positive) score, the higher the probability the AG teacher would be certified. The

researcher felt there would be a higher frequency differential between the AG perception

scores of AG certified and non-AG certified teachers. Pierce and Adams (2003)

demonstrated similar results of high perception scores regardless of experience level.

Moreover, Table 25 presents data results from the AG undergraduate preparation

demographics cross tabulated with AG education perception score.

Table 25

*Undergraduate AG Preparation Demographics Cross Tabulated with AG Perception
Total Scores*

Undergraduate AG Preparation		None	Less Than Adequate	Adequate	Intensive	Total
AG Perception Score	Score 15-21	8	8	10	1	27
	Score 22-28	6	6	4	3	19
	Total	14	14	14	4	46

Note. AG Education (7) Questions 1R, 4R, 6R, 10R, 11R, 12, 13R; Range 0-28: Very Negative 0-7;
Negative 8-14; Positive 15-21; Very Positive 22-28

Table 25 displayed a similar pattern between positive and very positive AG

perception scores. The highest frequency of AG teachers surveyed experienced less than

adequate to no undergraduate AG preparation in both positive (16/27) and very positive

(12/19) AG Perception. This data demonstrated undergraduate AG preparation was

absent from a large majority of AG teachers. In addition, Table 26 demonstrates the

results of cross tabulation of AG graduate preparation with AG perception scores.

Table 26

Graduate AG Preparation Cross Tabulated with AG Perception Total Scores

Graduate AG Preparation		None	Less Than Adequate	Adequate	Intensive	Total
AG Perception Score	Score 15-21	6	4	10	7	27
	Score 22-28	4	0	4	11	19
	Total	10	4	14	18	46

Note. AG Education (7) Questions 1R, 4R, 6R, 10R, 11R, 12, 13R; Range 0-28: Very Negative 0-7; Negative 8-14; Positive 15-21; Very Positive 22-28

The results in Table 26 demonstrated that the more graduate AG preparation a

teacher experienced the higher the AG perception score. In both positive (17/27) and

very positive (15/19) groups, AG teachers experienced greater preparation in graduate

programs. The data demonstrated AG teachers who experienced AG preparation in

graduate programs scored higher AG perception scores. Furthermore, Table 27 displays

AG teachers' AG educational background, which is cross tabulated with AG perception

scores.

Table 27

AG Educational Background Demographic Cross Tabulated with AG Instruction Perception/Attitudes Total Scores

AG Educational Background		PD Self-Selected	PD District Training	Post Bachelor Masters Certification	Minor AG	Masters AG	Total
AG Perception Score	Score 15-21	5	10	11	0	1	27
	Score 22-28	3	7	7	1	1	19
	Total	8	17	18	1	2	46

Note. AG Education (7) Questions 1R, 4R, 6R, 10R, 11R, 12, 13R; Range 0-28: Very Negative 0-7; Negative 8-14; Positive 15-21; Very Positive 22-28

The data from Table 27 displayed interesting results from the cross tabulation.

The data showed the highest frequency of AG teachers participated in professional

development district training or post bachelor masters certification reflected either

positive or very positive AG perceptions. Additionally, Table 28 displays AG teachers'

confidence level in educating AG students cross tabulated with AG perception scores.

The three areas in which AG teachers rated themselves included *novice, proficient,* and

expert.

Table 28

Confidence Level in Educating AG Students Demographic Cross Tabulated with AG Perception Total Scores

Confidence Level in Educating AG students		Novice	Proficient	Expert	Total
AG Perception Score	Score 15-21	7	17	3	27
	Score 22-28	5	7	7	19
	Total	12	24	10	46

Note. AG Education (7) Questions 1R, 4R, 6R, 10R, 11R, 12, 13R; Range 0-28: Very Negative 0-7; Negative 8-14; Positive 15-21; Very Positive 22-28

Table 28 displayed that the majority of AG teachers rate themselves at proficient

or expert in confidence level regardless of the AG perception score. The data did show a

higher frequency of AG teachers with a very positive AG perception level ranked at the

expert confidence level.

Summary

Demographic data gathered from participating AG teachers displayed the

following trends: (a) The majority of AG teachers who responded to the survey were

White females; (b) A high percentage (42%) of AG teachers in the district were not

certified in AG education; (c) AG teachers surveyed teach in either dedicated

heterogonous or dedicated homogenous classrooms; (c) The majority of AG teachers

surveyed received less than adequate or no AG training in undergraduate program; (d)

The majority of AG teachers received some AG training in graduate school, while 25%

of AG teachers received no training whatsoever in graduate school; (e) Participants surveyed had an AG background that was limited to a post bachelor or post masters certificate or it was in professional development; and (f) The majority of participating AG teachers surveyed rated their confidence ability in educating AG students, as between novice and expert with the majority of them falling in the proficient level.

Part I of the survey demonstrated an overall positive trend toward AG perception and differentiation. Teachers' survey data showed significant consistent results with the majority of the questions. AG teachers responded to Questions 6, 9, 10, and 12 uniformly with one or less teachers responding in opposite fashion. Part II of the survey demonstrated that the AG teachers surveyed felt special education students receive the most attention. Part III analyzed survey results demonstrating a significant amount of AG teachers selected confident in Questions 18 to 22 (39% to 54%). The data indicated that a high number of AG teachers rated themselves confident to very confident on adapting lessons, accommodating levels, assessing students, individualizing instruction, and identification for AG students.

In Part IV of the survey AG teachers were surveyed as to which instructional strategy they would use with AG students or average students. Data showed that 100% selected inquiry-based/higher order thinking strategies should be used with AG students. Curriculum compacting (Acceleration) came in a close second with a 97.7% of AG teachers selecting to use this strategy with AG students.

Part V surveyed AG teachers as to the frequency of use for specific instructional strategies in the classroom. The strategies included acceleration, open-ended inquiry, cooperative learning, and goal setting. The scale score for Part V was 1-5 with the higher the score the more frequently the instructional strategy was implemented. The

instructional strategy with the highest average implementation rate was open-ended inquiry at 3.68 followed by cooperative learning at 3.57. The instructional strategies with the lowest average implementation rates were goal setting at 2.64, followed by acceleration at 2.86.

The qualitative data collection in the form of interviews with AG teachers provided valuable insightful data. All five AG teachers interviewed expressed enjoyment and affinity for teaching AG students. Participants 2 stated, "I've really enjoyed teaching the AG kids. I enjoy the challenge of it." Two of the five (40%) expressed the great freedom they experienced with how the content was taught and the positive financial support for AG students in their classrooms.

The five AG teachers interviewed also provided insights into negative aspects or areas in which the district needs improvement. Four of five (80%) of the participants expressed little to no support was received from district. Two of the five (40%) recommended that more resources needed to be available to AG teachers. One teacher described the district support as "non-existent". Four of the five (80%) of the AG teachers interviewed wanted more collaboration with other AG teachers in the district. They expressed a need for more professional development offered specifically for AG instruction and AG teachers. Two of the AG teachers wanted more literacy support for AG students with Lexile reading leveled books and higher vocabulary support. Two of the five (40%) AG teachers wanted training with strategies to reach underachieving AG boys. One of the AG teachers interviewed discussed frustration with the inconsistency of Instructional Strategies implemented across disciplines. Finally, two AG teachers interviewed requested more social and emotional opportunities for AG students and avenues to provide for more real world experiences.

Chapter 5: Conclusions

Introduction

The purpose of this mixed-methods research study was to gain insight into AG teachers' perceptions of specific instructional strategies tailored to challenge AG students' learning in the middle school setting. AG teachers need specific research-based strategies to challenge AG students, who require specific instruction in order to function at a successful intellectual level (Cross, 1997; Rogers, 2007). Researchers demonstrated instructional strategies, such as acceleration, homogeneous grouping, or enrichment, offer results in the form of academic benefits (Bain et al., 2007).

The specific research-based teaching strategies researched in this study included differentiation, grouping, acceleration, preassessing, goal setting, and inquiry based/higher order thinking. This study also investigated and analyzed demographic data surveyed from AG teachers to determine what support/training is required to meet AG teachers' needs better. Undergraduate preservice university programs do little to prepare teachers to instruct AG students (Bangel et al., 2010). This study gave credence to that premise. Bangel et al. (2010) stressed the importance of providing professional development and/or seminar opportunities for AG teachers.

Findings

Research questions. In this section, the researcher answers the following two research questions.

1. How do AG teacher perceptions of AG education influence instructional implementation and instructional practice?

2. How can AG teacher demographic information be utilized to help predict which AG teachers require intense AG support or training?

The response to the first question was presented through the following format: summary of the research, unique findings from specific survey questions, interview results, cross-tabulation results, and the researcher's thoughts regarding each of the six AG instructional strategies. To answer the second question, the following format was utilized: summary of the research, unique findings from the demographics survey, unique findings from cross-tabulation data, and the researcher's conclusions.

Research Question 1. Research Question 1 of this research study investigated AG teachers' perceptions of specific instructional strategies tailored to promote learning in AG students. Also of importance was to discover if teacher perceptions influenced the implementation of the strategies in their classrooms. It is imperative for AG teachers to employ specific research-based instructional strategies to promote the challenging and engaging instruction AG students require to learn (McCoach & Siegle, 2003; Rogers, 2007; Tomlinson, 1999).

Acceleration was the first instructional strategy discussed. Acceleration is an instructional strategy, which introduces advanced content at greater depth and at a faster pace. This material is usually presented to AG students at an earlier age compared to their classmates (Colangelo et al., 2004; Siegle et al., 2013). Research continued to expose acceleration as one of the leading instructional strategies, having a positive effect on AG students' learning (VanTassel-Baska & Brown, 2007). VanTassel-Baska and Brown (2007) summarized the findings from an analysis of nine curriculum models to promote learning in AG students and found the "strongest body of research evidence support the use of advanced curricula in core areas of learning at an accelerated rate for high ability learners" (p. 351). Wai et al. (2010) and Rogers (2007) supported acceleration as an admired instructional practice, which had a positive effect on AG

students' learning.

The literature research stressed the importance of implementing acceleration as an instructional strategy to challenge AG students' learning. The research data displayed mixed results that required further investigation. Three examples existed in the survey or interview where AG teachers were asked about acceleration as an instructional strategy. AG teachers responded twice in the survey (Q24 and Q27) and once in the interview about acceleration.

The results were contradictory. AG teachers had a high perception and understanding of acceleration based on the data from Q24, which surveyed AG teacher familiarity with acceleration. However, Question 27 surveyed AG teachers' frequency of implementing acceleration; the data demonstrated low implementation rates. This contradiction in the data results required the researcher to investigate Question 27 (implementation of acceleration) further with a cross tabulation statistical analysis. The results from the cross tabulation indicated the AG teachers with higher AG perception scores were more likely to implement acceleration.

The interview data combined with the statistical analysis helped to answer research question one. A very positive AG perception score resulted in a higher implementation rate. A positive AG perception score resulted in a lower implementation rate of acceleration. The interview data illustrated that 3 of 5 (60%) AG teachers were aware of acceleration, but did not use it. The interview process helped the researcher to discover reasons for lack of implementation. Poor planning and lack of familiarity of the strategy was the most frequent response from participants as to lack of implementation. The data demonstrated teacher perception had a great influence on the implementation of acceleration in the classroom. The literature research cited demonstrated acceleration as

an integral and important facet of AG students' learning (Rogers, 2007; Wai et al., 2010).

The researcher found perception does influence implementation of acceleration. The data indicated that high perception equated to high implementation of acceleration. Conversely, a lower perception led to lack of familiarity and poor planning resulting in lower implementation.

Differentiation was the second instructional strategy investigated in this study. Tomlinson and Allen (2000) explained differentiation as the teacher's ability to pair instruction to a student's individual needs in order for that student to reach maximum potential. The key components within differentiation include choice, flexibility, on-going assessment, and creativity in the lesson (Anderson, 2007). The premise of differentiation recognized the individual student's needs and adapted instruction to meet those needs (Kanevsky, 2011). By utilizing differentiation in the classroom, AG teachers had the ability to modify instruction with the key elements listed above to challenge AG students with unique, creative, and rigorous lessons. Kanevsky (2011) stressed the importance of surveying AG students to gain insight into preference. AG teachers can then tailor components of the lesson to specific student's needs.

Kanevsky (2011) found the components of differentiation as the primary preference as an instructional strategy among AG students. Those specific components included complex content and problems, pursuing own interest, understanding interconnection with ideas, collaboration with students, expert knowledge, and creative solutions with challenging problems. Research emphasized that AG students desired a component of ownership in the topics they learn and how they learn them (Kanevsky, 2011). Using differentiation as an instructional strategy combined with AG Student preferences will help AG teachers tailor instruction to challenge their students (Anderson,

2007; Kanevsky, 2011; Tomlinson & Allen, 2000).

The data showed a uniform high frequency data pattern that validated a strong perception and knowledge base of differentiation from AG teachers in the district from Part I, Function 1 and 2. The interview process provided more evidence of the above-mentioned knowledge surrounding differentiation. Five of five AG teachers interviewed expressed familiarity with differentiation as an instructional strategy. The interview data again supported a strong district knowledge base surrounding differentiation. Participant 2 stated, "Differentiation I do a ton of . . . I think that's the county word. So there's been a big focus on that."

Differentiation as an instructional strategy resulted in the highest representation of inquiry (11 questions) from the survey and interview process. All seven questions from Part I of the survey exhibited uniformity in frequency response style (74%-98%), which further demonstrated clear perception and understanding of differentiation. The researcher found differentiation perception among the majority of AG teachers surveyed fell in the very positive category. Part III of the survey provided four questions as continual evidence that AG teachers were confident in implementing components of differentiation. The last supportive evidence was interview data demonstrating AG teachers understood and implemented it regularly. The researcher found data illustrating differentiation had a high perception resulting in high implementation.

The third instructional strategy featured in the research study was preassessment. Rakow (2012) provided an explanation of preassessment as pretests, graphic organizers, journals, or learning style inventories that provide the AG instructor with an understanding of student mastery or depth of knowledge prior to instruction taking place. Johnsen (2013) stated that preassessment is one of the most important instructional

strategies to determine how to implement differentiation and acceleration. Preassessment provided important feedback for the teacher to ensure instruction was specifically tailored to or differentiated for AG student needs. Preassessment also reduced copious amounts of time spent with introductory or drill and practice material (Colangelo et al., 2004; Johnsen, 2013; Rakow, 2012).

Preassessment was implied at different points throughout the survey. However, Question 2 (preassessment) was the only location where it is easily observable. Question 2 from the survey asks teachers if "it is important to assess students' knowledge about the topic before beginning a new unit" (Tomlinson et al., 1995). The results from Part I, Function 1 of the SOP demonstrated AG teachers either agree or strongly agree with Question 2 at 43 of 46 (93.5%). Based on these results, teachers acknowledged that preassessment of AG students was important.

An additional statistical analysis was completed by conducting a cross tabulation of Q2 (preassessment) with the AG perception total score from Part I, Function 2 of the SOP. All AG teacher response scores ranged from positive to very positive. The cross tabulation indicated AG teachers who scored a positive score demonstrated the highest frequency as agree with Q2 (preassessment). This was not contradictory data; the majority chose positive or very positive with agree or strongly agree that preassessment was important; however, the researcher thought there would be a higher frequency with very positive AG instruction perception/attitude total score. That was not the case.

All five AG teachers interviewed stated they were familiar with preassessment as an instructional strategy. The combined results from the survey and the interviews demonstrated AG teachers were aware of the preassessment instructional strategy and felt that it was important to implement with AG students. It should be noted that with such a

high uniformity of response to Q2 (preassessment) of agree or strongly agree, there was

not a strong presence of a very positive perception score, only a positive one. The

responses to Question 2 (43/46) displayed a uniform agreement as to the importance of

preassessment. The cross tabulation and interview data further illustrated positive or

greater perception of preassessment that translated to teachers implementing the strategy.

The fourth instructional strategy researched was goal setting. Goal setting was

explained by Feldhusen and Wood (1997) as a strategic educational plan designed

congruently by the student, parent, guidance counselor, and AG teacher. Morisano and

Shore (2010) stressed that the key importance of goal setting was to aid AG students to

reach full potential. Support staff, along with parents, help AG students construct short-

and long-term goals surrounding personal, social, educational, and career development

goals. The goals need to be obtainable objectives that help motivate AG students and

promote self-regulating skills (Feldhusen & Wood, 1997; McCoach & Siegle, 2003;

Morisano & Shore, 2010; Rayneri et al., 2006).

Question 30 (goal setting) from Part V (Noble, 2010) surveyed AG teachers as to

the frequency of use of goal setting as an instructional strategy. Data from the survey and

interviews showed a high frequency of AG teachers were not implementing this

instructional strategy frequently. Goal setting was the one instructional strategy that

resulted in the lowest familiarity. The AG teachers interviewed provided two possible

reasons for not utilizing this instructional strategy: not being familiar with goal setting or

not knowing how to implement goal setting.

A cross tabulation statistical analysis was generated to investigate the connection

between AG teacher perceptions and implementation of goal setting as an instructional

strategy. One pattern was observable from the data. It showed, regardless of the AG

perception scores (positive and very positive), AG teachers demonstrated low implementation of goal setting as an instructional strategy.

The research strongly stressed the importance of implementing goal setting with AG students as a supportive measure to help challenge learning (Feldhusen & Wood, 1997; McCoach & Siegle, 2003; Morisano & Shore, 2010; Rayneri et al., 2006). At the classroom level, AG teachers who participated in this study were not implementing it consistently. The district does implement a similar goal setting document for each of its AG students. Perhaps the goal setting document was developed by the AG coordinator or guidance counselor without input from the AG teacher. The other possible reason could be the developed goal setting document was static because it was only completed once a year and not implemented in the class on a frequent basis. The researcher found qualitative data from interviews that illustrated low perception and familiarity caused low implementation of goal setting as an instructional strategy.

Inquiry-based/higher order thinking was the next instructional strategy investigated and researched. VanTassel-Baska (2014) described inquiry-based strategy as one of the most effective formats to organize questions deliberately to promote high-level thinking in AG students. The questions are specifically designed to promote thinking and discussion surrounding real-life situations and topics. The questioning should challenge AG students to probe ideas or investigate issues not currently fully understood (VanTassel-Baska, 2014).

AG teachers were questioned twice in the survey on inquiry-based/higher order thinking instructional strategy. The two questions that related to this strategy were located in Part IV Question 25 (use higher-level thinking) and in Part V Question 28 (implementation open-ended inquiry). The survey and interview data showed AG

teachers have a high frequency of use and a significant implementation rate. The interview data supported these positive findings. The inquiry-based/higher order thinking instructional strategy was one of the two instructional strategies AG teachers interviewed stated they used most often. All five of the AG teachers interviewed expressed they used it and even provided examples of it as evidence during the interview.

Further statistical analysis of inquiry-based/higher order thinking instructional strategy cross tabulated with the total score from AG instruction perception did little to provide additional evidence. With such strong data demonstrating high implementation, high awareness, and a significant knowledge base of this instructional strategy, the researcher thought a very positive perception score would be observable. That was not the case. The data showed AG teachers implemented the inquiry-based/higher order thinking strategy on a more consistent basis no matter the AG perception score.

The data gathered from interviews and surveys of AG teachers supported the literature research. The literature research indicated the importance of utilizing inquiry-based/higher order thinking as an instructional strategy (VanTassel-Baska, 2014). The researcher found results from the data demonstrated positive perception with strong implementation of this instructional strategy.

The sixth and final instructional strategy was grouping by heterogeneous or homogeneous mixtures of AG students. Rogers (2007) defined grouping as a placement strategy within a classroom of similar student abilities as homogeneous and grouping of students with a variety of abilities and characteristics as heterogeneous. Shields (2002) and Fiedler et al. (2002) agreed that research supported homogeneous grouping of AG students, as it better served their needs and could have positive effects on achievement and academic attitudes. Additional research demonstrated students who are not identified

as AG suffer no social or emotional concerns when AG students are grouped homogeneously (Shields, 2002). A heterogeneous grouping of AG students can have a negative effect on AG students (Fiedler et al., 2002; Shields 2002). Rogers stated there was clear evidence demonstrating homogeneous grouping of AG students as having powerful to moderate academic effects. Any form of homogeneous grouping, full-time, part-time. or a hybrid grouping of AG students was beneficial to AG students. The more time dedicated to homogeneous grouping, the more positive the academic, social, and emotional results (Rogers, 2007).

AG teachers were questioned twice in the survey on the grouping instructional strategy, once in Part IV, Question 23 (use of ability grouping) of the SOP and once in Part V, Question 29 (implementation of cooperative learning) from the Noble (2010) survey. The data showed both questions demonstrated high frequency of implementation of grouping. Grouping was one of the two most frequently used strategies by AG teachers based on the survey results.

Qualitative interview data supported these survey findings as well. AG teachers interviewed were all familiar with the grouping instructional strategies. The two styles of grouping that were discussed by the AG teachers interviewed were either homogeneous or heterogeneous grouping. The demographic data congruently displayed this as a result. The data displayed 93.5% dedicated grouping of either homogeneous (20/46 43.5%) or heterogeneous (23/46 50%) mixture of AG students. The combined survey and interview data illustrated AG teachers who scored positive and very positive perceptions were more likely to implement grouping on a frequent basis.

Research Question 2. Research Question 2 was designed to gain input from AG teachers regarding support or professional development required to assist them with

instruction of AG students. Research Question 2 was designed to investigate and provide demographic data collected from AG teachers to help expose weaknesses or negative patterns that exist. Identification of areas to improve should help districts support AG teachers.

The first demographic information that provided valuable information was years of experience teaching AG students. The data showed the largest number of AG teachers were also the least experienced in teaching AG students. Conversely, the most experienced AG teachers were the least number represented.

The next demographic analyzed and discussed was AG certification. The data demonstrated 18 of 46 (39.1%) AG teachers who participated in this study are not certified AG but are currently teaching AG students. The high percent of noncertified AG teachers warrants the certification program the district formed with Duke University. Four of five AG teachers interviewed stated they were certified through the district partnership with Duke.

The cross tabulation of AG certification with AG perception data demonstrated little to no difference between positive and very positive perception scores. A pattern existed with the higher the AG perception (very positive) score, the higher the probability the AG teacher was certified. The researcher thought there would be a higher frequency of certified AG teachers with a very positive perception score. That was not the case. There was a high level of AG teachers not certified who still showed positive or very positive AG perception scores. Pierce and Adams (2003) experienced similar results between experienced and nonexperienced AG teachers in their research. Additionally, most undergraduate preservice teacher programs do little to prepare teachers for educating AG students (Bain et al., 2007).

The previous demographic pattern demonstrated a high level of noncertified AG teachers transitioned nicely into the analysis of the next area of demographic data–undergraduate AG preparation. This demographic data is one of the most researched and valuable sources to explain the necessary support required for AG teachers. One pattern exposed and discovered indicated AG teachers received little to no training in undergraduate preparation to instruct AG students. Bangel et al. (2010) supported this data by research which stated that most AG students receive their AG instruction from regular education teachers not trained in AG curriculum and instruction. Cross tabulation of demographic data with AG perception total scores provided more input to help understand this pattern. It demonstrated a significant amount of AG teachers who experienced little to no undergraduate preparation also scored a lower AG perception score. The majority of AG preparation takes place at the graduate level or with in-services/workshops. The literature research stressed the importance of AG preparation and instruction at the preservice level (Bangel et al., 2010).

AG teachers were next surveyed regarding graduate AG teacher preparation. The demographic data for graduate preparation demonstrated AG teachers who participated in a graduate program experienced a higher level of preparation to teach AG students. AG teachers who participated in graduate studies selected either adequate or intensive training. Even though the majority experienced some form of training at the graduate level, it was also important to note that the minority, which represented 10/46 (21.7%) AG teachers, still stated they experienced no AG preparation to instruct AG students.

The graduate AG preparation demographic data were cross tabulated with the AG instruction perception/attitudes total score to analyze patterns that existed. One important observable pattern was if the AG teacher experienced little to no AG preparation in the

graduate program, the AG teacher scored lower in the AG perception. The observable second pattern from the data included AG teachers who experienced intensive AG training at the graduate level scored higher in very positive AG perception. This demonstrated graduate programs with intense preparation resulted in higher perception scores. Park and Oliver (2009) stated teachers were required to have vast knowledge of subject matter to help nurture deeper inquiry questioning and engagement of AG students. This supports the claim that further professional development and graduate-level education assisted AG teachers to reach a greater knowledge base of content and instruction.

The next demographic background surveyed was AG educational background. The data collected demonstrated the majority of the AG teachers participated either in a district professional development or in a postmasters or postbachelors certification process. Four of five AG teachers interviewed stated they received a postmasters or postbachelors certification through the district partnership with Duke. A cross tabulation statistical analysis was generated to investigate any further patterns. One pattern between AG educational background demographics and AG perception showed the majority of AG teachers scored positive AG perception regardless of their AG educational background. The trainings, certification, and professional development provided AG teachers with a strong AG perception foundation; however, based on interview data, AG teachers were not receiving adequate assistance to reach a very positive perception score.

The final demographic item surveyed from AG teachers was the level of confidence in teaching AG students. The data results exposed that the majority of respondents rated themselves at a high level of confidence teaching AG students. Cross tabulation was generated to observe if patterns existed between confidence level in

education of AG students and the AG instruction perception total score. A pattern existed in the extremities of novice and expert but not at proficient. The pattern revealed the lower the confidence, the lower the AG perception scores. Conversely, the higher the confidence, the higher the AG perception scores. One of the AG teachers interviewed (participant 1) stated, "I definitely feel comfortable teaching AG, and I feel like I get results from my AG class." Later in the interview process, she verified this statement by providing the growth measure for her AG students, which reflected high growth.

The demographic data that resulted in demonstrating areas of weakness were AG teaching experience, AG certification, and undergraduate preparation. AG teaching experience, combined with AG certification demographics, provided data that a substantial amount of teachers in the district had little to no AG teacher experience and were not certified. Literature research and data exposed a minuscule amount of AG preparation took place at the undergraduate level. It is critical for the district to continue to support and train preservice or inexperienced teachers to offset these weaknesses.

Recommendations

The first recommendation is to increase exposure of AG curriculum and theory in undergraduate course work in the teacher preservice and preparatory university settings (Bangel et al., 2010). The level of exposure to AG training at the undergraduate level displayed from the survey results was distressing. Low exposure to AG preservice educational preparation combined with the survey results that 39.1% (18/46) of the AG teachers currently instructing AG students in the district surveyed are not certified. This data clearly indicated a need for more support and training. AG support and training in undergraduate programs, continual differentiated support, and professional development need to be priorities. Teachers are entering this field ill prepared to instruct AG students

and do not have the certification or tools required for AG students to be successful in their classrooms (Bangel et al., 2010). Collegiate undergraduate/preservice programs could effect dramatic change and major support for AG teachers and AG students alike by inclusion of exposure and practice with the six research-based instruction strategies highlighted in this paper. Literature research stressed the importance of AG preparation and instruction at the preservice level (Bangel et al., 2010). This could be a far reaching but simple and cost-effective approach that could dramatically improve and stimulate across the board confidence in teaching AG students. By incorporating and utilizing the six strategies at the collegiate level, learning could be stimulated and enhanced not only for AG students but for the entire student population.

The experienced AG teachers also need continual training and support combined with collaborative opportunities to learn from each other. Research supports professional development that is delivered with fidelity has an impact on student achievement (Wayne et al., 2008). The lack of professional development support for experienced teachers is evident from the interview data. Participant 4 expressed frustration with the lack of district support. All experienced AG teachers interviewed provided examples of support or professional development needed. Professional development area examples requested by the participants were higher level vocabulary, higher leveled books, and motivation of underachieving AG students including real world examples in AG lessons and vertical collaborative events to discuss AG instruction. Research supported these findings as teachers who are not trained in the specific educational, emotional, and social needs of AG students are not prepared to challenge and support AG student learning (Bangel et al., 2010; Berman et al., 2012; Subotnik et al., 2011). The recommendation here is to enhance continual professional development for experienced AG teachers as well as with

inexperienced or preservice teachers.

The second recommendation is to implement a consistent, stable district director for the AG program. A primary objective for the district must be to employ and sustain an AG district director. During the 3-year period of this research study, the district twice hired AG department heads and both resigned. During the last 2 months of this study, a third AG district department head was hired. In the absence of an AG district department head, the AG teacher participants felt disconnected and not supported. Participant 4 stated, "I don't really feel we get enough support from the district compared to years past . . . And, now I honestly say it's completely almost nonexistent." Participant 2 had no idea who the current district coordinator was or that there was not one currently in that role at the time of that interview.

The researcher found it difficult to communicate and to verify important AG information garnered from the district due to lack of continuity at the helm. Something as simple as compiling a list of AG teachers at the middle school setting was difficult to obtain and even more challenging to verify. The primary list generated by the district was not accurate. The researcher was required to contact the principal and AG coordinator at each middle school to verify and ensure the list of AG teachers was current and accurate. The absence of an AG director and an inaccurate list of AG teachers attributed to the low participation rate of AG teachers in the survey.

The third recommendation as a necessary facet of successfully meeting the needs of AG teachers and students alike would be more effective and efficient scheduling and grouping. Two styles of AG student grouping were present in the district: dedicated homogeneous or dedicated heterogeneous. Four of five (80%) AG teachers interviewed preferred a homogeneous grouping of AG students to facilitate instruction. The AG

teachers found homogeneous grouping more efficient to provide and implement focused and challenging instruction for AG students.

Loveless et al. (2008) demonstrated more time was spent with struggling students instead of with AG students. The SOP survey data also supported more time is spent with special education students. When the SOP was analyzed, it demonstrated that 47.8% (22/46) of the AG teachers selected that they spent most of their time with special education students. AG teachers interviewed stated it was difficult to instruct and plan for such a wide variety of students. Interview data provided AG teacher insight, demonstrating a homogeneous mixture of students provided them the opportunity for a more focused and directed plan. Participant 4 supported homogenous mixture with this statement: "It's really nice just having a group of kids that's certified in a room so I can really focus on some rigor for them and challenge what they need." Participant 5 also stated the need to provide dedicated homogeneous AG grouping for other disciplines such as science and social studies. Currently, the only dedicated homogeneous AG classes are English language arts.

The data gathered from Participant 2 supported homogeneous grouping, stressing the difficulty in planning when required to teach a variety of students or heterogeneously grouped classes. The AG teachers were required to plan instruction content for their AG classes while making different plans for their general education classes. AG teachers might see two general education classes, followed by an AG dedicated homogeneous class, followed by an AG dedicated heterogeneous grouped class. The recommendation is to limit the variety of AG classes an AG teacher instructs in a daily schedule.

Limitations

The first limitation in this study was the number of AG teachers who participated

in the study. Originally 55 AG teachers took some part of the survey. After the results were analyzed, the researcher found that only 46 AG teachers took the complete survey, with two of them not responding to all of the survey questions.

The second limitation was the amount of AG teachers who participated in the interview process. Only five of 46 (10.8%) AG teachers agreed to participate in the interview process. It was difficult to find AG teachers who wanted to participate in the interview process. Of the five who participated in the interview process, it was challenging to arrange time to interview them and receive consistent communication.

The third limitation was the number of schools that did not participate in the study. The district has 14 traditional middle schools; 10 of them consented to participate in the study. Those committed 10 only agreed after a face-to-face presentation conducted by the researcher, followed by a question and answer session.

An additional limitation was the survey itself. The survey only provided one question that surveyed AG teachers on preassessment. The survey needed one more question on frequency of use with preassessment. This would have provided more data to analyze and observe for patterns.

Future Research

Based on the findings and summary of this research, the below list displays the areas and opportunities for future research.

1. The next step in support for AG teachers is classroom observations. The research and data illustrated that AG teachers did not feel supported. They consistently requested more training and support. Observation provides support with feedback for teachers and holds them accountable for implementation of the instructional strategies. Conducting classroom

observations to verify effectiveness of implementation of the six instructional strategies is warranted. Observations are critical to verify if teachers are implementing the strategies correctly and frequently.

2. AG teacher caseloads, combined with grouping of AG students, need to be investigated. Through the interview process, four of five AG teachers discussed a strong preference for homogeneous grouping of students because they could be more efficient in planning AG instruction. Congruently, the schedule and caseload for AG teachers need to be researched to find an optimum balance between AG classes and regular education classes taught in a school year. The AG teachers interviewed stressed the difficulty caused by keeping two classes, such as one AG and one general education, covering the same content at different paces. One participant helped to explain the difficultly of planning for a heterogeneous mix of students: "That's a trick in itself. And, I'm lucky because I have them in groups. I can't imagine a science or social studies teacher who has AG, EL, and EC all in the same class" (Participant 2).

3. Conducting a comparative study using the SOP to verify if the district's certification process is effective. It is important to determine if the high perception data were the result of the Duke certification process or not. These data demonstrated a high perceptions score similar to the findings of Pierce and Adams (2003). This research study was limited to this district. It would also be of interest to compare these data to a different district without a supportive training and certification process. A comparison between the districts could provide valuable data to determine if the certification

partnership with Duke had a positive effect on AG teachers resulting in meeting needs of AG students more effectively.

Final Remarks/Summary

The research and survey of AG teachers was originally designed to gain insight into the perception of specific AG instructional strategies and to discover what the demographic data indicated in terms of district supportive needs for AG teachers. The result of the research data collected illustrated a positive AG perception foundation existed in the district. AG teachers in the district scored positive or very positive with AG perception and reflected a uniform pattern with most of the surveyed questions. The interviews and data indicated that AG teachers possessed a strong understanding and a knowledge base of AG curriculum and instruction.

Of the six instructional strategies researched and surveyed, the two shown as unfamiliar or not frequently used included acceleration and goal setting. The researcher found the lack of implementation of goal setting as an instructional strategy surprising. The district implemented a similar goal setting with AG students, but that process might not include input from classroom teachers. Guidance departments or AG coordinators completing the goal setting conference without teacher participation would explain the low familiarity and implementation of goal setting.

Low usage of acceleration was equally surprising to find because research showed it as the leading instructional strategy suggested for use in educating AG students. The premise of this study was to determine whether the perception produces implementation of AG instructional strategies. The data and research indicated that acceleration as an instructional strategy was the keystone to effective teaching and learning for AG students. Through the interview process, the researcher discerned that acceleration was

not being effectively and consistently utilized, despite existing knowledge and understanding of the strategy. One AG teacher interviewed (Participant 2) stated that there was a disconnect as to what teachers knew and what teachers did in the classroom. Additionally stated by Participant 2 was the fact that much additional work and dedication was necessary to implement AG instructional strategies. Without strategic planning, the frequency of use would not take place even if there was a strong knowledge foundation of the instructional strategy. Further classroom observation was necessary to determine which AG teachers implemented the instructional strategies daily with fidelity. Observing how teachers could implement the strategies daily could be studied and modeled to support struggling AG teachers.

The second research question investigated related to whether demographic data could provide valuable information for improved district support for AG teachers. The most unforeseen demographic data revealed a significant lack of preservice or undergraduate college programs dedicated to addressing the specific strategies necessary to prepare teachers to instruct AG students effectively. This led to ill-prepared teachers who cannot effectively meet the needs of their AG students. Those sentiments were reflected and supported with the response data from the survey.

Bangel et al. (2010) found that over 60% of third- and fourth-grade teachers have no staff development in AG education. VanTassel-Baska (2006) supported that claim, demonstrating that less than 3% of universities provided AG preparation components in their preservice programs. It is vital to continue AG educational professional development, training, and certification programs in districts. The certification programs the district offered with Duke University provided a strong foundation for AG teachers and needs to continue. Continual training or additional professional development would

assist AG teachers in obtaining a very positive perception score.

The critically important information garnered from all the research, survey, and interviews was the light shed on the need to improve academic instruction for all AG students. That can only be accomplished through better teacher preparation at the college level combined with ongoing support in the form of district in-services and professional development to implement time-honored and specific instructional strategies. Analyzed survey data demonstrated positive to very positive perceptions of the six AG instructional strategies.

Survey data combined with interview data demonstrated that four of the six AG instructional strategies were implemented with positive and very positive AG perceptions. Two of the six AG instructional strategies (i.e., acceleration and goal setting) stand out as having the potential to influence AG students' learning positively. Data demonstrated a low implementation and understanding of the strategies; however, these are underutilized by the AG teachers surveyed. Continual observations and ensuing accountability would promote utilization and implementation in the classroom. It is imperative for vigilant usage and monitoring of the aforementioned time-honored and tested strategies to ensure the enhancement of AG teaching to support and enrich AG student learning.

This in-depth study honed in on the critical and imperative necessity for change, not merely in perception but in consistent implementation. In true cyclical fashion, this conclusion mirrored an earlier Renzulli (2005) quote found in this paper. Renzulli (2005) pointed to future shortcomings if attention was not immediately directed toward rectifying the problem. AG students in the U.S. find it difficult to meet their full potential and lack sufficient growth (Hoover-Schultz, 2005; Loveless et al., 2008;

Renzulli, 2005). For example,

> By the time the damage is done it will be too late to reverse a trend that may place
> our country in jeopardy. Unchecked, this trend will leave a dearth of scientists,
> engineers, inventors, entrepreneurs, and creative contributors to all areas of the
> arts and sciences. These kinds of contributions are precisely the things that made
> America a prosperous and powerful nation through the Twentieth Century. Our
> innovation stimulated a powerful knowledge driven economy and shaped a
> country that made its fame and fortune by creating things rather than merely
> making them. Neglect of our most gifted and talented students, including those
> who come from limited economic circumstances, will make it impossible for
> America to compete in a global economy that is driven by new ideas. (Renzulli,
> 2005, p. 32)

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Appendix A

Teacher Demographics and Background

Teacher Demographics and Background

1. What is your gender?

    ☐ Male   ☐ Female

2. Choose from the drop down your age.

3. Choose your ethnicity.

    ☐ African-American, Non-   ☐ Asian, Pacific Islander
       Hispanic
    ☐ Latino, Hispanic   ☐ Native-American
    ☐ White   ☐ Other_____
    ☐ Do not want to respond

4. How many years of teaching Gifted and Talented/AG students do you have?

5. Do you currently hold a N.C. certification/license to teach AG students?

    ☐ Yes   ☐ No
    ☐ No, but I am in college level   ☐ No, but I get reciprocity from
       courses to obtain it.   certification in a different state.

6. Pick one of the following that best describes the type of Gifted and Talented/AG
    teaching you conduct.

    ☐ Dedicated Class of All AG –   ☐ Push in of AG students
       Homogeneous
    ☐ Pull out AG students   ☐ Mixed class of AG students -
                                          Heterogeneous

7. Please select the level of Undergraduate training in gifted education.

    ☐ Intensive   ☐ Adequate
    ☐ Less than adequate   ☐ None

8. Please select the level of post Graduate training in gifted education.

    ☐ Intensive   ☐ Adequate
    ☐ Less than adequate   ☐ None or N/A

9. Please choose one or more from the following that best describes your
    background in Gifted and talented education.

    ☐ Post Bachelor/Masters college   ☐ Gifted and Talented Masters of
       certificate in Gifted and talented   Education
       education provided by district
    ☐ Professional development/   ☐ Professional development/
       training provided by district   training (self-selected non-
                                          district)
    ☐ Minor (Bachelor) Gifted and   ☐ Major (Bachelor) Gifted and

10. Please rate your confidence level in educating the Gifted and Talented Students.

☐ Below Novice   ☐ Novice
☐ Proficient   ☐ Expert

Survey of Practices With Students of Varying Needs

> This instrument is designed to help us understand teacher attitudes about classrooms, students, and teaching practices. The instrument will take about fifteen minutes to complete. Please be sure to answer every question. Thank you for taking time to participate in this study.

Part I:

Read each statement and circle the response that best describes your feelings about the statement. Circle SA if you strongly agree, A if you agree, D if you disagree, SD if you strongly disagree, and DK if you don't know how you feel about the statement.

1. gifted students can make it on their own without teacher direction.	SA	A	D	SD	DK
2. It is important to assess students' knowledge about the topic before beginning a new unit.	SA	A	D	SD	DK
3. If tests indicate that a student has acquired basic skills, the teacher should omit the regular assignments and modify the curriculum for that student.	SA	A	D	SD	DK
4. gifted students will take their regular assignments and make them more challenging on their own.	SA	A	D	SD	DK
5. If students have already mastered some of the material before starting a unit, they should be given alternative assignments.	SA	A	D	SD	DK
6. An effective way to identify gifted students is to look for students with the highest grades.	SA	A	D	SD	DK
7. In the classroom, content should be varied to match students' interests and abilities.	SA	A	D	SD	DK
8. To assure that all students have the same knowledge base, it is appropriate to present curriculum information to all students in the same way.	SA	A	D	SD	DK
9. Allowing gifted students to work on assignments that are different from the rest of the students is playing favorites and fostering elitism.	SA	A	D	SD	DK
10. gifted students need longer assignments since they work faster.	SA	A	D	SD	DK
11. gifted students are easy to identify in the classroom.	SA	A	D	SD	DK
12. Some underachievers are actually gifted students.	SA	A	D	SD	DK
13. Having gifted students work on individual projects or					

| assignments isolates them from the rest of the class. | SA | A | D | SD | DK |
| 14. Grouping students is more detrimental than beneficial. | SA | A | D | SD | DK |

Part II:

In thinking about students in the classroom, please rank the following three groups according to the amount of time and attention each one receives. Place a 1 beside the group receiving most of your attention. Place a 2 beside the next group. Place a 3 beside the group receiving the least amount of attention. If you feel you give equal time to all groups, place an E in each blank.

15. Special education students __

16. Average students __

17. gifted students _

Part III:

How confident do you feel about the following? Rate from 1 (no confidence) to 5 (very confident) by circling the response that best describes your feelings:

18. Adapting my lessons to meet the needs of Gifted learners	1	2	3	4	5
19. Accommodating varying levels of ability in my class	1	2	3	4	5
20. Assessing where students are and designing appropriate lessons	1	2	3	4	5
21. Individualizing instruction to meet the needs of Gifted learners	1	2	3	4	5
22. Identifying gifted students	1	2	3	4	5

Part IV:

Which specific techniques, activities, or Instructional Strategies do you think you would use with each of the following learners in the classroom? Place a check in the appropriate column. Do not check strategies unfamiliar to you.

	gifted students	Average Students
23. Ability grouping (Grouping)		
24. Curriculum Compacting (Acceleration)		

25. Higher level thinking activities (Higher order)		
26. Problem-solving activities (Higher order/inquiry		

Part V: Strategy frequency of use: (Modified from TEACHER DEMOGRAPHICS, INSTRUCTIONAL STRATEGIES, AND LEARNING SKILLS SURVEY by James Noble)

Please make a selection for each Instructional Strategy that reflects how often you use this strategy

Instructional Strategy/Skill	How frequently do you use this strategy?	Survey Key:
27. Acceleration of content knowledge	1 2 3 4 5 ⬤ ⬤ ⬤ ⬤ ⬤	Means you:
28. Open ended Inquiry (Higher Order)	1 2 3 4 5 ⬤ ⬤ ⬤ ⬤ ⬤	- (1) Hardly Ever Use -(2) Use Once in a While -(3) Often Use
29. Cooperative Learning (Homo/Hertro Grouping)	1 2 3 4 5 ⬤ ⬤ ⬤ ⬤ ⬤	-(4) Regularly Use -(5) Nearly Every Lesson
30. Goal Setting	1 2 3 4 5 ⬤ ⬤ ⬤ ⬤ ⬤	

Appendix B

Request to Use an Existing Survey

Request to Use an Existing Survey

2/21/16

Dear Dr. Tomlinson,

I met you about a year and a half ago in Greensboro, N.C. You were presenting at a Ptec professional development on Differentiation. I came up and spoke to you during break. You and I discussed Gifted strategies that teachers can use in the classroom. Little did I know after countless hours of research that I would stumble across a survey that you were part of creating in 1995. I am in the preliminary stages of my dissertation about to complete a proposal of the first three chapters. I have been searching for a survey instrument that has been vetted that relates to Gifted Teachers' perceptions and thought process on teaching strategies. I think your survey would be perfect.

I am currently a doctoral student at Gardner-Webb University writing my dissertation on teacher perceptions of research-based Gifted teaching strategies. Currently I am working under the guidance and direction of my dissertation committee chaired by Dr. Rapp.

I would like to gain your permission to reproduce and use the 1995 Survey of Practices With Students of Varying Needs Link. I would like to use your survey under the following conditions with your permission:

I will use the SOP survey only for my research study and will not sell or use it with any compensated or curriculum development activities.
I will include the copyright statement on all copies of the instrument.
I will be happy to send a copy of my research study by request.

If these are acceptable terms and conditions, please indicate by emailing me with your permission. I look forward to hearing from you.

Sincerely,

Ian Olsen
Doctoral candidate

Appendix C

Approval to Use SOP Survey

Approval to Use SOP Survey

TC   Tomlinson, Carol Ann (cat3y) <cat3y@virginia.edu>

👍   ↩ Reply | ⌄

To: ▪ Olsen, Ian R; ⌄   Mon 2/22/2016 6:19 PM

You replied on 2/24/2016 3:49 PM.

Hello, Ian-

You have permission to use the 1995 Survey of Practices with Students of Varying Needs in your dissertation work as you have described it in your e-mail.

Best of luck as you complete this important part of your doctoral requirements!

Carol

Carol Ann Tomlinson, Ed.D.,
William Clay Parrish, Jr. Professor & Chair
Educational Leadership, Foundations, & Policy
Curry School of Education
University of Virginia

Appendix D

Approval to Conduct Research

Approval to Conduct Research

P.O. Box 2513 • Winston-Salem, NC 27102-2513

WS/FCS
Winston-Salem   Forsyth County Schools

Project ID 2016-31

Approval Form for Research Project to be conducted
in the Winston-Salem/Forsyth County Schools

Name of Principal Investigator: Ian Olsen

Advisor's Name (if student): Dr. Phillip Rapp

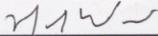Research/Educational Institution Gardner-Webb

Research Title: Teachers' perception on specific teaching strategies

Tailored to Challenge learning in academically gifted students.

The above project has been approved by the Winston-Salem/Forsyth County Schools Administrative Offices. Stipulations to this approval, if any, are noted below. *The investigator understands that the principals have the authority to grant or deny permission for the study to be conducted in their schools.*

Project Timeline: Spring 2016 - Fall 2017

Stipulations:
All project activities will be coordinated through Rebecca Young

Data Confidentiality Form Needed?   (Check if yes)   :

Marty Ward, Ph.D.
WS/FCS Research & Evaluation

July 6, 2016
Date

Board of Education
Dana Caudill Jones, Chair • Robert Barr, Vice Chair • Lori Goins Clark • Lida Calvert Hayes
Mark Johnson • Victor Johnson, Jr. • Elisabeth Motsinger • David Singletary • Deanna Taylor

Dr. Beverly Emory, Superintendent

Appendix E

Institutional Review Board-IRB Approval

GARDNER-WEBB
UNIVERSITY

**Institutional
Review Board**

THIS IS TO CERTIFY THAT THE RESEARCH PROJECT TITLED

Teachers' perceptions of specific teaching strategies tailored to challenge learning in Academically Gifted students.

being conducted by Ian Robert Olsen

has received approval by the Gardner-Webb University IRB. Date _10-4-16_

Exempt Research

Signed

Department/School/Program IRB Representative

Department/School/Program IRB Member

Expedited Research

Signed

Department/School/Program IRB Representative

Department/School/Program IRB Member

IRB Administrator or Chair or Institutional Office

Non-Exempt (Full Review)

Signed

IRB Administrator

IRB Chair

IRB Institutional Officer

Expiration Date _____

IRB Approval:

___✓___ Exempt _____ Expedited _____ Non-Exempt (Full Review)

GARDNER-WEBB
UNIVERSITY

APPLICATION TO CONDUCT RESEARCH WITH HUMAN SUBJECTS
(Researcher must complete this form before request can be submitted to IRB.)
Please save this form to your computer before completing.

Name of Researcher Ian Robert Olsen _____ Date 9/18/16 _____

GWU ID# 000904177 _____ Email Address iolsen@gardner-web.edu _____

Mailing Address 4355 Yadkinville Rd _____

Phone 231-313-8150 _____

Department Ed Leadership _____

Faculty Sponsor (if student research) Dr. Rapp _____

Faculty Sponsor Email Address prrapp@live.com _____

Phone Number 336-239-0320 _____

Title of Research Project Teachers' perceptions of specific teaching strategies tailored to challenge learning in Academically Gifted students. _____

LEVEL OF IRB REVIEW REQUESTED
In order to identify the level of review you are requesting, please read the descriptions below and select the applicable box(es).

☒ Exempt Review Request
Please review the Exempt categories below and indicate the category that applies to your research. Please note: if your study does not fall into one of the categories below it cannot be reviewed as exempt.

☑ (1) Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

☐ (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

☐ (3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (2) of this section, if: (i) the human subjects are elected

or appointed public officials or candidates for public office; or (ii) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

❑ (4) Research involving the collection or study of existing data*, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.
*Existing data is defined as materials that are "on the shelf" at the time the research is submitted to the IRB.

❑ (5) Research and demonstration projects which are conducted by or subject to the approval of Department or Agency heads, and which are designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs.

❑ (6) Research involving taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture

◯ Expedited Review Request

Federal regulations provide that certain types of research may be considered for review through an expedited process (45 CFR 46.110). A primary criterion for expedited review is that the research be of minimal risk. The Office of Human Research Protections (OHRP) defines minimal risk as risk where the probability and magnitude of harm or discomfort anticipated in the proposed research are not greater, in and of themselves, than that ordinarily experienced in daily life or during the performance of routine physical or psychological examinations. In addition, the purpose of the research must fit within a series of categories as stipulated by DHHS regulations.

Please confirm statements A and B are true for your study (by checking the boxes in front of the statement) and indicate the appropriate category under C.

❑ (A) The research poses no greater than minimal risk.

❑ (B) The identification of the subjects/and or their responses would not reasonably place the subject at risk of criminal or civil liability or be damaging to the subject's financial standing, employability, insurability, reputation, or be stigmatizing, unless reasonable and appropriate protections will be implemented so that the risk to privacy and breach of confidentiality are no greater than minimal.

❑ C) Review the Expedited categories below and indicate the category that applies to your research. **Expedited Categories:**

❑ (1) Clinical studies of drugs and medical devices.

❑ (2) Collection of blood samples by finger stick, heel stick, ear stick, or venipuncture from (a) healthy, non-pregnant adults who weigh at least 110 lbs.; (b) other adults and children, considering the age, weight, and health of the subjects, the collection procedure, the amount of blood to be collected, and the frequency of collection. For these subjects, the amount drawn may not exceed 550ml in an 8 week period and collection may not occur more frequently than 2 times per week.

❑ (3) Prospective collection of biological specimens for research purposes by noninvasive means. For example: hair/nail clippings, external secretions, saliva, mucosal skin collected by buccal swab.

❑ (4) Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures involving x-rays or microwaves. For example: (a) physical sensors that are applied to the surface of the body; (b) weighing or testing sensory acuity; (c) magnetic resonance imaging: (d) electrocardiography, electroencephalography, ultrasound, Doppler blood flow, and echocardiography; (e) moderate exercise, muscular strength testing, body composition assessment, and flexibility testing where appropriate given the age, weight, and health of the individual. ***Where medical devices are employed, they must be cleared/approved for marketing. (Studies intended to evaluate the safety and effectiveness of the medical device are not generally eligible for expedited review, including studies of cleared medical devices for new indications).***

❑ (5) Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for non-research purposes (such as medical treatment or diagnosis).

❑ (6) Collection of data from voice, video, digital, or image recordings made for research purposes.

❑ (7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Full Committee Review: Applications that do not meet the definition of Minimal Risk (see definition above) to the participants or do not meet the qualifications of Exempt or Expedited review must be presented to the Full IRB Committee for discussion and vote.

DESCRIPTION OF RESEARCH

What is your hypothesis/research question(s)?

How does teacher perception of gifted education influence instructional implementation and instructional practice?

How can AG teacher demographic information be utilized to help predict which AG teachers require intense AG support or training?

How many subjects do you expect to use, and how will you obtain this sample (describe population)?

There are seventeen middle schools in the district that served a total of 1,951 AG students over those three grade levels for the 2013-14 school year. In 2014-15 the district served 2,116 AG students. Of the seventeen total there are fourteen schools that use the traditional middle school model 6-8 grades. The other three are a combination of grades. Two of the schools used 6-12 grade model and one used K-8 grade model. The district served 603 AG 6th graders, 657 AG 7th

What is your research methodology? Attach any surveys, instruments, or tests to this form with the appropriate references.

This project was a Mixed Method dissertation using quantitative and qualitative data gathering. The Explanatory Sequential Design was implemented for this Mixed Methods research to develop a more comprehensive perspective of the research problem. A survey was emailed to all the teachers at the middle school level who teach AG students. The survey was composed of teacher demographic information, teacher attitudes towards gifted instruction, and teacher perception of specific AG instructional strategies. The study is a Mixed Methods research investigation utilizing qualitative and quantitative data to observe if teacher perceptions of gifted education influence instructional strategies used in the classroom. The ability to use components of both qualitative and quantitative study helped to eliminate flaws found in both styles of research, while providing a more complete investigation. The Explanatory Sequential Design was implemented for this mixed methods research. The qualitative stage of the mixed methods research was in the form of opportunistic sampling. The type of qualitative data conducted was an interview. A thematic content analysis was used to interpret, analyze and identify themes from the qualitative interview data gathered.

Describe the research procedure. Attach a copy of the consent form and a copy of the debriefing statement. Describe how and when these will be used.

After IRB approval of this research study was granted, the researcher got approval to conduct research in the school district. An email letter was developed by the researcher to request use of the SOP survey in February. Approval to use the SOP survey was granted by Dr. Tomlinson February 2, 2016 and the documentation is in Appendix C. Upon approval to conduct research in the district and IRB approval, the researcher communicated with middle school principals in the district to gain permission to conduct the study at their school. After the principal granted permission, the researcher contacted sixth through eighth grade teachers at the participating schools with school district email. The participating teachers from participating schools had the SOP in an electronic survey emailed to them in fall 2016. The information gathered using a Google Document from the survey and each participant gets a unique identification number upon conducting the survey. If response rates from participating schools and teachers were too low a second email was sent and if it continued to be low after the second email a paper copy was sent to teachers. After the survey results were completed (Late fall 2016) an interview of teachers was conducted. The process includes an interview with at least ten percent of teachers who participated in the survey study. The researcher used Opportunistic Sampling & interviews.

Does this research pose risk to the subject? If so, what protocol will be enacted to protect the subject?

No.

Does this research involve deception of any kind? (If applicable, please explain.)

No.

Will any incentives be used? If so, please explain.

No.

How will you protect the subject's right NOT to participate in your research?

The research is Voluntary. All subjects have the right to not participate if they make that choice.

How will you protect the subject's confidentiality of results?

To maintain the privacy of the participants each school was assigned a letter and each teacher a number to keep data collected confidential (ex. M1, M2, M3 or A1, A2, and A3). Only the researcher knew correlating school codes and it was not be publicly shared. The researcher will maintained separate confidential school codes in a spreadsheet never shared

How, when, and where will the research results be reported?

The research data will be cleaned, analyzed and organized with assistance of Statistical Package for the Social Sciences (SPSS) to be presented in chapter four and five of the dissertation. It was used by the researcher for all the quantitative data analysis. Each participating school was provided unique link to keep data collected from teachers organized by school. The surveys were all exactly the same, but the data gathered was collected and organized into spreadsheets for each school. To maintain the privacy of the participants the researcher will maintained separate confidential school codes in a spreadsheet never shared.

If this changes, be sure to contact the IRB with an update. If, for example, a faculty member publishes research results, he/she should forward this information to the IRB.

When do you anticipate completing this research? **Winter of 2016** _____

Signatures: (Hand-written signatures are required for IRB submission.)

Researcher _____ Date _9/21/16_

Print Above Name **Ian Robert Olsen** _____

Faculty Research Advisor, please note. In signing this document, you verify that you have reviewed the protocol and approve of the procedures described therein. You also have verified that the Student Researcher is currently IRB certified. Also, in order to act as the Faculty Research Advisor for this student, you must complete the IRB Certification Training. Training is valid for three years.
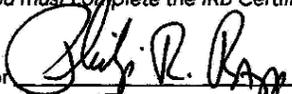
Faculty Sponsor _____ Date _9/21/16_
(if student research)

Print Above Name ___Philip R. Rapp_____

Required attachments:
- Copy of Informed Consent Form
- Copy of Instruments, Surveys, Tests, and Interview Questions, etc.
- Permission to use published instruments (If applicable)
- Signed External IRB Approval Form (If Required)
- Evidence of CITI Certification

Please submit only signed documents to the IRB.

Appendix F

Communication Letter to Middle School Principals for Consent

Communication Letter to Middle School Principals for Consent

July 23, 2016

Dear Middle School Principal or Teacher of Academically gifted students:

My name is Ian Olsen. I am an Assistant Principal at Diggs-Latham Elementary School. I have worked as an educator in WSFC school system for over eight years. Congruently I am also Doctoral candidate in the Educational Leadership Department at Gardner-Webb University. I am conducting a research study as part of the requirements of my Doctoral degree, and I would like to invite you to participate.

The purpose of this anonymous, voluntary Mixed Methods study will focus on gaining insight from teachers who instruct AG students in the middle school setting, to determine if their perceptions of the instructional needs of the AG students influence utilization (or non utilization) of successful research-based Instructional Strategies. The information gathering and analysis by means of surveys, interviews, and research will provide insight and understanding of teacher perception and implementation of specific AG teaching strategies. Information and insight gathered would help educators better understand effective strategies utilized and implemented by teachers of AG students.

The study has two components of which participants are able to partake in either or both. The first research component is a demographic background questionnaire combined with educational question survey regarding teacher input of AG instruction. You would simply complete the survey digitally by following the link provided in an email. The second component is an interview to help the research understand the data gathered and trends discovered.

Participation is anonymous and confidential. No one will know your name or answers to the questions or interview. The research study, data, and results will be published with the strictest confidentiality and no identification information of participants or school will be included nor disclosed. Participation in this study is your decision and at any time, you can withdraw your decision to participate. The information gathered would be utilized to understand trends in the population that is being studied. Should you have any points of clarification or questions, I can be reached at (231) 313-8150 or at irolsen@wsfcs.k12.nc.us.

Sincerely,

Ian Olsen
4355 Yadkinville Rd
Winston-Salem, NC 27106
(231) 313-8150
irolsen@wsfcs.k12.nc.us

Appendix G

Communication to Director of Instruction

Communication to Director of Instruction

Nail, Amy H
Sent Items

Hey Dr. Nail,

I reached out to the middle schools where I will conduct my research for my dissertation today to get the names of AG teachers who instruct AG students. The middle school principals stated they sent you a list of all the AG teachers at their school this year. Do you have a list of middle school AG teachers? I contacted the administrative assistant for AG and she did not mention a list. If you have one would you be able to share it with me? I need to send out a survey next week to AG teachers at the middle school setting where I got permission to conduct research. It would be helpful.

Thanks,

Appendix H

Email Communication to AG Teachers

Email Communication to AG teachers

Good morning,

- My name is Ian Olsen. I am an Assistant Principal at Diggs-Latham Elementary School in our WSFCS district. I am also a Doctoral candidate in the Educational Leadership Department at Gardner-Webb University. I am conducting a research study as part of the requirements of my Doctoral degree, and I would like to invite you to participate.

- The purpose of this anonymous and voluntary study will focus on gaining insight from teachers who instruct AG students in the middle school setting. The study will gather data from AG teachers on instructional strategies and trends for AG students. Information and insight gathered will help educators better understand effective strategies utilized and implemented by teachers of AG students.

- The study has two components that participants can partake in. The first research component is a 37-question survey regarding teacher input of AG instruction. You would simply complete the survey digitally by following the link provided in this email. The second component is an optional interview to help the researcher understand the trends discovered from the data gathered.

Follow this link to take the survey: https://www.surveymonkey.com/r/82N6CFH

Participation is anonymous and confidential. No one will know your name or answers to the questions or interview. Participation in this study is your decision and at any time you can withdraw your decision to participate. I appreciate you time and consideration of participating in the data gathering. Should you have any points of clarification or questions, I can be reached at (231) 313-8150 or at irolsen@wsfcs.k12.nc.us.

Follow this link to take the survey: https://www.surveymonkey.com/r/82N6CFH

Sincerely,

Ian Olsen

Appendix I

Participant Consent Form

PARTICIPANT CONSENT FORM FOR _____

Teachers' perceptions of specific teaching strategies tailored to challenge learning in Academically Gifted students

By: Ian Olsen

 I have been given information about research title and discussed the research project with Ian Olsen who is conducting this research as part of a Ed.D in educational leadership supervised by Dr. Rapp in the department of Educational leadership at Gardner-Webb University.

I have been advised of the potential risks and burdens associated with this research, which include publication of content or information gathered from this interview omitting names in a dissertation format. I have had an opportunity to ask Ian Olsen any questions I may have about the research and my participation.

I understand that my participation in this research is voluntary, I am free to refuse to participate and I am free to withdraw from the research at any time. My refusal to participate or withdrawal of consent will not affect my treatment in any way or my relationship with the researcher, or relationship with Gardner-Webb University.

If I have any enquiries about the research, I can contact Ian Olsen (231-313-XXXX) or Dr. Phill Rapp (336-239-XXXX). If I have any concerns or complaints regarding the way the research is or has been conducted, I can contact the Institutional Review Board Office at Gardner-Webb University (704-406-4724).

By signing below I am indicating my consent to (please check):

- ☐ I am participating in an interview that helps analyze data that was collected from a survey that AG teachers completed.
- ☐ I understand that the interview data collected from my participation will be used in a dissertation publication and I consent for it to be used in that manner.
- ☐ I understand that no personal information of mine will not be shared or published and that my identity will remain private and not be included in any part of the research. Even this consent documentation will be omitted from final publication to keep identity of participant private.

Name (please print)

....
Signed   Date

....
        ..../......./......