HIGH SCHOOL TEACHERS' PERCEPTIONS OF THEIR APPLICATION OF STUDENT-CENTERED-LEARNING INSTRUCTIONAL STRATEGIES

by

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(Under the Direction of Elaine Adams)

ABSTRACT

This study investigated the influence of gender, primary subject area, and education level on high school teachers' perceptions of their application of student-centered-learning instructional strategies. An original survey was used to evaluate teacher perceptions. The survey contained a short demographic section, 28 items related to perception of application of student-centered-learning instructional strategies, and four items related to perception of school administration and fellow teacher support of these same strategies. Cronbach alpha for the overall instrument was .94, which suggested strong reliability and internal consistency. All core and non-core high school teachers in 13 public school districts in northeast Georgia served as the sample. A total of 470 valid responses were returned, yielding a response rate of 45.6%.

Descriptive statistics were used to describe participants' overall perceptions of application of student-centered-learning instructional strategies. A series of one-way analysis of variance (ANOVA) procedures were used to compare perceptions of teachers based on gender, primary subject area, and education level. No statistically significant difference in teacher perception was found based on gender. No statistically significant difference in teacher perception was found based on education level. A statistically significant difference in teacher

perception was found based on primary subject area. Effect size for this difference was -0.32, which indicated a small effect. Correlations were used to determine relationships between teachers' perceptions of application of student-centered-learning instructional strategies and perceived school administration and fellow teachers' support of these same strategies. A statistically significant positive correlation was found between teachers' perception of application of student-centered-learning instructional strategies and perceived school administration support of these same strategies. A statistically significant positive correlation was found between teachers' perception of application of student-centered-learning instructional strategies and perceived fellow teacher support of these same strategies.

This study adds to literature on teachers' perceptions of student-centered-learning instructional strategies. The study indicated that teachers perceived they are using student-centered-learning instructional strategies, and other strategies as well. Teacher education programs and professional development should focus on these strategies in efforts to increase frequency of use of the strategies. Additionally, the study indicated that teachers feel supported by both school administration and fellow teachers in regards to the use of student-centered-learning instructional strategies.

INDEX WORDS: Student-centered-learning instructional strategies, High School Teachers, Perception

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DEDICATION

To my family.

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INTRODUCTION

Rationale

Society and the economy are becoming more global. Both are overloaded with information, knowledge, and skills that must be learned and then relearned quickly as things change (Nellie Mae Education Foundation, 2011; Belton & Scott, 1998; Jobs for the Future, 2012). Day (1998) stated that "learning in the twenty-first century [is] a requirement" (p. 420). In addition, people must become more "self-reliant in the process of learning" (Belton & Scott, 1998, p. 900). People should not depend only on education and formal schooling to acquire new knowledge and skills for their daily and work-related lives, but also should know how to learn. People should have the ability to acquire new knowledge and skills through self-taught methods (Nellie Mae Education Foundation, 2011; Goldberg, Traiman, Molnar, & Stevens, 2001). Faced with a rapidly changing world and the need for lifelong learning, teachers are in a position to help learners become more independent in how they learn (Jobs for the Future, 2012; Raya & Fernandez, 2002; Smart, Witt, & Scott, 2012).

Today's fast-paced world requires student-centered-learning instructional strategies. Teacher-centered instruction cannot provide students with the skills they need to keep up with the rapid changes occurring today (Nellie Mae Education Foundation, 2011; Gningue, Peach, & Schroder, 2013). In teacher-centered instruction, students listen while teachers lecture, and students respond to teachers' directions instead of constructing their own meaningful knowledge or skills (Doyle, 2008; Gningue et al., 2013; Kahl & Venette, 2010; Ke & Kwak, 2013; Raya &

Fernandez, 2002; Smart et al., 2012). Teacher-centered instruction is defined as lecture-based and teacher-led demonstrations where knowledge is transmitted from the teacher to the students (de Kock, Sleegers, & Voeten, 2004; Doyle, 2008; Gningue et al., 2013; Smart et al., 2012). The teacher is a director, deciding what is to be learned, how it is to be learned, and when it is to be learned (Bishop, Caston, & King, 2014; de Kock et al., 2004; Doyle, 2008). Teachers define and explain key concepts, provide examples, explain relationships, and demonstrate skills. Some discussions take place, but the teacher usually asks questions and students respond (Kahl & Venette, 2010). Teachers often teach how they were taught, which often was through traditional, teacher-centered methods (Kahl & Venette, 2010). Most students have learned through the use of traditional teaching methods. Consequently, some researchers argued that this was no longer what education should do (Nellie Mae Education Foundation, 2011; Broad, 2006; Chu, 2010; Day, 1998; de Kock et al., 2004; Doyle, 2008; Gningue et al., 2013; Perry, Phillips, & Hutchinson, 2006; Sandholtz, 2011; Smart et al., 2012). Instead, these scholars advocated that education should encourage and create opportunities where students may develop skills that will make them independent and lifelong learners (Nellie Mae Education Foundation, 2011; Chu, 2010; Doyle, 2008; Huddleston & Oh, 2004). School and learning should not be looked at as the "initial preparation for the remainder of one's life" but as an opportunity to learn basic skills that will equip students to learn independently throughout life (Day, 1998, p. 420). Ott's (2001) and Zimmerman's (2002) studies found that there were few public school teachers who prepared students to learn on their own. The way students were taught in the classroom had little or no resemblance to how they learned on the job or beyond that classroom (Bishop et al., 2014; Doyle, 2008; Ott, 2001; Zimmerman, 2002). Researchers suggested that current K-12 standards be revamped so that students have opportunities to learn how to learn independently (Chu, 2010;

Jobs for the Future, 2012; Mckenna, 2013; Miller, Gross, & Ouijdani, 2012; Raya & Fernandez, 2002; Smart et al., 2012).

Several scholars reported that students who participated in student-centered-learning instructional strategies retained more information and skills and were more engaged in their learning because they were not waiting for the teacher to teach them (Bishop et al., 2014; Doyle, 2008; Perry et al., 2006). Additionally, scholars found that students who participated in student-centered-learning instructional strategies had a deeper and better understanding of what they learned (Belton & Scott, 1998; Brackenbury, 2012; Brame, 2014; Perkins, 2008; Westermann, 2014). A deeper and better understanding of what was learned through the strategy of student-centered learning led to increased student achievement (Peters, 2010; Polly, Margerison, & Piel, 2014). Students were able to recognize their strengths and limitations, while setting goals to be successful in the classroom (Peters, 2010). Students were proactive in their learning through the use of student-centered-learning instructional strategies (Peters, 2010; Zimmerman, 2002).

Many researchers claimed that a transition from teacher-centered learning to student-centered learning is needed (Brackenbury, 2012; Doyle, 2008; Gow & Kember, 1993; Kember, 1997; Mckenna, 2013; Miller et al., 2012; Prosser & Trigwell, 1999; Prosser, Trigwell, and Taylor, 1994; Smart et al., 2012). However, many educators are still not implementing student-centered learning in their classrooms (Mckenna, 2013; Miller et al., 2012; Paige, 2010; Rawat, Thomas, & Qazi, 2012). Teachers may not have knowledge to implement student-centered-learning instructional strategies. They may not know how to use it with their content area. Educators may be unaware of the student benefits associated with student-centered-learning instructional strategies. They may fear a change in instructional practices, or they may be

unwilling and unmotivated to try new strategies (Applefield, Huber, & Moallem, 2001; Mckenna, 2013; Paige, 2010; Rawat et al., 2012).

Even if the aforementioned research were presented to high school teachers, not all of them would have the same perceptions of their application of student-centered-learning instructional strategies. Understanding teachers' perceptions of their application of student-centered-learning instructional strategies is the first step required in changing teachers' attitudes and behaviors about implementing these strategies in their classrooms (Ajzen & Fishbein, 1980; Miller et al., 2012; Paige, 2010). Therefore, this study sought to determine Georgia high school teachers' perceptions of their application of student-centered-learning instructional strategies.

The literature revealed student-centered learning research with both high school teachers and students (Brush & Saye, 2000; Ke & Kwak, 2013; Miller et al., 2012; Rodriguez-Valls & Ponce, 2013; Vega & Tayler, 2005; Wang & Reeves, 2006). Research reported the benefits of student-centered learning for secondary level students (Belton & Scott, 1998; de Kock et al., 2004; Ke & Kwak, 2013; Miller et al., 2012; Perry et al., 2006; Raya & Fernandez, 2002; Rodriguez-Valls & Ponce, 2013; Sampsell-Willmann, 2014). Student-centered-learning instructional strategies have been compared to other instructional strategies used at the postsecondary level (Cranton, 1994; Mansson, 2013; Murphrey, 1999; Sampsell-Willmann, 2014; Smart et al., 2012; Whitsed, 2004). These studies found that adult learners benefited from instructional strategies supporting student-centered learning (Cranton, 1994; Fletcher & Ershler, 2014; Galt et al., 2013; Gohardani, Gohardani, Dokter, & Macario, 2014; Murphrey, 1999; Smart et al., 2012; Thompson & Licklider, 2011; Whitsed, 2004). Research about student-centered-learning instructional strategies in elementary school classrooms discussed how it benefited elementary-aged students (Garrett, 2008; Harris, Phillips, & Penuel, 2011; Polly et al., 2014;

Strickland, Morrow, Girling-Butcher, Philips, & Clay, 1991). Students at different levels of education benefited from student-centered learning. However, no research has been conducted that sought to find current high school teachers' perceptions of their application of student-centered learning.

Purpose

The purpose of this study was to determine Georgia high school teachers' perceptions of their application of student-centered-learning instructional strategies. The independent variables were gender, primary subject area, and education level. Gender was defined as man or woman (Centra & Gaubatz, 2000; Grossman & Grossman, 1994; Lauber & Wimer, 2004; Yasar, Baker, Robinson-Kurpius, Krause, & Roberts, 2006). Primary subject area was defined as teaching in core or non-core subject areas (Cross, 2009; Ellis, 1993; Georgia Department of Education, 2015; Georgia Standards, 2013; Hopkins, McGillicuddy-De Lisi, & De Lisi, 1997; Scott & Sarkees-Wircenski, 2004). Core subject areas included English Language Arts and Reading, Mathematics, Science, and Social Studies and non-core subject areas included Fine Arts, Health Education, Physical Education, Modern Languages and Latin, and Career Technical Education as identified by the Georgia Department of Education (Georgia Department of Education, 2015). Education level was defined as highest degree obtained, undergraduate degree or graduate degree (Akbari & Dadvand, 2011; Almarza, 1996; Bangs, 2008; Barnett, 2003; Borg, 2003; Boswell & Tackett, 2005; Chu, Martinez-Griego, & Cronin, 2010; Early et al., 2007; Ediger, 2011; Findell, 2007; Ignash & Slotnick, 2007; Louisiana State Board of Regents, 2005; Lu, Shen, & Poppnik, 2007; Mann, 2005; Meeder & Suddreth, 2012; Moore, Jez, Chisholm, & Shulock, 2012; Richards, Ho, & Giblin, 1996; Roccanova, 2000; Scheerer, 2012; Shaul, 2003; Temel, Mirzeoglu, & Mirzeoglu, 2013; Washbon, 2012; Washington State Higher Education

Coordinating Board, 2006). Undergraduate degree included associate degree and bachelor's degree, and graduate degree included master's degree, educational specialist degree, and Doctorate of Education or Doctorate of Philosophy.

The dependent variable in this study was Georgia high school teachers' perceptions of their application of student-centered-learning instructional strategies. In the literature, different but related definitions of teacher perception were present. Andrews and Brown (2015) simply described teacher perception as cognition of teaching and learning. Czerniak, Lumpe, and Haney (1999) described teacher perception as teachers' own beliefs, viewpoints, principles, or opinions about teaching and learning. A similar definition described it as a reflection of teachers' thoughts, beliefs, and opinions regarding teaching and learning (Merç, 2015). Other scholars defined teacher perception as conscious or unconscious beliefs that are gathered from what others say or do (Rokeach, 1968; Tarman, 2012). Every day, teachers make decisions and judgements that are influenced by their perceptions. In this study, teachers' perceptions of their application of student-centered-learning instructional strategies was defined as the beliefs and behaviors teachers have about their own use of instructional strategies that support the tenets of student-centered learning (Ajzen & Fishbein, 1980; Andrews & Brown, 2015; Applefield et al., 2001; Bayindir, 2010; Belton & Scott, 1998; Czerniak et al., 1999; de Kock et al., 2004; Grieve, 2010; Hrbackova & Vavrova, 2012; Lau, 2013; Lea, Stephenson, & Troy, 2003; Merç, 2015; O'Neill & McMahon, 2005; Peters, 2010; Raya & Fernandez, 2002; Rokeach, 1968; Tarman, 2012).

Educators and philosophers like Dewey, Rogers, Piaget, Knowles, and Froebel have all made contributions to professional thought surrounding student-centered-learning instructional strategies (McDonald, 2012; O'Neill & McMahon, 2005). Student-centered learning has its roots

in constructivism (Ke & Kwak, 2013; Kember, 1997). It is defined as the active involvement and development of students' knowledge and understanding rather than passively obtaining surface-level information given to them by their teacher (Doyle, 2008; Elen, Clarebout, Leonard, & Lowyck, 2007; Peters, 2010; Phillips & Volker, 2014; Pucha & Utschig, 2012). Students' learning is the primary focus point. Attention is paid to what students learn and how they perform and master concepts, and how they build meanings, capabilities, and skills versus what the teacher does (Bishop et al., 2014; Chu, 2010; Doyle, 2008; Elen et al., 2007; Hamdan, McKnight, McKnight, & Arfstrom, 2013; Lara, 2007; Pucha & Utschig, 2012; Westermann, 2014). Teachers' role is one of a facilitator, not a presenter of information (Hein, 2012; Ke & Kwak, 2013; Kember, 1997; O'Neill & McMahon, 2005; Peters, 2010; Phillips & Volker, 2014). In this role, the teacher demonstrates processes and skills, examines student learning, regulate activities, and offers guidance or assistance (de Kock et al., 2004; O'Neill & McMahon, 2005; Peters, 2010). Student-centered-learning instructional strategies focus on students carrying out tasks, demonstrating skills, and constructing meaningful knowledge that show understanding rather than memorizing facts through participation in rote learning (Bishop et al., 2014; Doyle, 2008; Lara, 2007). Student-centered-learning instructional strategies give students choices; students may choose what to learn, how to learn, and the reason why they chose a particular topic (Bishop et al., 2014; Doyle, 2008; Lara, 2007). Choices for learning help support deep learning and understanding within students (Bishop et al., 2014; Doyle, 2008; Lara, 2007; McDonald, 2012). Student-centered-learning instructional strategies require students to be responsible and accountable for their own learning while at the same time promote learning in others (Brandes & Ginnis, 1986). Students' responsibility and accountability result in personal growth and development, learner interdependence, and relevant life-long learning skills and

knowledge (Chu, 2010; Elen et al., 2007; Lara, 2007; McDonald, 2012; O'Neill & McMahon, 2005; Peters, 2010). To summarize, students must demonstrate responsibility, accountability, and awareness of their learning while working with other students and the teacher to provide and receive support, feedback, and encouragement (Elen et al., 2007; Lara, 2007; O'Neill & McMahon, 2005; Peters, 2010).

Although literature on student-centered learning revealed complicated and general definitions of student-centered learning, several scholars summarized the overall instructional strategy to include nine tenets (Lea et al., 2003; O'Neill & McMahon, 2005). The tenets provide a succinct description of student-centered learning and its key components are reflective in instructional strategies that differ from those commonly associated with teacher-centered methods. The tenets are as follows:

1. Learning is active, not passive. Involvement and participation are necessary for learning.
2. There is emphasis on deep learning and understanding.
3. Students are responsible and accountable for their own learning. The learner has full responsibility for her/his learning.
4. There is autonomy in the learner.
5. There is interdependence between the teacher and learner.
6. There is mutual respect between the learner and teacher.
7. There is a reflexive approach to the teaching and learning process on the part of both teacher and learner.
8. The relationship between learners is equal and promotes growth and development.
9. The teacher is a facilitator and resource person.

Research Questions

Research questions are helpful tools used by researchers to give particular focus to the purpose of a study. Research questions allow researchers to examine relationships among variables. They are often used in educational research and especially in survey research (Creswell, 2008). The following research questions were used in this survey research study to guide data collection and analysis.

1. What are the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies?
2. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on gender?
3. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on primary subject area?
4. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on education level?
5. What is the correlation between teachers' perceptions of their application of student-centered-learning instructional strategies and perceived school administration support of these same strategies?
6. What is the correlation between teachers' perceptions of their application of student-centered-learning instructional strategies and perceived fellow teachers' support of these same strategies?

Instrument

No appropriate survey instrument was found to measure teacher perception as defined in this study. Therefore, an original survey (see Appendix A) was developed to collect data on the topic. After reviewing the literature, key words and techniques related to student-centered learning and perception were identified. The nine tenets of student-centered learning, instructional strategies associated with student-centered learning, and common language from the literature were used to compose survey statements. The instrument allowed the researcher to collect data about teachers' perceptions of their application of student-centered-learning instructional strategies. See Appendix B for research supporting survey statements.

Participants were asked to rate their frequency of use for each statement on a scale from 1 to 5, where 1 was Never, 0% of the time, or zero times per week and 5 was Always, 100% of the time, or 4-5 times per week. A short demographics section was included at the beginning of the survey to collect information about gender, primary subject area, and education level. The theory of reasoned action was used to frame the survey instrument and guided this study. The theory states that a person already has a negative or positive value attached to their beliefs (Benoit & Benoit, 2008; Petty & Krosnick, 1997; Raden, 1985). Furthermore, a person's perceptions can be described as their level of like or dislike about an idea or concept (Petty & Krosnick, 1997; Raden, 1985). Therefore, survey responses were used to assess the influence of gender, primary subject area, and education level on Georgia high school teachers' perceptions of their application of student-centered-learning instructional strategies. A numerical value was assigned to each statement. Values on the scale reflected the frequency of use for each statement about student-centered-learning instructional strategies. Values of frequency were as follows: 1= never (0% of the time or 0 times per week), 2= seldom (25% of the time or1-2 times per week),

3= sometimes (50% of the time or 2-3 times per week), 4= often (75% of the time or 3-4 times per week), and 5= always (100% of the time or 4-5 times per week). This scale was created using existing scales and their descriptions from the literature (Aldridge, Fraser, Bell, & Dorman, 2012; Bernaus & Gardner, 2008; Danaia, Fitzgerald, & McKinnon, 2013; Elledge et al., 2013; Nix, Fraser, & Ledbetter, 2003; Riley, 2013; Smith, 2010; Smith & Valentine, 2012; Taylor, Fraser, & Fisher, 1997; Zhou & Intaraprasert, 2015). Teachers' responses to statements related to student-centered learning provided an understanding about their perceptions of their application of student-centered-learning instructional strategies.

Theoretical Framework

The purpose of this study was to determine to effects of gender, primary subject area, and education level on Georgia high school teachers' perceptions of their application of student-centered-learning instructional strategies. In order to do so, it was necessary to research how perceptions were formed and how perceptions affect attitude and behavior of teachers. Attitude and change theories were researched to support this study about teachers' perceptions of student-centered-learning instructional strategies.

Several prominent theories discussed attitude and change. One was Bem's (1972) self-perception theory. This theory stated that attitudes are developed when observing our own behavior and deciding what attitudes caused them. This theory, however, did not support the idea that perceptions and attitudes are developed prior to behavior. Another theory that deals with attitude and change was the cognitive dissonance theory (Festinger, 1962). Cognitive dissonance theory posed that people have a need to reduce inconsistencies in their beliefs, attitudes, and behaviors. This theory stated that discomfort caused by dissonance motivates one to change. Cognitive dissonance theory did not give a clear image of how attitudes were formed.

It was also difficult to apply this theory to specific attitudes or behaviors. Therefore, Bem's (1972) self-perception theory and Festinger's (1962) cognitive dissonance theory were deemed inappropriate for the research sought in this study.

Fishbein and Ajzen's (1975) theory of reasoned action proved to be useful and appropriate for studying high school teachers' perceptions of their application of student-centered-learning instructional strategies. Fishbein and Ajzen developed this theory in the 1960s. It was taken from the field of social psychology. The theory of reasoned action came from an idea that there is a relationship between attitudes and beliefs and eventually led to studies of behavior and attitude. The theory of reasoned action joins perceptions, attitudes, and beliefs. It posited that a person's behavior depends on his or her attitude about the behavior and subjective norms (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). In other words, an individual's intended behavior is predicted by his or her attitude toward that behavior and how he or she feels others would perceive them if they carried out the behavior.

The theory of reasoned action stated that perceptions influence attitude. A person will form an attitude toward a behavior based on their perception of that behavior and its consequences (Ajzen & Fishbein, 1980). Their attitude toward a behavior also was formed from the perceptions of others toward them if they demonstrate the behavior. However, Benoit and Benoit (2008) found that perceptions were influenced by other factors, such as other people, money, and time to name a few. If perceptions can change, attitude and behavior can change as well.

Fishbein and Ajzen's (1975) theory of reasoned action was used in several educational research studies to understand teachers' attitudes and to make improvements in classroom instruction (Baden, 2014; Burak, Rosenthal, & Richardson, 2013; Chang, Huang, & Chang,

2013; Chen & Chen, 2006; Gross, Whitbred, Skalski, & Liu, 2013; Kim & Kim, 2013; Martinez-Torrez, Toral, Barrero, & Gallardo, 2007; Prusak, Davis, Pennington, & Wilkison, 2014; Pryor & Pryor, 2009; White, Charles, & Nelson, 2008; Zacharias, 2003). This theory was used often because it has strong predictive value (Becker & Gibson, 1998; Jeffres, Carroll, Rubenking, & Amschlinger, 2008; Lemoyne & Valois, 2014; Sheppard, Hartwick, & Warshaw, 1988).

The theory of reasoned action is one that investigates perceptions. A person will develop an attitude toward a behavior based on his or her perception of the behavior and its consequences (Ajzen & Fishbein, 1980; Hrbackova & Vavrova, 2012). Historically, the theory of reasoned action was used in perception studies (Bang, Ellinger, Hadjimarco, & Traichal, 2000; Becker & Gibson, 1998; Mckemy & Rehman, 2003; Sheppard et al., 1988; Shinde, 2003). Perception can be defined as what an individual understands or knows. It can also include a way of regarding or interpreting something. Synonyms for perception include insight, thoughtfulness, judgment, and belief (Merriam-Webster, 2016). The theory of reasoned action states that there is a relationship between attitudes and beliefs, and perceptions are joined with attitudes and beliefs. A person's behavior depends on his or her attitude about the behavior and subjective norms. An individual's intended behavior is predicted by his or her attitude toward that behavior and how he or she feels others would perceive them if they carried out the behavior. Theory of reasoned action also stated that perceptions influence attitude (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975).

In this study, teachers' perceptions of their application of student-centered-learning instructional strategies was defined as the beliefs teachers have about their own use of instructional strategies that support the tenets of student-centered learning (Ajzen & Fishbein, 1980; Czerniak et al., 1999; Lau, 2013; Lea et al., 2003; O'Neill & McMahon, 2005; Peters, 2010; Rokeach, 1968; Tarman, 2012). Perceptions influence attitude. A person will form an

attitude toward a behavior based on his or her perception of that behavior and its consequences (Ajzen & Fishbein, 1980). Their attitude toward a behavior was also formed from the perceptions of others toward them if they demonstrate the behavior. Therefore, a teacher will form an attitude (favorable or unfavorable) toward the behavior, such as how he or she instructs students, based on their perceptions of said behavior and its consequences. A teacher's attitude toward the behavior also was formed from the perceptions of others (subjective norm) toward them if they demonstrate the behavior. Subjective norm is defined as a person's belief of whether important people think the behavior should be performed. In this study, subjective norms were teachers' administration and fellow teachers. Studies used administration and fellow teachers as subjective norm pieces and found that these individuals influenced teachers' instructional practices (Blase & Blase, 1999; Blase & Blase, 2000; Hsieh, Yen, & Kuan, 2014; Marks & Printy, 2003; Omwenga, Nyabero, & Okioma, 2015; Pierce & Ball, 2009; Salleh & Laxman, 2015; Supovitz, Sirinides, & May, 2010; Talbot & Campbell, 2014; Teo, 2009; Wahlstrom & Louis, 2008). Teachers' perception of student-centered learning will be formed based on their classroom behavior (application of student-centered-learning instructional strategies) and how they think their administration and fellow teachers would view them if they behaved in ways that were supported by the tenets of student-centered learning. A teacher's attitude toward a behavior and subjective norms make up behavioral intention. This component was added to theory of reasoned action to clarify attitude and actions (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975).

Perceptions influence attitude. Attitude indicates an individual's favorable or unfavorable feelings toward a behavior. According to theory of reasoned action, people will have a positive attitude toward performing a behavior if he or she feels that doing so will result

in positive outcomes or prevent negative ones (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Attitude is determined by belief and evaluation of outcomes of the belief. These beliefs are called behavioral beliefs. People also have salient beliefs about behavior. Salient beliefs are what come to mind when thinking about carrying out a specific behavior. Additionally, attitude is determined by salient beliefs and is influenced by accessible beliefs. These beliefs can be strong or weak (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). Although teachers may perceive they do not use or support student-centered-learning instructional strategies, they might still implement a strategy or two in their classes unknowingly, while maintaining a weak belief toward the strategies. Conversely, a teacher may perceive they know all about student-centered-learning instructional strategies and believe they are implementing them appropriately. A teacher may even answer survey items confirming his or her use of such strategies, when in reality, the strategies are not being implemented correctly or at all. However, their belief of the strategy is strong and thus affects their perceptions of their application of student-centered-learning instructional strategies (Talbot & Campbell, 2014).

Therefore, it is appropriate to apply the theory of reasoned action to this study and to the survey (see Appendix A) constructed to collect data. The survey was created using the nine tenets as described earlier by Lea et al. (2003) and O'Neill & McMahon (2005) and using other common themes and language in the literature that described and supported student-centered learning (Applefield et al., 2001; Armitage, 2011; Baxter, 2014; Bishop et al., 2014; Brackenbury, 2012; Cubukcu, 2012; Duncum, 2012; Elen et al., 2007; Galt et al., 2013; Garrett, 2008; Lea et al., 2003; O'Neill & McMahon, 2005; Pucha & Utschig, 2012), instructional strategies (Abell, Jung, & Taylor, 2011; Armitage, 2011; Bishop et al., 2014; Brame, 2014; Czekanski & Wolf, 2013; Garnett & Vanderlinden, 2011; Hamdan et al., 2013; Peters, 2010;

Pucha & Utschig, 2012) and teacher perception (Cubukcu, 2012; Hrbackova & Vavrova, 2012; Miller et al., 2016; Pedersen & Liu, 2003; Peters, 2010; Petty, Good, & Handler, 2016; Robertson & Jones, 2013). Twenty-eight survey statements asked teachers to reflect on how they believe they are applying student-centered-learning instructional strategies in their teaching. In other words, do the survey statements describe teachers' beliefs of their instructional strategies? Do teachers believe they are using the strategies described in each survey statement? Four survey items asked teachers to indicate their perception of support from their administration and fellow teachers. Hrbackova and Vavrova (2012) argued that all teachers have an idea of teaching "which directs his [or] her conduct in the classroom" (p. 230). This idea serves as a foundation for teachers' pedagogical actions and thinking, which influence how teachers teach. Hrbackova and Vavrova found that although the use of student-centered learning had become a more common instructional strategy, not every teacher was convinced that it was important. Teachers' perceptions of application of student-centered learning can be very different (Hrbackova & Vavrova). For example, teachers may think they support student-centered learning but neglect to apply the appropriate instructional strategies in teaching. Therefore, by surveying teachers about their perceptions of applying student-centered-learning strategies and how their administration and other teachers influence those beliefs, their perceptions of application of student-centered-learning instructional strategies were identified and understood (Ajzen & Fishbein, 1980; Hrbackova & Vavrova, 2012).

Perception is a key component of the theory of reasoned action (Ajzen & Fishbein, 1980). In this study, the theory of reasoned action was used to determine how the variables gender, primary subject area, and education level influenced teachers' perceptions of their application of student-centered-learning instructional strategies. Results obtained from this study may serve as

a forerunner to further research into teacher attitudes, behaviors, and perceptions toward student-centered learning or other instructional strategies.

Importance of Study

Although prior research studied student-centered learning, these studies mainly concentrated on benefits for students (Belton & Scott, 1998; Jenkins, 2011; Raya & Fernandez, 2002; Rodriguez-Valls, 2013), adult learners (Bishop et al., 2014; Browne-Ferrigno, & Muth, 2012; Fletcher & Ershler, 2014; Garnder, 2011; Hains & Smith, 2012; Herlo, 2014; Peyton, Moore, & Young, 2010), elementary learners (Gaw, 2014; Perry et al., 2006; Podolefsky, Rehn, & Perkins, 2013; Rufo, 2014; Turner, 2011), and on comparing student-centered learning with other strategies (Barnes, 2014; Belton & Scott, 1998; Burns, Pierson, & Reddy, 2014; de Kock et al., 2004; Murphrey, 1999; Raya & Fernandez, 2002; Rodriguez-Valls, 2013). The value of this study lies in its contribution to the understanding of teacher perceptions of their application of student-centered-learning instructional strategies. Perceptions form attitudes and may be influenced by several factors. This study examined possible relationships between gender, primary subject area, and education level on high school teachers' perceptions of application of student-centered learning. The theories on attitude formation and attitude change may be strengthened or extended by understanding how these variables and others affect perception, attitude, and behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975).

Understanding teachers' perceptions of their application of student-centered-learning instructional strategies can offer practical information so other teachers may develop positive perceptions about this strategy (Benoit & Benoit, 2008). This is critical because many national and state curriculum standards, including those in Georgia, are performance based, and require teachers to use student-centered learning in classrooms (Georgia Department of Education, 2014;

Hamilton, Stecher, & Yuan, 2008; Sandholtz, 2011; U.S. Department of Education, 2012). Athavale, Davis, and Myring (2008) stated that involvement and faculty agreement was important to any new teaching strategy, program, or idea because the teachers will ultimately create, use, and evaluate the success of the strategy, program, or idea. Their perceptions may influence strategies they use in their classrooms. Awareness of teachers' perceptions will signal areas where perceptions may need strengthening. Understanding differences in gender, primary subject area, and education level may reveal the areas that need strengthening. This could lead to changes in teaching and learning. If teachers' perceptions are changed, then teaching strategies may change.

This study also will provide important information for teacher educators. If teachers perceive they are not applying student-centered-learning strategies, this could be a topic of study in teacher education programs. Furthermore, if positive relationships exist between gender, primary subject area, or education level and student-centered learning, this could be a foundation for further exploration, research, and opportunities for teachers to fully understand and eventually solely use student-centered learning to educate the future.

Lastly, it is the researcher's hope that this study will impact at least one teacher and his or her students. Maybe this study will encourage a teacher to learn about or begin using student-centered-learning instructional strategies or to use these strategies more often and bring about positives outcomes for his or her students. The ultimate goal of the research is to lead to positive outcomes for high school students. If one teacher's instructional strategies or classroom practices change or are affected by this study, the researcher will be content and know that she has made a small difference in the world of education.

CHAPTER 2

REVIEW OF LITERATURE

Student-centered learning has its roots in constructivism and focuses on students actively building knowledge and understanding rather than passively obtaining information given to them by their teacher (Elen, Clarebout, Leonard, & Lowyck, 2007; Hannafin & Land, 2000; Ke & Kwak, 2013; Lara, 2007; O'Neill & McMahon, 2005). This instructional approach is not new; however, many high school teachers are not using it or are struggling to implement it successfully in their classrooms (Brush & Saye, 2000; Mckenna, 2013; Miller, Gross, & Ouijdani, 2012; Vega & Tayler, 2005; Wang & Reeves, 2006).

Although state and national curricula call for the use of student-centered-learning instructional strategies, many high school teachers are sticking to traditional teaching methods and strategies (Mckenna, 2013; Miller et al., 2012; Peters, 2010). Demanding or suggesting to teachers that they implement student-centered learning as part of their teaching does not mean it will happen. This study investigated high school teachers' perceptions of student-centered-learning instructional strategies in an effort to add to and extend the literature on this instructional strategy and to, hopefully, impact one teacher ultimately impacting students.

A review of literature provided a foundation for this study. Chapter 2 presents a review and synthesis of research literature regarding the following concepts or topics: (a) student-centered learning, (b) strengths of student-centered-learning instructional strategies, (c) criticisms of student-centered-learning instructional strategies, (d) student-centered learning in high schools, (e) student-centered learning as a Georgia instructional initiative, (f) information

about Georgia high school teachers and school systems, (g) perception theories, and (h) summary.

Student-Centered Learning

Contributions to student-centered learning were made by the educators and philosophers Dewey, Rogers, Piaget, Knowles, and Froebel (McDonald, 2012; O'Neill & McMahon, 2005). Student-centered learning comes from constructivism and focuses on students actively building knowledge and understanding rather than passively obtaining surface-level information given to them by their teacher (Doyle, 2008; Elen et al., 2007; Hannafin & Land, 2000; Ke & Kwak, 2013; Lara, 2007; O'Neill & McMahon, 2005; Peters, 2010; Pucha & Utschig, 2012). Students' learning is at the heart of this strategy and attention is paid to what students learn, how they perform and master concepts, and how they build meanings, capabilities, and skills versus what the teacher does. Hands-on activities, authentic tasks, and classroom discussions are strategies that allow students to actively participate in construction of knowledge, understanding, and concepts (Bishop, Caston, & King, 2014; Chu, 2010; Doyle, 2008; Elen et al., 2007; Hamdan, McKnight, McKnight, & Arfstrom, 2013; Lara, 2007; Pucha & Utschig, 2012; Westermann, 2014). The teachers' role is one of a facilitator, not a presenter of information (Hein, 2012; Ke & Kwak, 2013; Kember, 1997; O'Neill & McMahon, 2005; Peters, 2010; Phillips & Volker, 2014). Student-centered learning is concerned with students carrying out tasks, demonstrating skills, and constructing meaningful knowledge that show understanding rather than memorizing facts through participation in rote learning. When students demonstrate skills, they are participating in a student-centered-learning instructional strategy (Bishop et al., 2014; Doyle, 2008; Elen et al., 2007; Lara, 2007; McDonald, 2012; O'Neill & McMahon, 2005; Peters, 2010). Student-centered learning gives students choices; they may choose what to learn, how to learn,

and the reasons why they chose to learn a particular topic (Cubukcu, 2012; Hamdan et al., 2013; Westermann, 2014). Choices and decisions help promote deep learning and understanding within students; choices and decisions are one instructional strategy of student-centered learning (Bishop et al., 2014; Doyle, 2008; Lara, 2007; McDonald, 2012). Student-centered learning requires students to be responsible and accountable for their own learning while at the same time promoting learning in others (Brandes & Ginnis, 1986). Students' responsibility and accountability result in personal growth and development, learner independence, and relevant life-long learning skills and knowledge (Chu, 2010; Elen et al., 2007; Lara, 2007; McDonald, 2012; O'Neill & McMahon, 2005; Peters, 2010). In summary, students must be responsible, accountable, and aware of their learning while other students and the teacher provide support, feedback, and encouragement (Elen et al., 2007; Lara, 2007; O'Neill & McMahon, 2005; Peters, 2010).

Lea, Stephenson, and Troy (2003) and O'Neill and McMahon (2005) summarized the literature on student-centered learning to include nine tenets. The tenets provide a clear and concise description of student-centered learning and its key components. The tenets are as follows:

1. Learning is active, not passive. Involvement and participation are necessary for learning.
2. There is emphasis on deep learning and understanding.
3. Students are responsible and accountable for their own learning. The learner has full responsibility for her/his learning.
4. There is autonomy in the learner.
5. There is interdependence between the teacher and learner.
6. There is mutual respect between the learner and teacher.

7. There is a reflexive approach to the teaching and learning process on the part of both teacher and learner.
8. The relationship between learners is equal and promotes growth and development.
9. The teacher is a facilitator and resource person.

Active Learning, Involvement, and Participation

Active learning, involvement, and participation are important components of student-centered learning (Elen et al., 2007; Lara, 2007; Hannafin & Land, 2000; Ke & Kwak, 2013; O'Neill & McMahon, 2005; Peters, 2010; Wright, 2011). Researchers advocated that for learning to take place, learning must be active, and students must be involved in and participate in problem solving, reasoning, and critical thinking activities with other students and the teacher. Hands-on activities (Applefield, Huber, & Moallem, 2001; Miller et al., 2012; Peters, 2010; Phillips & Volker, 2014; Pucha & Utschig, 2012), discussions (Ahn & Class, 2011; Bishop et al. 2014; Brackenbury 2012; Peters, 2010; Ripp, 2014), choices and decisions (Applefield et al., 2001; Brackenbury 2012; Pucha & Utschig, 2012; Ripp, 2014; Robertson & Jones, 2013), and interdisciplinary activities (Aslan & Reigeluth, 2013; Lima, Carvallo, Flores, & Van Hattum-Janssen, 2007; Miller et al., 2012; Nerantzi, 2012; Reigeluth et al., 2015) are student-centered-learning instructional strategies that promote active learning, involvement, and participation (Belton & Scott, 1998; de Kock, Sleegers, & Voeten, 2004; Hannafin & Land, 2000; Ke & Kwak, 2013; Wright, 2011). Participation in the classroom can be described as active learning or engagement that benefits one's knowledge, critical thinking, writing, appreciation of cultural differences, time management, and listening and speaking skills (Czekanski & Wolf, 2013; Hannafin & Land, 2000; Ke & Kwak, 2013). Scholars reported that students were actively involved and participated more often in student-centered learning classrooms than classrooms

that were structured differently (Peters, 2010; Wright, 2011; Zimmerman, 2002). Construction and transformation of knowledge and skills occurred when students were active and involved participants in their learning through discussions and hands-on activities. (Applefield et al., 2001; Shenton, 2009). Students were involved in and engaged in classroom activities; they were making choices about their learning, working with peers or helping peers, communicating with students and the teacher, and efficiently allocating time (Czekanski & Wolf, 2013). These are examples of student-centered-learning instructional strategies.

According to researchers (O'Neill & McMahon, 2005; Peters, 2010; Zimmerman, 2002), students viewed student-centered learning as a more interesting and exciting approach to learning. They were more likely to take risks, explore new ideas, and become engaged in the process of inquiry and problem solving. Student-centered learning allowed students to become more self-reliant and self-motivating by active involvement and participation in their learning (Belton & Scott, 1998; Peters, 2010; Wright, 2011). A few ways to encourage activity and involvement is through the use of opportunities for students to discuss their work and for students to carry out investigations (Ahn & Class, 2011; Applefield et al., 2001; Bishop et al., 2014; Brackenbury, 2012; Miller et al., 2012; Peters, 2010; Pucha & Utschig, 2012; Ripp, 2014).

Active learning, involvement, and participation increased opportunities for students to learn how to learn. The literature confirmed that learning to learn is an important part of today's education (Belton & Scott, 1998; de Kock et al., 2004; Wright, 2011). Students were able to figure things out on their own, learn from trial and error, and work with others to find solutions to problems (Peters, 2010). Learning how to learn through problem solving, critical thinking, and other higher order thinking and reasoning skills were ways for students to be active and

involved participants in their own education (Belton & Scott, 1998; de Kock et al., 2004; Wright, 2011).

Deep Learning and Understanding

Dr. Benjamin Bloom created Bloom's Taxonomy in 1956 to promote higher forms of thinking such as analyzing, synthesizing, and evaluating (Bloom, 1956). Such levels of thinking were discussed in the literature and were used to describe student-centered-learning classrooms and instructional strategies (Anderson et al., 2000; Applefield et al., 2001; Belton & Scott, 1998; Brackenbury, 2012; Brame, 2014; Galt et al., 2013; Kintsch, 1998; Perkins, 2008; Perry, Phillips, & Hutchinson, 2006; Raya & Fernandez, 2002; Shenton, 2009; Westermann, 2014). Brackenbury (2012) argued that deep learning is supported by Bloom's taxonomy, and the analysis, synthesis, and evaluation levels of cognitive functioning are indeed deep learning. Scholars agreed that two types of deep learning exist: performative and proactive. Performative deep learning focuses on students' abilities to use their current knowledge to solve complicated and unusual problems. Proactive deep learning goes beyond performative deep learning in that students must be able to apply current knowledge in new and different situations (Brackenbury, 2012; Perkins, 2008). Real-life learning activities (Ahn & Class, 2011; Ke & Kwak, 2013; Miller et al., 2012; Peters, 2010; Pucha & Utschig, 2012), interdisciplinary activities (Aslan & Reigeluth, 2013; Lima et al., 2007; Miller at al., 2012; Nerantzi, 2012; Reigeluth et al., 2015), investigations (Ahn & Class, 2011; Applefield et al., 2001; Brackenbury 2012; Miller et al., 2012; Pucha & Utschig, 2012) and hands-on activities (Applefield et al., 2001; Miller et al., 2012; Peters, 2010; Phillips & Volker, 2014; Pucha & Utschig, 2012) are several student-centered-learning instructional strategies that promote and encourage deep learning.

Researchers found that student-centered-learning instructional strategies allowed for deep learning and understanding (Anderson et al., 2000; Belton & Scott, 1998; Bloom, 1956; Brackenbury, 2012; Brame, 2014; Perkins, 2008; Westermann, 2014). Students were able to reach holistic levels of thinking, retain information longer and better, and make better use of what they learned by participating in activities that involved: analyzing materials and concepts so that structures or theories were organized or understood; synthesizing information and skills to create, design, organize, or plan for a new structure or pattern using diverse materials; and evaluating ideas or elements through comparisons, conclusions, critiques, explanations, justifications, and summaries (Anderson et al., 2000; Bloom, 1956; Brackenbury, 2012; Brame, 2014; Perkins, 2008; Westermann, 2014). Complex, problem-based, and real-life tasks important to student-centered learning also promoted deeper levels of understanding (Applefield et al., 2001; Belton & Scott, 1998; Brackenbury, 2012; Brame, 2014; Westermann, 2014).

Brackenbury (2012) and Kintsch (1998) found that when learning structures were committed to long-term memory, students accessed and applied these structures to other situations, resulting in meaningful learning. Meaningful learning occurs when students make decisions to relate new information to knowledge previously attained (Galt et al., 2013). Students can be given opportunities to do so through the implementation of hands-on activities (Applefield et al., 2001; Miller et al., 2012; Peters, 2010; Phillips & Volker, 2014; Pucha & Utschig, 2012), student choices (Applefield et al., 2001; Brackenbury 2012; Pucha & Utschig, 2012; Ripp, 2014; Robertson & Jones, 2013), and critical thinking (Ahn & Class, 2011; Brackenbury, 2012; Ke & Kwak, 2013; Miller et al., 2012; Pucha & Utschig, 2012). Other scholars argued that meaningful learning occurs when students form contexts for the task they are completing (Brame, 2014; Perry et al., 2006; Raya & Fernandez, 2002; Shenton, 2009;

Westermann, 2014). The context must be personally significant and related to students' learning. Personal significance included students' actions, feelings, and thoughts (Novak, 2010). When students applied these contexts to other scenarios, meaningful learning occurred (Brackenbury, 2012; Brame, 2014; Kintsch, 1998; Perry et al., 2006; Raya & Fernandez, 2002; Shenton, 2009; Westermann, 2014).

Student Responsibility and Accountability

Research revealed several findings for student responsibility and accountability. While participating in student-centered-learning instructional strategies, students developed responsibility and accountability for their own learning and became more conscientious for their learning (Applefield et al., 2001; de Kock et al., 2004; O'Neill & McMahon, 2005; Pucha & Utschig, 2012). Successful implementation of student-centered-learning instructional strategies involved students taking full responsibility and accountability for learning (Jobs for the Future, 2012; O'Neill & McMahon, 2005; Peters, 2010). A student-centered-learning classroom should be designed and managed in such a way that students are able to take responsibility and accountability for their learning (Peters, 2010). Students developed responsibility and accountability when the teacher served as a resource person or facilitator, when students were given opportunities to work with and rely on one another, and when students were given choices for learning (Ahn & Class, 2011; Novak, 2010; Pucha & Utschig, 2012). Teachers challenged and encouraged students to become responsible by giving them instructional choices, by providing real-world and authentic problems and activities, by providing opportunities to work with peers and teachers, and by giving students opportunities to develop plans, goals, and take initiative for learning (Ahn & Class, 2011; Armitage, 2011; Garnett & Vanderlinden, 2011; Ke & Kwak, 2013; Pucha & Utschig, 2012; Robertson & Jones, 2013).

Learning choices, an instructional strategy for students, were present in descriptions or discussions of student-centered learning (Ahn & Class, 2011; Lea et al., 2003; O'Neill & McMahon, 2005; Peters, 2010). Allowing students to set their own learning objectives helped students become responsible and accountable (Ke & Kwak, 2012; O'Neill & McMahon, 2005; Peters, 2010). Students enjoyed having choices related to their learning experiences. Learning choices gave students a sense of ownership and this led to greater individual responsibility. Students knew their teacher and classmates were holding them responsible for their choices and contributions (Peters, 2010; Wright, 2011). Brackenbury (2012) had a similar finding; classes that gave students choices required accountability for their learning and were found to be more enjoyable.

Student-centered learning must require students to gain responsibility by setting goals, taking initiative, planning, relying on their own learning styles, and monitoring their own academic progress (Jobs for the Future, 2012). Responsibility was demonstrated through knowledge development, engagement, and improved performance (Ke & Kwak, 2013). Students also took responsibility when they were allowed to form their own ideas using information they had researched or constructed. In other words, students knew they were responsible for researching and compiling information to share with classmates (Peters, 2010). Hein (2012) and Peters (2010) reported that as students developed work ethic and teamwork skills, responsibility for their learning was also demonstrated. When self-assessments were used in student-centered-learning classrooms, responsibility and accountability were developed (Jobs for the Future, 2012).

Responsibility and accountability were described as empowering; they allowed students to maintain a level of control over their own learning (Ahn & Class, 2011; Lea et al., 2003).

Control of learning included processing information, developing effective strategies, and transferring skills as active participants in a student-centered learning environment (Perry et al., 2006; Raya & Fernandez, 2002; Shenton, 2009). Students demonstrated control, responsibility, and accountability by working independently of the teacher. Independence encouraged students to contribute to their own learning and the learning of others (Applefield et al., 2001; Lea et al., 2003; Hein, 2012; Peters, 2010; Tan, 2010). Learner autonomy was established.

Learner Autonomy

Autonomy was defined as the freedom students have to make choices about instruction, such as the planning, execution, and evaluation of his or her work. It was further described as the freedom or independence to make choices free from outside influence (Ke & Kwak, 2013; Robertson & Jones, 2013). Here, outside influences are grades or other rewards. Robertson and Jones (2013) posited that autonomy should be related to one's intrinsic motivation. Gentry, Peters, and Mann (2007) defined autonomy as the "ability to choose courses and determine the order or type of assignments, to self-pace the curriculum, and to experiment with a profession" (p.382). Since autonomy is a goal of student-centered learning, scholars agreed that learners should be given opportunities to develop autonomy and that they should be independent and self-reliant (de Kock et al., 2004; Garrett, 2008; Lau, 2013; Lea et al., 2003; Paige, 2010; Perry et al., 2006; Peters, 2010; Rezaee, Saeedakhtar, & Rouhi, 2014; Shenton, 2009; Susuwele-Banda, 2005).

Researchers reported that autonomous students decide how to learn. They were given choices related to their assignments. Student choices are an example of a student-centered-learning instructional strategy (Elen et al., 2007; Gentry et al., 2007). Paige (2010) stated that autonomous learners were independent, self-reliant, and self-directed toward goals. Others

reported that rigorous tasks encouraged learner autonomy (Gallini & Barron, 2002; Ke & Kwak, 2013). Opportunities to develop or practice autonomy resulted in positive outcomes. Scholars reported that increased motivation in students was seen as a result of practicing autonomy (Gallini & Barron, 2002; McCombs, 2012; Robertson & Jones, 2013).

Students should be autonomous in student-centered-learning classrooms. This was consistently found throughout the literature, and researchers agreed that students must be autonomous learners (de Kock et al., 2004; Jobs for the Future, 2012; Perry et al., 2006; Raya & Fernandez, 2002; Shenton, 2009; Wright, 2011). Autonomy is demonstrated in several ways. Students do not rely on the teacher to give them information or answers. Students exhibit self-reliance; they become their own teachers. Students are independently motivated about the learning process (Perry et al., 2006; Raya & Fernandez, 2002; Shenton, 2009). A more autonomous learning environment produced a more effective learning process (Lima et al., 2007). For example, retention of concepts and material was greater; students made better use of what they learned. Retention was greater because students participated in activities that required them to be autonomous. They had to think on their own rather than passively receive rote information from teachers (Belton & Scott, 1998; Brackenbury, 2012; Brame, 2014; de Kock et al., 2004; Ke & Kwak, 2013; Perkins, 2008; Peters, 2010; Westermann, 2014).

Interdependence

Interdependence means there must be teacher-to-student and student-to-student interactions that take place during learning (Hannafin & Land, 2000; Ke & Kwak, 2013; Pucha & Utschig, 2012). Teachers and learners in a student-centered-learning classroom relied on each other to complete tasks, accomplish common goals, and support one another (Ahn, & Class, 2011; Brame, 2014; Pucha & Utschig, 2012; Westermann, 2014; Wright, 2011).

Ahn and Class (2011) described interdependence between learners and teacher using Vygotsky's Zone of Proximal Development (ZPD) (Vygotsky, 1978). In the ZPD, successful learning occurs at an ideal difficulty level where the task to be completed is not too easy or too difficult. Vygotsky described the ideal difficulty level as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). In this model, tasks or activities which learners are capable of completing are shown. Learners are capable, but only with the help from a teacher or peers. This help is called scaffolding and is part of interdependence. The ZPD has been expanded by researchers and includes students working with teachers and students simultaneously and students working with students to complete tasks (Donato, 1994; Van Lier, 2004). Students worked with peers of equal, lower, or higher abilities, or used their own past experiences or existing knowledge to complete tasks. Students also used commitment and motivation to finish an activity (Donato, 1994; Riazi & Rezaii, 2011; Sun, Wang, & Chan, 2011; Van Lier, 2004; Walqui, 2006).

Scholars agreed that assignments and classroom activities should encourage students to practice and engage in interdependence. This can be done by allowing students to find solutions to problems and help each other accomplish tasks, while the teacher serves as a facilitator (Ahn & Class, 2011; Brackenbury, 2012; Hannafin & Land, 2000; Ke & Kwak, 2013; Peters, 2010; Pucha & Utschig, 2012;). Interdependence is an important aspect of student-centered learning (Peters, 2010). Although research reported that students were encouraged to demonstrate interdependence, they were reminded to work alone for setting goals and making other learning

decisions instead of relying on others to help them with those tasks (Hannafin & Land, 2000; O'Neill & McMahon, 2005; Ke & Kwak, 2013; Peters, 2010).

Teacher-Learner Mutual Respect

The establishment of mutual respect between learners and teacher is important in a student-centered-learning environment. Such relationships supported learning and emphasized respect, trust, and honesty (Bishop et al., 2014; Garrett, 2008; Hein, 2012; Jobs for the Future, 2012). Scholars agreed that respect was mandatory and must be mutual between teachers and learners (Galt et al., 2013; Garrett, 2008; McDonald, 2012; Miller et al., 2012). Lea et al. (2003) stated that mutual respect meant students are treated like adults, existing knowledge or experiences are recognized, teacher and students work together to build knowledge or develop skills, and the teacher learns with or from students.

The relationship between students and their teacher was a foundation for classroom interaction. Student-centered learning has been linked to building positive relationships between teachers and students (Bishop et al., 2014; Garrett, 2008; O'Neill & McMahon, 2005; Peters, 2010). In student-centered-learning environments, students felt respected by both teacher and other students (Bishop et al., 2014; O'Neill & McMahon, 2005; Rodriguez-Valls & Ponce, 2013). With this heightened sense of respect, students were more willing to participate in the active learning process (Hein, 2012). Students respected the teacher as a facilitator and as someone who could point them in the right direction without giving them the answer to the problem. They understood and respected that teachers did not have all the answers (Peters, 2010). Students encouraged each other to work and stay on task. This was due to the fact most student-centered-learning activities required students to depend on each other to complete certain parts of activities and to evaluate work and comprehension (Hein, 2012; Peters, 2010).

Reflexivity

Lea et al. (2003) and O'Neill and McMahon (2005) agreed that part of student-centered learning is a reflexive approach to the teaching and learning process for both teachers and learners. Reflexivity can be described as a collective action that acknowledges the relationship between an individual, another person, and a context. It includes basic expectations and preferences that cause acknowledgements within a particular time, place, and situation (Krishnamurty, 2007). Reflexivity is often confused with reflection (Krishnamurty, 2007). Reflection is defined as an activity related to self-improvement of future practices by looking back at past situations, experiences, or actions. Reflexivity, however, is "proactive as its focus is on providing practitioners with a tool that will simultaneously improve [an activity or process] and help make them aware" of basic expectations and preferences that define interactions with other individuals (Krishnamurty, 2007, p. 15). Reflection takes place after the fact, while reflexivity takes place during the activity or situation (Krishnamurty, 2007). Similarly, Duncum (2012) and Hara (2010) described reflexivity as being engaged in the moment, understanding thoughts and feelings of the experience as it is happening. There are two types of reflexivity: one is the basic knowledge an individual has and uses, and the second is the pursuing of knowledge which allows individuals to apply it further than the immediate situation (Krishnamurty, 2007; Sonntag, 2006).

Stalker and Pridmore (2009) suggested that reflexivity works well in teaching. Reflexive pedagogy is based on the premise that if a learner "understands his or her own mental processes while learning, he or she learns better, by learning to learn" (Sonntag, 2006, p. 109). When students are encouraged to be reflexive, they are encouraged to understand what they are learning as they are learning it (Duncum, 2102; Hara, 2010). Scholars reported that reflexive

pedagogy should include active interactions with the teacher, other students, and real-life, authentic experiences (Armitage, 2011; Garnett & Vanderlinden, 2011). Reflexive pedagogy goes hand in hand with several student-centered-learning instructional strategies: hands-on activities (Applefield et al., 2001; Miller et al., 2012; Peters, 2010; Phillips & Volker, 2014; Pucha & Utschig, 2012), authentic tasks (Ahn & Class, 2011; Ke & Kwak, 2013; Miller et al., 2012; Peters, 2010; Pucha & Utschig, 2012), and working with teachers and other students (Ahn & Class, 2011; Brackenbury, 2012; Ke & Kwak, 2013; Pucha & Utschig, 2012). Reflexivity challenges students and encourages them to seek the answer to the question "why am I learning this?" (Baxter, 2014; Duncum, 2012).

Learner Relationships

The Brandes and Ginnis (1986), Lea et al. (2003), and O'Neill and McMahon (2005) studies suggested that the relationships between learners should be equal and should promote growth and development. Their research recommended that relationships between learners should include more than just simple dialog and interaction. Dialog and interaction must be of quality. They suggested that the relationship between students must be one where at least one student is invested in the promotion of growth and development of one or more other students. The invested student, termed the helper by Brandes and Ginnis (1986), is one who may have advantages, such as experience, position, or advanced knowledge, over his or her peers. The point of students working together or helping each other is to make the relationship equal (Brandes & Ginnis, 1986). More recent literature supported Brandes and Ginnis's (1986) idea of student relationships, including the promotion of growth and development. McDonald (2012) reported that meaningful interaction between students led to long-lasting relationships. Peters (2010) found that when students worked together and helped one another with assignments, a

contribution was made to the overall outcome of the assignment. Growth and development were promoted by the helping of classmates (Peters, 2010).

The literature uncovered other ways that student growth and development took place during student-centered learning. Student-centered learning has been linked to growth in conceptual understanding, meaning that students are able to demonstrate application, integration, interpretation, interrelation, and recognition of concepts and principles (Chang, Yeh, & Barufaldi, 2010; National Assessments of Educational Progress, 2003; Peters, 2010). When it was necessary for students to make their own meaning of content or material to complete activities, they developed more detailed cognitive structures (conceptual understanding) about the content and were more likely to commit the content to long-term memory as a result of participating in student-centered-learning instructional strategies. Such strategies include interdisciplinary activities, authentic activities, critical thinking activities, and student choices (Brackenbury, 2012; Brame, 2014; Perkins, 2008; Westermann, 2014).

Another way to demonstrate growth is by setting and reaching goals. Just like in the student responsibility and accountability tenets, setting and reaching goals is an important part of student-centered learning (Peters, 2010; Pucha & Utschig, 2012). In student-centered learning, students should be provided with opportunities to reach both personal and group goals. Personal goals were related to college or careers, and group goals were related to working together to find answers or solutions to classroom activities (O'Neill & McMahon, 2005; Peters, 2010; Pucha & Utschig, 2012; Zimmerman, 2002). Successful implementation of student-centered learning allowed for student growth and the development of learning skills because students were required to understand how to learn actively and engage in a scholarly manner by participating in real-life activities (Ahn & Class, 2011; Ke & Kwak, 2013; Miller et al, 2012; Peters, 2010;

Pucha & Utschig, 2012), investigations (Ahn & Class, 2011; Applefield et al., 2001; Brackenbury, 2012; Miller et al., 2012; Pucha & Utschig, 2012), discussions (Ahn & Class, 2011; Bishop et al., 2014; Brackenbury, 2012; Peters, 2010; Ripp, 2014), and by using a variety of sources to find solutions to problems (Mckenna, 2013; Miller et al., 2012; Pucha & Utschig, 2012; Peters, 2010).

Role of Teacher

Student-centered learning allows teachers to escape from the lecture-based instructional model and give focus to the learning needs of students (Hamdan et al., 2013; Westermann, 2014). Like in any classroom, there are still demands on the teacher. This is true for the student-centered-learning classroom. In such an environment, teachers should clearly state objectives and goals. This is especially important in student-centered-learning classrooms because students are required to take more responsibility for their learning (Hannafin & Land, 2000; Ke & Kwak, 2013). Teachers should clearly communicate with detail what is expected of students including important due dates for course assignments and assessments (Belton & Scott, 1998). Teachers should be active in a student-centered-learning classroom, moving around the room while students are working, making eye contact with students, and asking directive-type questions (Applefield et al., 2001; Peters, 2010). Students were more engaged when their teachers were involved in and supported the student-centered-learning environment through active facilitation (Miller et al., 2012; Wright, 2011).

According to several scholars, the role of the teacher is one of a facilitator, not a presenter of information (Elen et al., 2007; Lara, 2007; Mckenna, 2013; O'Neill & McMahon, 2005). Other terms used to describe teachers' roles were coordinator, guide, monitor, mentor, coach, and tutor (Koohang, Riley, Smith, & Schreurs, 2009; Pedersen & Liu, 2003; Raya & Fernandez,

2002). The term facilitator, however, was identified most often in the professional literature. As a facilitator, the teacher should model processes and skills, monitor student learning and thinking both formally and informally, regulate activities and assessments, provide guidance or assistance, and encourage students to reflect on their own learning (de Kock et al., 2004; O'Neill & McMahon, 2005; Peters, 2010). Teachers should assist learners in the "construction of knowledge rather than the reproduction of facts and data" (Phillips & Volker, 2014, p. 129). Scholars reported that successful student-centered-learning teachers were motivational, supportive, and encouraging toward students. These instructional skills helped students become self-reliant and responsible (Belton & Scott, 1998; Brackenbury, 2012; Miller et al., 2012; Pucha & Utschig, 2012). By serving in a facilitator role, teachers were not explicitly directing students' learning. In other words, teachers were monitoring students and helping students when necessary. They were not giving step-by-step instructions to students, and they were not telling students exactly what to do to be successful (Miller et al., 2012; Peters, 2010; Wright, 2011).

As facilitators, teachers must be able to relax and relinquish some control of their classroom, students, and what happens, but still have a known presence for assistance (Applefield et al., 2001; Brackenbury, 2012; Brush & Saye, 2000; Peters, 2010). It is important to maintain such a balance, including structure and clear goals, so that students can be successful. If this balance is not maintained, it could hinder student-centered learning and student success (Belton & Scott, 1998; Mckenna, 2013). By serving as a facilitator, Hansen and Stephens (2000) and Hein (2012) suggested that teachers form a partnership with students. This partnership focuses primarily on students' growth. Teacher and students must agree to give the maximum amount of effort in order to increase students' academic and social potential (Hansen & Stephens, 2000; Hein, 2012).

To effectively use student-centered learning, the literature recommended that teachers practice scaffolding when facilitating learning with his or her students (Ahn & Class, 2011; Hogan & Pressley, 1997; Myhill & Warren, 2005; Peters, 2010). Scaffolding is a process that "enables a child or novice to carry out a task which would be beyond his unassisted efforts" (Wood, Bruner, & Ross, 1976, p. 90). Scaffolding also has been defined as the manner by which the teacher moves the learner from current achievement to new achievement (Ahn & Class, 2011; Hogan & Pressley, 1997; Myhill & Warren, 2005; Peters, 2010). Scaffolding is when the teacher helps in the completion of a task by doing some of the work. Scaffolding is only temporary. The word 'temporary' is key to understanding scaffolding. While using scaffolding as a method of teaching, the teacher gives help to students as they gain the necessary skills, knowledge, and understanding to work independently (Ahn & Class, 2011; Hogan & Pressley, 1997; Myhill & Warren, 2005; Peters, 2010). Although scaffolding is temporary, it is necessary because it allows the learner to advance knowledge and understanding (Ahn & Class, 2011; Hogan & Pressley, 1997; Myhill & Warren, 2005; Peters, 2010). The teacher practices scaffolding to help a student perform "just beyond the limit of their ability" (Koohang et al., 2009, p. 94). The teacher then removes him or herself from the task as the student learns more about the task (Ahn & Class, 2011; Strickland, Morrow, Girling-Butcher, Phillips, & Clay, 1991). Teachers who can scaffold effectively will help students reach goals or perform tasks that he or she would not be able to do without this "expert guidance" (Perry et al., 2006, p. 240). Later, the student will be able to complete this task on his or her own (Ahn & Class, 2011; Hogan & Pressley, 1997; Myhill & Warren, 2005; Peters, 2010; Strickland et al., 1991). For years, scaffolding has been regarded as an effective teaching style because it helps build confidence in students (Ahn & Class, 2011; Myhill & Warren, 2005). The teacher must know

when to practice scaffolding and when to "intervene in learning and when to allow students to solve problems" on their own (Perry et al., 2006, p. 240). Scaffolding is part of the teachers' facilitator role as described in the tenets of student-centered learning.

Lea et al. (2003) and O'Neill and McMahon (2005) first presented the nine tenets of student-centered learning in the literature. Scholars described and expanded the tenets through their studies and research. Discussion of each tenet explains the importance and significance of each, but also provides some insight to how each tenet relates to another. The nine tenets of student-centered learning are what make this instructional strategy unique.

Strengths of Student-Centered-Learning Instructional Strategies

The literature revealed strengths of student-centered learning as a pedagogical approach: (a) students were more motivated to learn and had more enjoyment in learning, (b) students' self-confidence and success increased, and (c) students had better preparation for post-secondary education, work, and life (Applefield et al., 2001; Belton & Scott, 1998; Broad, 2006; de Kock et al., 2004; Hein, 2012; O'Neill & McMahon, 2005; Perry et al., 2006; Peters, 2010; Zimmerman, 2002). These strengths make student-centered-learning instructional strategies beneficial for learners.

Motivation to Learn and Enjoyment of Learning

Students found student-centered-learning instructional strategies to be more interesting and exciting (Griffiths, Oates, & Lockyer, 2007; Nietfeld, Shores, & Hoffman, 2014; O'Neill & McMahon, 2005; Peters, 2010; Robertson & Jones, 2013; Zimmerman, 2002). While participating in student-centered learning, students were more motivated to learn, develop personal and future goals, and to work with others when completing assignments and activities (Broad, 2006; Hein, 2012; Nietfeld et al., 2014; O'Neill & McMahon, 2005; Robertson & Jones,

2013). Students were determined to further their learning if they failed a task or an activity. Failure was viewed as an opportunity for further learning (Applefield et al., 2001; Belton & Scott, 1998; Peters, 2010). Scholars noted that students enjoyed learning when they participated in student-centered-learning instructional strategies; they were involved in the learning process and commented that they learned more, had fun, and understood why they were learning concepts or objectives (McCombs, Daniels, & Perry, 2008; Peters, 2010). Furthermore, students said student-centered learning was more enjoyable because they were independent of their teacher, they were not given explicit directions or information, and they were given opportunities to figure things out on their own (Brackenbury, 2012; Brush & Saye, 2000; Gallini & Barron, 2002; Peters, 2010; Robertson & Jones, 2013).

Increased Self-Confidence and Success in Students

Students felt more academically competent and confident in their learning when they participated in student-centered-learning instructional strategies (Brackenbury, 2012; Griffiths et al., 2007; Hein, 2012; Lima et al., 2007; O'Neill & McMahon, 2005; Raya & Fernandez, 2002). Students were able to demonstrate their self-worth and gain confidence in themselves and their learning (Belton & Scott, 1998). As students' confidence grew, a sense of ownership over their own learning developed (Garrett, 2008). Increased self-confidence led to increased classroom success. Scholars also reported that students who participated in student-centered-learning instructional strategies achieved at higher academic levels than their peers (Ahn & Class, 2011; Hein, 2012; Lea et al., 2003; Rezaee et al., 2014; Wright, 2011). Students earned higher grades, retained information better and longer, applied skills and knowledge to various tasks, and felt more self-confident due to success (Ke & Kwak, 2012; Perry et al., 2006; Pucha & Utschig, 2012; Rodriguez-Valls & Ponce, 2013; Zimmerman, 2002). Perry et al. (2006) found that

confidence and success in the classroom resulted in better preparation and success after high school in post-secondary education, work, and life.

Preparation for Post-Secondary Education, Life, and Work

Perry et al. (2006) found that student-centered learning prepares students for post-secondary education, life, and work. One way these strategies fostered preparation for post-secondary education is that students learned how to learn (Belton & Scott, 1998; de Kock et al., 2004; Gningue, Peach, & Schroder, 2013; Peters, 2010; Sonntag, 2006; Wright, 2011). Having the necessary skills for learning is critical for post-secondary education, as most students' academic responsibilities take place outside the classroom. Students must rely on themselves to learn what is required for each class because they are not always in a classrooms or other settings with teachers (Belton & Scott, 1998; de Kock et al., 2004). By participating in student-centered-learning instructional strategies in high school, students attending post-secondary institutions are likely to be more successful because they would have had experiences learning to learn through problem solving, reasoning, and critical thinking activities before graduating high school (Belton & Scott, 1998; de Kock et al., 2004; Gningue et al, 2013; Peters, 2010). Working together, sharing information, and sharing how one arrived at a solution or answer are components of student-centered learning and are often practiced in post-secondary education. A clear strength of student-centered-learning instructional strategies is the preparation it gives students to succeed in a technical college, college, or university setting (Bishop et al., 2014; Jobs for the Future, 2012; Lau, 2013).

The literature conferred that many components of student-centered learning prepared students to be successful in work and life (Bishop et al., 2014; de Kock, 2004; Jobs for the Future, 2012; Kahl & Venette, 2010; O'Neill & McMahon, 2005; Raya & Fernandez, 2002).

The development and enhancement of self-reliance, self-motivation, and the ability to learn independently of the teacher were skills that will help students work and live in a constantly changing environment and society (de Kock et al., 2004; Jobs for the Future, 2012; Raya & Fernandez, 2002). The ability to learn without direct teacher instruction enabled students to keep up with the changes that will continue to take place in America's society (Jobs for the Future, 2012; O'Neill & McMahon, 2005). Through participating in student-centered-learning instructional strategies, students developed a responsibility to a society that will continue to make unprecedented demands on people as they leave school and enter the work world (Jobs for the Future, 2012).

Scholars found that student-centered-learning instructional strategies supported the development and existence of a democratic society; such strategies prepared students to live and work in the society (de Kock et al., 2004; O'Neill & McMahon, 2005). Furthermore, O'Neill and McMahon (2005) argued that student-centered-learning instructional strategies were a reflection of today's society, where choice and democracy are valuable. Students were accustomed to having choices, making decisions, and working with others to develop skills and knowledge. The development of skills to create knowledge is needed in society for economic development (de Kock et al., 2004; Jobs for the Future, 2012). Scholars further argued that student-centered-learning instructional strategies provide people with problem-solving skills, abilities to create new ideas or products, and aptitudes to be innovative and productive members of society and the workforce (de Kock et al., 2004; Jobs for the Future, 2012).

Criticisms of Student-Centered-Learning Instructional Strategies

Scholars criticized student-centered learning or presented disadvantages of the strategy in the literature. Criticisms and disadvantages included: (a) focus on individual students (Mckenna,

2013; O'Neill & McMahon, 2005; Simon, 1999) and (b) difficulty implementing student-centered-learning instructional strategies due to unfamiliarity with them (Aslan & Reigeluth, 2016; Brackenbury, 2012; Bransford, Brown, & Cocking, 1999; Brush & Saye, 2000; Bybee, 2004; DeBoer, 2004; Gainsburg, 2009; Hertzog, 2007; Hogan, 1999; Kulesza, Clawson, & Ridgway, 2014; Lea et al., 2003; Nersessian, 1999; O'Neill & McMahon, 2005; Peters, 2010; Zachos, Hick, Doane, & Sargent, 2000), (c) misconceptions of the strategies (Applefield et al., 2001; Brush & Saye, 2000; Hertzog, 2007; Pedersen & Liu, 2003; Peters, 2010), and (d) time constraints (Applefield et al., 2001; Gainsburg, 2009; Hertzog, 2007; Peters, 2010; Ripp, 2014; Vanderbilt, 2005). While most researchers and scholars saw student-centered-learning instructional strategies as beneficial and necessary, the criticisms and disadvantages show the strategies from a different point of view.

Focus on Individual Students

Although they advocated student-centered learning, O'Neill and McMahon (2005) found that focusing on individual students while using associated strategies was dangerous. They argued that by focusing on individual students, needs of the whole class were often forgotten. Furthermore, if too much emphasis was placed on individual students, the social context of student-centered learning was overlooked or not used at all. Mckenna (2013) had a similar finding. She reported that student-centered-learning strategies failed to take into account what each subject area needed, what the subject areas' knowledge structures were, and how these were justifiable (Mckenna, 2013). Too often, students' needs are the focus of learning while the subject area knowledge that students must know or wish to know is forgotten or put aside (Mckenna, 2013). O'Neill and McMahon (2005) and Simon (1999) contended that student-centered learning could make students feel isolated from their peers when the social aspect of the

strategy was forgotten. These scholars stated that using student-centered learning made it impossible to teach all students because each one is unique and requires distinct and applicable instruction that fits his or her needs. Finding an approach that fits all students' needs was unlikely (O'Neill & McMahon, 2005; Simon, 1999).

Difficulty Implementing Student-Centered Learning

The literature explained that teachers had difficulty implementing student-centered learning in their classrooms for several reasons. First, teachers and students were unfamiliar with the strategy (Brackenbury, 2012; Bransford et al., 1999; Brush & Saye, 2000; Bybee, 2004; DeBoer, 2004; Gainsburg, 2009; Hertzog, 2007; Kulesza et al., 2014; Lea et al., 2003; O'Neill & McMahon, 2005; Nersessian, 1999; Peters, 2010; Zachos et al., 2000). Second, teachers had misconceptions about student-centered learning (Applefield et al., 2001; Brush & Saye, 2000; Hertzog, 2007; Pedersen & Liu, 2003; Peters, 2010). And third, teachers were concerned about time constraints (Applefield et al., 2001; Gainsburg, 2009; Hertzog, 2007; Peters, 2010; Ripp, 2014; Vanderbilt, 2005).

Unfamiliarity with student-centered learning. The lack of teachers' familiarity with student-centered learning caused instructional and implementation challenges and confusion. Teachers were not comfortable with the structure of student-centered-learning instructional strategies (Brackenbury, 2012; Bybee, 2004; DeBoer, 2004; Gainsburg, 2009; Hertzog, 2007; Kulesza et al., 2014; Peters, 2010). Teachers unfamiliar with student-centered-learning instructional strategies often implemented these inappropriately; students were not given choices for learning and teachers did not serve as facilitators (Brackenbury, 2012; Brush & Saye, 2000; Peters, 2010, Zachos et al., 2000). Due to the unfamiliarity, teachers did not allow students to

discover or build knowledge on their own or with peers (Brackenbury, 2012; Bybee, 2004; DeBoer, 2004; Gainsburg, 2009; Hertzog, 2007; Zachos et al., 2000).

Researchers found that students were unfamiliar with student-centered-learning instructional strategies as well (Lea et al., 2003; Nersessian, 1999; Peters, 2010; Zachos et al., 2000). Students who were unfamiliar with the strategies often rejected it, especially if they appreciated and enjoyed teacher-centered approaches. Some students were even suspicious of and frightened from the strategy (O'Neill & McMahon, 2005). Students with little or no exposure to student-centered-learning instructional strategies lacked skills and knowledge needed to conduct inquiry and develop success in student-centered-learning environments. Those unfamiliar with the strategies struggled in student-centered-learning classrooms because they believed only teachers had the answers. Students did not find and retrieve information, did not interact socially to construct knowledge, and did not take control of their learning because they were accustomed to teacher-centered environments. The skills students needed to work in such an environment did not come naturally, and students were ill equipped to undertake investigating activities (Bransford et al., 1999; Brush & Saye, 2000; Hogan, 1999; Nersessian, 1999; Peters, 2010; Zachos et al., 2000).

Misconceptions of student-centered learning. Applefield et al. (2001) and Peters (2010) reported that teachers had misconceptions about student-centered-learning instructional strategies and, therefore, had difficulty with implementation. It was reported that teachers believed there was no focus on learning and no learning goals for students (Applefield et al., 2001; Peters, 2010). Teachers had misconceptions about lesson planning; they believed that thoughtful preparation was not needed in student-centered-learning classrooms. The lack of structure is another common misconception about student-centered-learning instructional

strategies; teachers believed planned structure was not needed (Applefield et al., 2001; Peters, 2010). Teachers believed that other teachers and students' parents would think students were playing and not learning because the classroom seemed less structured than in traditional environments (Pedersen & Liu, 2003).

Another misconception teachers had about this strategy was related to their role in the student-teacher relationship. They felt that their role was not important or needed in student-centered learning (Applefield et al., 2001; Peters, 2010). Therefore, they did not act as facilitators; they did not help or assist in any way. It was almost as if the teacher was absent from the classroom environment (Brush & Saye, 2000). On the other hand, there were teachers who would not relinquish control to let students fully participate in student-centered-learning instructional strategies (Hertzog, 2007; Peters, 2010). Teachers struggled with the concept that they were no longer the main knowledge source and were reluctant to give students opportunities to create knowledge or develop skills (Peters, 2010). In both cases, teachers misunderstood the importance of their facilitator role in student-centered-learning environments.

Time constraints. The last reason teachers had difficulty implementing student-centered-learning instructional strategies was time. Researchers found that teachers were concerned they would not have enough time to cover the curriculum within the school year if they used student-centered-learning instructional strategies (Applefield et al., 2001; Gainsburg, 2009; Hertzog, 2007; Peters, 2010; Ripp, 2014; Vanderbilt, 2005). They believed students would get off task or that they would not take school seriously and this would mean wasted time. Teachers were also concerned that student-centered-learning instructional strategies would take too much time to plan for and manage (Applefield et al., 2001; Gainsburg, 2009; Hertzog, 2007; Peters, 2010; Ripp, 2014; Vanderbilt, 2005).

Student-Centered Learning in High Schools

The literature on student-centered learning suggested that associated instructional strategies were used in high school classrooms and across several subject areas, including academic/core classes, and career technical education/elective/non-core classes. It was found that science, math, career technical education, and other lab-based classes used student-centered-learning instructional strategies more frequently than other areas (Gningue et al., 2013; Hein, 2012; Judson, 2013; Lawanto, 2011; Pucha & Utschig, 2013; Ripp, 2014). Other recent research showed that student-centered-learning instructional strategies also are being used in the areas of fine arts, social studies, and languages (Andrews, 2010; Bondie, Gaughran, & Zusho, 2014; Brush & Saye, 2000; Hesser, 2009; Maloy & LaRoche, 2010; Rezaee et al., 2014; Vega & Tayler, 2005; Wang & Reeves, 2006).

Applefield et al. (2001) observed a high school science classroom where the teacher used student-centered learning. After observation, it was reported that all the instruction was "centered around the students," and it was difficult to tell who the teacher was (Applefield et al., 2001, p. 42). The study concluded by stating that not all high school teachers use student-centered-learning instructional strategies, but there was evidence of success when the strategies are implemented across content areas including not only science, but also math and language arts (Applefield et al., 2001).

Gningue et al. (2013) reported that student-centered-learning instructional strategies should be implemented more often in high school math classes. Upon completing their study, they found that high school students who had student-centered math classes were more engaged in math, understood concepts better and retained mathematical information longer, and were more likely be successful in math (Gningue et al., 2013). Other researchers (Kemp & Hall,

1992; Rosenshine, 2012; Taylor, Pearson, Clark, & Walpole, 1999) investigating the strategy in math classrooms argued that students were more engaged and achieved more when teachers used student-centered learning. Students were able to relate new learning to prior learning, and were given opportunities to apply and use mathematical knowledge and skills in different learning situations (Gningue et al., 2013; Kemp & Hall, 1992; Rosenshine, 2012; Taylor, Pearson, Clark, & Walpole, 1999).

Hopkins, McGillicuddy-De Lisi, and De Lisi (1997) and Cross (2009) found that some math teachers do not use student-centered-learning instructional strategies, while other math teachers do. Those who implemented student-centered learning admitted they only did so to help students be successful in their math class and future math classes, not other content areas (Hopkins et al., 1997). The math teachers from Cross's (2009) study saw math as a changing and growing area of study and viewed implementation of student-centered-learning instructional strategies necessary for success not only in math, but in other areas as well.

In one science classroom, student-centered-learning instructional strategies were implemented so that students could work with a state nuclear regulatory commission. Through this partnership, students furthered their knowledge and skills in the process of scientific thinking (Nicaise, Gibney, & Crane, 2000). Working with the commission, students used student-centered learning to find ways to dispose of chemical waste. Students were actively involved in learning, worked with one another, and took responsibility for their learning while working with resources and people from outside the classroom (Applefield et al., 2001; Nicaise et al., 2000; O'Neill & McMahon, 2005; Peters, 2010).

Researchers found that career technical education teachers used student-centered-learning instructional strategies in their classrooms (Castellano, Stringfield, & Stone III, 2003; Gentry et

al., 2007; Park, Santamaria, Keene, and van der Mandele, 2010). Gentry et al.'s (2007) study reported that career technical education teachers regularly implemented student-centered-learning activities. Teachers gave students choices: students were allowed to decide the order of their assignments, types of learning strategies to use, and if they would work together or independently (Gentry et al, 2007; Park et al., 2010). Teachers were facilitators; they monitored student progress while interacting with students and aiding the development of interpersonal skills (Castellano et al., 2003; Gentry et al, 2007; Park et al., 2010). Teachers from these studies agreed that it was vital for students to possess skills and knowledge so that they could succeed in school, work, careers, and daily life. They believed that student-centered learning was the method that promoted these skills (Castellano et al., 2003; Gentry et al, 2007; Park et al., 2010).

Several researchers found that teachers of other elective-type courses used student-centered-learning instructional strategies in their classrooms (Andrews, 2010; Hein, 2012; Hesser, 2009; Lawanto, 2011; Vega & Tayler, 2005; Wang & Reeves, 2006). Teachers of elective science courses, art courses, music courses, psychology courses, and English as a second language (ESL) courses used student-centered-learning instructional strategies to keep students engaged (Bondie et al., 2014; Rezaee et al., 2014; Rodriguez-Valls & Ponce, 2013; Vega & Tayler, 2005; Wang & Reeves, 2006). Student-centered learning was implemented in these courses so that students could discuss and share ideas, make connections, make decisions and have control of their learning, understand the bigger picture of concepts, be actively engaged, and rely on the teacher for feedback (Andrews, 2010; Hesser, 2009; Lawanto, 2011; Vega & Tayler, 2005; Wang & Reeves, 2006).

Student-Centered Learning as a Georgia Instructional Initiative

In 2012, Dr. John D. Barge, then State School Superintendent of Georgia, implemented the Teacher Keys Effectiveness System (TKES) as part of the Race to the Top Initiative (RT3). TKES is an evaluation system common to all school systems in the state. Because all school systems use it, Georgia has been able to ensure "consistency and comparability" across school districts "based on a common definition of teacher effectiveness" (Georgia Department of Education, 2014). TKES has several components that make up the overall Teacher Effectiveness Measure (TEM). There are Teacher Assessment on Performance Standards (TAPS), Surveys of Instructional Practice, and Student Growth and Academic Achievement. The TKES evaluation system is still in place today.

TAPS gives teachers' evaluators (administrators) a rubric to use for evaluation of teacher performance. The evaluation method defines common purposes and expectations and is a guide for effective instructional practices. Teachers are allowed and encouraged to be creative in their instructional practices. The goal of TKES is to "support the continuous growth and development of each teacher by monitoring, analyzing, and applying pertinent data compiled within a system of meaningful feedback" (Georgia Department of Education, 2014).

TKES has ten performance standards that have suggestions of teacher behaviors for each standard. This means that each standard is an example of the type of performance that can take place if the standard is reached successfully. Teachers are not expected to demonstrate each performance standard in one class period or at one time, thus giving room for improvement. There are five domains (Planning, Instructional Delivery, Assessment of and for Learning, Learning Environment, and Professionalism and Communication) which house the ten performance standards, two to each domain (Professional Knowledge, Instructional Planning,

Instructional Strategies, Differentiated Instruction, Assessment Strategies, Assessment Uses, Positive Learning Environment, Academically Challenging Environment, and Professionalism and Communication) (Georgia Department of Education, 2014).

Under TKES, teachers are rated on the performance standards using rubrics. The rubric is a "behavioral summary scale that guides evaluators in assessing how well a standard is performed" (Georgia Department of Education, 2014). It also describes expected performance levels of teachers and gives a description of performance for each level. Some of the standards include additional information in "quantitative" form (Georgia Department of Education, 2014). The rubric reads from left to right, with the criteria and descriptions on the right beginning with *Exemplary* and ending with *Ineffective*. The *Proficient* level, which is one step below *Exemplary*, is where all teachers are expected to perform (Georgia Department of Education, 2014).

Performance Standard 8: Academically Challenging Environment states "the teacher creates a student-centered, academic environment in which teaching and learning occur at high levels and students are self-directed learners" (Georgia Department of Education, 2014). The Georgia Department of Education (2014) listed the following characteristics of "high quality learning environments" which are based in constructivism: active engagement, authenticity and relevance, collaboration and community, learner autonomy, cognitive complexity, generativity, multiple perspectives, pluralism, reflectivity and metacognitive awareness, self-regulation and ownership, transformation, and productivity. This list of attributes mirrors the nine student-centered-learning tenets presented earlier by Lea et al. (2003) and O'Neill and McMahon (2005). Based on the information reported on the Georgia Department of Education website, it is clear

that student-centered learning is one instructional initiative that all Georgia teachers are encouraged to use.

Georgia School Systems and High School Teachers

Georgia currently has 197 school districts, of all sizes across the state with over 2,200 schools (Georgia Department of Education, 2016). Of these 197 school systems, 159 are county school systems, 21 are city school systems, and 15 are state chartered special school systems (Georgia Department of Education, 2016). The largest school system in Georgia is the Gwinnett County School System, located northeast of Atlanta, and the smallest school system in Georgia is the Walker County School System, located in northwest Georgia on the Georgia-Tennessee border (National Center for Education Statistics, 2014). According to the Georgia Department of Education (2016) website there are 450 high schools in Georgia.

Georgia school systems are members of the state's 16 Regional Educational Service Agencies (RESA). Georgia RESAs are strategically located in different parts of the state and share "services designed to improve the effectiveness of the educational programs of member school systems" (Georgia Standards, 2014). RESAs promote educational initiatives supported by the Georgia State Department of Education. RESAs also inform member systems of innovation and conduct research on programs of interest when warranted (Georgia Standards, 2014). The RESA used in this study was the Northeast Georgia RESA and is made up of the following 13 school systems: Barrow County, Clarke County, Commerce City, Elbert County, Greene County, Jackson County, Jefferson City, Madison County, Morgan County, Oconee County, Oglethorpe County, Social Circle City, and Walton County.

As reported on the Georgia Department of Education website (2016), Georgia employs 112,177 teachers. This figure includes preschool through grade twelve teachers. No reports

were located categorizing teacher specifically by instructional level, such as preschool, elementary, middle, and high school. However, according to a Georgia Department of Education representative, there are 46,487 high school teachers (M. Vignati, personal communication, January 7, 2016). Eight thousand eight hundred seventy four are English-Language Arts and Reading teachers, 9,023 are math teachers, 6,836 are science teachers, 6,582 are social studies teachers, 1,824 are Modern Languages and Latin teachers, 758 are Health teachers, 2,093 are Physical Education teachers, 1,753 are Fine Arts teachers, and 3,942 are Career Technical Teachers (M. Vignati, personal communication, January 7, 2016). Teachers with a bachelor's degree make up 32.8% of the teaching population in Georgia. Teachers with a master's degree make up 43.9% of this population, while teachers with a specialist degree and doctoral degree make up 20.5% and 2.4% of this population, respectively. Teachers holding a degree categorized as "other" is small, making up less than one percent of the teaching population in Georgia (Georgia Department of Education, 2016).

Perception Theories

In psychology, perception is a popular theme. Many theories on perception exist. To find a theory to support this study, several major perception theories present in today's literature were researched. These theories were self-perception theory, cognitive dissonance theory, and theory of reasoned action.

Self-perception Theory

Self-perception theory was developed by psychologist Daryl Bem and is an attitude change theory (Bem, 1972). This theory posits that attitude is developed from observing one's own behavior and deciding what attitudes caused the behavior. In this theory, individuals view their own behavior the way an outside observer may view it. This helps determine their attitude

about an object, action, or event. There is a flow of reflection on behaviors and attitudes in this theory. Generally, it is understood that beliefs come before attitudes in the course of attitude development. Self-perception theory has been criticized because attitude about a behavior is formed without accessing internal knowledge or emotion (Oskamp & Schultz, 2005). This theory has been used in sales and mental health fields (Allen, Schewe, & Wijk, 2005). In sales, one example of this theory is the foot-in-the-door technique. When a person takes a small step, such as allowing a salesperson in the door, they may also agree with the bigger decision to purchase a product because they must have had an initial interest since they let the salesperson in the door. In the mental health field, this theory is used to help patients understand their attitudes and actions after they have happened (Hudley, Graham, & Taylor, 2007).

Ling (2008) reported that self-perception theory was useful for research on dress code, conformity, and counter conformity. Hudley et al. (2007) reported that this theory was useful in bullying research as it lends itself to the understanding of aggressive behavior and helps teens understand and reflect upon their bullying behavior. Self-perception theory has been used in counseling and peer mediation programs in schools (Hudley et al., 2007).

Self-perception theory was not selected for this study because it did not support the idea that perceptions and attitudes are developed prior to behavior (Bem, 1972). This theory lacked an understanding of the role that beliefs play in relation to attitude and perception formation. According to Bem (1972) attitudes are developed and changed after the fact. In essence, this theory states that behavior is spontaneous and impulsive; no previous consideration of information, emotion, or other factors is given (Bem, 1972). Self-perception theory's foggy nature of attitude development makes it difficult to pinpoint where influence toward change and perception come in.

Cognitive Dissonance Theory

Psychologist Leon Festinger developed the cognitive dissonance theory. Cognitive dissonance theory states that people have a need to reduce inconsistencies in their beliefs, attitudes, and behaviors especially in relation to self, behavior, or the environment (Aronson, 1997; Festinger, 1962). This theory states that discomfort caused by dissonance will motivate one to change his or her beliefs, attitudes, or behaviors so that people will have consistency in their cognitive structure. Cognitive dissonance theory also posits that individuals resolve dissonance in three different ways: changing a belief, eliminating an action that causes dissonance, or rationalizing how an action is viewed so that it is more consistent with cognitive structure (Oskamp & Schultz, 2005).

In education, cognitive dissonance theory has been used to address diversity issues, such as ethnic, religious, and intellectual diversities (Lawrence, 1999). Cognitive dissonance theory is often used when tolerance and acceptance of diverse viewpoints are needed. Religion and social science classes can cause dissonance and research in these areas often uses the cognitive dissonance theory and other consistency theories (Burns, 2006; Tully, 2011). Educational research in instructional methodology also uses the cognitive dissonance theory. When new instructional methods are introduced, inconsistencies may form from long held beliefs about which methods should be used in classrooms (Brown & Danaher, 2008; Kitchens & Wentar, 2007). Mok (1999) found that technology in the classroom has caused educators discomfort.

Cognitive dissonance theory was not selected for this study for several reasons. First, it is difficult to apply this theory to specific attitudes or behaviors. Attitudes and behaviors influence perception. With difficulty in applying this theory to attitudes and behaviors, it would be challenging to also apply this theory to perceptions (Cheng & Hsu, 2012; Chiou & Wan,

2007; Wan & Chiou, 2010). Secondly, it poses that people need consistency when sometimes inconsistency leads to new learning and alternate views and answers. People can learn from inconsistencies or from new, uncomfortable information or situations (Oskamp & Schultz, 2005). At times, there are situations where people desire opposing information. One example is when an individual wants to know what an opponent is saying. Another example is when a person does not have a strong view on a topic and may want to hear different views or alternative solutions. Additionally, individual differences are not taken into consideration in this theory. Some individuals have a higher tolerance for inconsistency than others (Nolan & Nail, 2014). Therefore, these people may not be very motivated to change. Also, this theory does not give a clear description of how attitude is formed, making it difficult to understand an attitude, its influence on perception, and nearly impossible to foresee an effective persuasion route to change it. Cognitive dissonance theory also poses that a change in attitude is produced from a person's behavior as opposed to causing behavior (Cheng & Hsu, 2012; Chiou & Wan, 2007; Wan & Chiou, 2010). This change in attitude makes it difficult to apply this theory to perceptions. Lastly, cognitive dissonance theory suggests that changing an attitude can be a negative action (Oskamp & Schultz, 2005).

Theory of Reasoned Action

Research determined that the theory of reasoned action by Fishbein and Ajzen (1975) was useful and appropriate for this study about teachers' perceptions of application of student-centered-learning instructional strategies. Fishbein and Ajzen developed this theory in the 1960s from the field of social psychology. The theory of reasoned action came from an idea that there is a relationship between attitudes and beliefs, and eventually led to studies of behavior and attitude. The theory of reasoned action joins perceptions, attitudes, and beliefs. It suggested that

a person's behavior depends on his or her attitude about the behavior and subjective norms (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). That is, an individual's intended behavior is predicted by his or her attitude toward that behavior in addition to how he or she feels others would perceive them if they carried out the behavior.

The theory of reasoned action stated that perceptions influence attitude. An individual will form an attitude toward a behavior based on their perception of that behavior and its consequences (Ajzen & Fishbein, 1980). Also, their attitude toward a behavior is formed from the perceptions of others toward them if they performed the behavior. However, Benoit and Benoit (2008) found that perceptions are influenced by other elements, such as other people, time, and money. If perceptions can change, attitude and behavior can change, too.

Theory of reasoned action is different from previous theories because it does not relate attitude directly with behavior. An additional component was included in the relationship to help clarify attitude and actions and to help understand why previous theories were not true. This component is called behavioral intention (Fishbein & Ajzen, 2010).

One of the main goals of the theory of reasoned action is to provide an understanding of the determinants of behavioral intention. It deals with the elements that cause behavior over which individuals have sufficient control. Behavioral intentions have two factors: an individual's subjective norm regarding the behavior and their attitude toward the behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; Fishbein & Ajzen, 2010).

Subjective norm is the person's "perception of the social pressures put on him [or her] to perform or not perform the behavior in question" (Ajzen & Fishbein, 1980, p. 6). In other words, it is the person's perception of what others will think if he or she performs the behavior. Subjective norm will be stronger if the person believes that important others expect him or her to

carry out the behavior. Subjective norm will be weak if the person believes others expect him or her not to carry out the behavior (Ajzen & Fishbein, 1980).

Normative beliefs and motivation to comply determine a person's subjective norms. Normative beliefs are the beliefs that underlie a person's subjective norm. In general, "a person who believes that most referents with whom he is motivated to comply think he should perform the behavior will perceive social pressure to do so" (Ajzen & Fishbein, 1980, p. 7). Referents are important others in a person's social structure. The same can be said for noncompliance of behavior (Ajzen & Fishbein, 1980). Motivation to comply also underlies subjective norms. A person's willingness to conform to referents is motivation to comply (Ajzen & Fishbein, 1980). It has been said that the motivation to comply component of this theory is rather weak. Nevertheless, Ajzen and Fishbein (1980) believed that this component is crucial to explain social behavior.

The next component of behavioral intent is attitude. Benoit and Benoit (2008) suggested that attitude is the stronger of the two predictors of behavior intentions. For this reason, it is the one more commonly studied. Attitude indicates an individual's favorable or unfavorable feelings toward a behavior. According to the theory of reasoned action, a person will have a positive attitude toward performing a behavior if he or she feels performing the behavior will result in positive outcomes or prevent negative outcomes (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). On the other hand, if a person believes that performing the behavior will cause a negative outcome, then their attitude toward the behavior is negative (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; Fishbein & Ajzen, 2010).

The theory of reasoned action further explores attitude formation. This theory suggests that attitude is determined by belief and evaluation of outcomes of the belief. These beliefs are

called behavioral beliefs and are concerned with the consequences or outcomes of a behavior. These beliefs may be formed from outside information, direct experience, direct observation, or they may be self-generated (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; Fishbein & Ajzen, 2010).

Individuals have a number of beliefs about a certain behavior, yet they can only handle a small number of beliefs at a given time. The small number of beliefs, called salient beliefs, is easily accessible in human memory. When considering a specific behavior, salient beliefs come to mind. They can be changed; they may be strengthened, weakened, or replaced by other beliefs. The immediate determinant of attitude is salient beliefs (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; Fishbein & Ajzen, 2010).

The strength of accessible beliefs is one element of predicting attitude. Belief strength is the probability that a particular behavior will produce a given outcome. Strong beliefs are hard to change because they are usually tied to sense of identity (Armitage & Christian, 2003). Weaker beliefs, however, are usually related to doubt and can leave a person more open to an opposing argument about the belief. Such beliefs are influenced and changed easily. Beliefs with higher strength are not influenced and changed easily (Benoit & Benoit, 2008).

The second component of attitude is the evaluation of outcomes concerning the belief. People form beliefs about a behavior by associating it with other actions, characteristics, or events. Linked attributes to a behavior already hold a negative or positive value. Normally, people will perform actions that have desirable characteristics to them and will develop unfavorable attitudes toward behaviors that have undesirable characteristics (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; Fishbein & Ajzen, 2010).

The theory of reasoned action looks at behavioral change as an issue of altering the cognitive structure of behavioral beliefs that comprise a certain attitude and the normative beliefs that form subjective norms encompassing the behavior. Beliefs, therefore, determine both attitude and subjective norms and underlie intention and behavior. To summarize, the theory of reasoned action poses a contributory sequence of events where actions follow directly from behavioral intentions and intentions are consistent with attitudes that develop from accessible beliefs about a behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975; Fishbein & Ajzen, 2010). Fishbein and Ajzen (2010) believed that the theory of reasoned action was missing a component to explain behavior. Perceived behavioral control was then added and the theory of planned behavior was created (Fishbein & Ajzen, 2010). Fishbein and Ajzen's (2010) theory of planned behavior is an extension of the theory of reasoned action.

The theory of planned behavior, like the theory of reasoned action, is based on the assumption that people behave in a logical manner (Fishbein & Ajzen, 2010). The most important immediate predictor of actions is behavioral intentions. In the theory of planned behavior, intentions come from three factors: attitude, subjective norms, and perceived behavioral control (Fishbein & Ajzen, 2010). Attitude and subjective norms were explained previously in the theory of reasoned action. Fishbein and Ajzen (2010) defined perceived behavioral control as the ability to perform a particular behavior in question. People tend to perform a behavior when they view it positively, feel social pressure to perform it, and have the resources and chance to perform it. The perceived control determinant of the theory considers realistic limits that could be present that keep a person from performing a certain behavior. Individuals who believe that they do not possess the resources or opportunities to carry out a

certain behavior are less likely to do so, even if they feel positively about the behavior and believe important others would approve of the behavior (Fishbein & Ajzen, 2010).

The theory of reasoned action has several limitations. First, the theory does not address outcome of behavior. Additionally, it does not address failure to achieve set goals nor does it address consequences of not reaching goals. Shinde (2003) reported that another limitation is that this theory gives a rather weak prediction for behaviors not fully under voluntary control. For this reason, habitual, spontaneous, or impulsive behavior is not included in the theory. These behaviors are not included because they may not be voluntary or involve conscious decision. Furthermore, behaviors that call for special skills, specific resources, or cooperation from others are not included; a lack of these characteristics may inhibit an individual from completing their behavioral intention. Lastly, this theory does not take into account components such as personality, demographics, social role, family relationships, and additional factors as having an influence on behavior (Hale, Householder, & Greene, 2003).

The theory of reasoned action has two advantages: explanatory and predictive value. These two concepts comprise behavioral intention. Since the theory explains each of these concepts, researchers can better understand a person's attitude and belief surrounding a particular attitude. Knowledge of beliefs that trigger attitude and subjective norm help researchers predict a person's attitude toward a particular behavior. This theory also suggests that beliefs can be influenced or changed (Fishbein & Ajzen, 2010).

The theory of reasoned action and the theory of planned behavior are both used in many studies and are often used together (Armitage & Christian, 2003; Bang, Ellinger, Hadjimarco, & Traichal, 2000; Becker & Gibson, 1998; McKemey & Rehman, 2003; Sharma & Kanekar, 2007; Shinde, 2003). In an attempt to change behavior, these two theories have been used often in the

consumer behavior field to forecast buying behaviors, upcoming trends, and to understand consumers' thinking (Sheppard, Hartwick, & Warsaw, 1998). Areas such as dieting, drug and alcohol abuse, and sex education are those where these theories are often applied in order to understand and predict attitudes and behavior (Bleakley, Hennessey, Fishbein, & Jordan, 2009; Sayeed, Fishbein, Hornik, Cappela, & Akern, 2005).

Education researchers and practitioners have started to use these two theories. These theories were often used in educational research studies to understand teachers' attitudes and to make improvements in classroom instruction (Baden, 2014; Burak, Rosenthal, & Richardson, 2013; Chang, Huang, & Chang, 2013; Chen & Chen, 2006; Gross, Whitbred, Skalski, & Liu, 2013; Kim & Kim, 2013; Martinez-Torrez, Toral, Barrero, & Gallardo, 2007; Prusak, Davis, Pennington, & Wilkison, 2014; Pryor & Pryor, 2009; White, Charles, & Nelson, 2008; Zacharias, 2003). The theory of reasoned action was used regularly because it has strong predictive value (Becker & Gibson, 1998; Jeffres, Carroll, Rubenking, & Amschlinger, 2008; Lemoyne & Valois, 2014; Sheppard et al., 1988).

Summary

This study investigated high school teachers' perceptions of their application of student-centered-learning instructional strategies. Although student-centered learning has its misconceptions among teachers and criticisms among scholars, the value of student-centered-learning instructional strategies can be emphasized as "placing learners at the heart of the learning process and meeting their needs, [and takes] to a progressive step in which learner-centered approaches mean that persons are able to learn what is relevant for them in ways that are appropriate. Waste in human and educational resources is reduced [because] learners no longer have to learn what they already know or can do, nor what they are uninterested in"

(Edwards, 2001, p. 37). This research will serve as a forerunner to understanding and addressing misconceptions by determining teacher perceptions of their application of student-centered-learning instructional strategies. It will also add to the research on student-centered learning at the high school level.

CHAPTER 3

METHOD

This chapter describes the research methodology used to determine how gender, primary subject area, and education level influence Georgia high school teachers' perceptions of their application of student-centered-learning instructional strategies. This chapter is divided into seven sections: (a) purpose statement, (b) research questions, (c) research design, (d) participants, (e) instrumentation, (f) procedure, and (g) data analysis.

Purpose Statement

The purpose of this study was to determine how Georgia high school teachers perceive their application of student-centered-learning instructional strategies. The dependent variable, teacher perception of application of student-centered-learning instructional strategies, was a univariate construct defined as the beliefs teachers have about their own use of instructional strategies that support the nine tenets of student-centered learning (1. Learning is active, not passive. Involvement and participation are necessary for learning; 2.There is emphasis on deep learning and understanding; 3. Students are responsible and accountable for their own learning. The learner has full responsibility for her/his learning; 4. There is autonomy in the learner; 5. There is interdependence between the teacher and learner; 6. There is mutual respect between the learner and teacher; 7. There is a reflexive approach to the teaching and learning process on the part of both teacher and learner; 8. The relationship between learners is equal and promotes growth and development; and 9. The teacher is a facilitator and resource person) (Ajzen & Fishbein, 1980; Czerniak, Lumpe, & Haney, 1999; Lau, 2013; Lea, Stephenson, & Troy, 2003;

O'Neill & McMahon, 2005; Peters, 2010; Rokeach, 1968; Tarman, 2012). The independent variables were gender, primary subject area, and education level. Gender was defined as man or woman. Primary subject area was defined as core or non-core subject areas. Core subject areas were English Language Arts and Reading, Mathematics, Science, and Social Studies. Non-core subject areas included Fine Arts, Health Education, Physical Education, Modern Languages and Latin, and Career Technical Education (Georgia Department of Education, 2015). Education level was defined as undergraduate degree or graduate degree as the highest level of education completed or highest degree obtained. Undergraduate degree was identified as associate degree and bachelor's degree. Graduate degree was identified as master's degree, educational specialist degree, and Doctorate of Education or Doctorate of Philosophy.

Independent Variables

This study had three independent variables: (a) gender (man or woman), (b) primary subject area (core or non-core), and (c) education level (undergraduate or graduate degree).

Gender. Researchers have reported differences in how men teachers and women teachers structure their classroom environments, how they plan for their classes, and teach their classes (Elmas, Demirdogen, & Geban, 2011; Hayat, Bibi, & Ambreen, 2016; Laird, Garver, & Niskode, 2011; Lauber & Wimer, 2004; Yasar, Baker, Robinson-Kurpius, Krause, & Roberts, 2006). Elmas et al. (2011) and Lauber and Wimer (2004) found that men and women teachers differ in lesson planning and in the presentation of information to students. Men lectured more often in their classrooms and did not ask their students many questions. Women, however, encouraged their students to participate in discussions and other learning activities during class (Elmas et al., 2011; Lauber & Wimer, 2004). Women teachers used technology to prepare their students for the future and promoted an enjoyment of learning more often than men (Yasar et al.,

2006). Women teachers were using student-centered-learning instructional strategies when they encouraged student participation and used technology in their classrooms (Yasar et al., 2006). Women teachers used student-centered-learning instructional strategies more often than men teachers (Centra & Gaubatz, 2000; Elmas et al., 2011; Grossman & Grossman, 1994; Hayat et al., 2016; Laird et al., 2011; Lauber & Wimer, 2004; Starbuck, 2003).

Primary subject area. The primary subject area variable was divided into two categories: core and non-core subjects. Secondary schools in the U.S. began to separate core and non-core curriculum at the turn of the twentieth century for several reasons: compulsory attendance laws, increases in support for high schools, arrival of immigrants and freed African-Americans, and the Industrial Revolution (Scott & Sarkees-Wircenski, 2004). Today, U.S. schools continue to organize courses and subjects into core or non-core curricula. In this study, core subjects included Math, Science, Social Studies, English, and Reading. Non-core subjects included other content areas outside the core content areas and were Career Technical Education, Physical Education, Health Education, Fine Arts, and Modern Languages and Latin (Georgia Department of Education, 2015; Georgia Standards, 2013).

Teachers whose primary subject area is special education were not included in this study because these instructors often teach students who are not required to meet traditional high school graduation requirements. Furthermore, special education teachers must follow Individualized Education Plans for their students. These plans have different course goals and objectives or contain alternative ways to meet course goals and objectives that are different from those students in traditional classes (Georgia Standards, 2013). Lastly, special education teachers are often required to teach both core and non-core subjects to their students, thus

making it difficult to separate this type of teacher into one of the two categories (core or non-core) (Georgia Department of Education, 2015; Georgia Standards, 2013).

During the 1990s, researchers found that math, science, social studies, and English teachers typically did not use student-centered learning in their classrooms (Ellis, 1993; Hopkins, McGillicuddy-De Lisi & De Lisi, 1997). Instructional strategies often used by "regular content area teachers [such as] social studies, science, and health" were those that limit students' thinking and learning (Ellis, 1993, p. 360). Teachers in these content areas did not encourage their students to be active in the learning process (Ellis, 1993). Student knowledge or experiences were seldom taken into consideration and instructional strategies encouraging self-regulation were seldom used (Cross, 2009; Ellis, 1993; Gentry, Peters, & Mann, 2007). In order to reach course objectives and goals, teachers focused on students' memorization of content rather than focusing on student interests to reach the same objectives and goals (Ellis, 1993).

Cross (2009) found that some math teachers used student-centered-learning instructional strategies, while others did not. Math teachers who used student-centered-learning instructional strategies viewed the field of mathematics as a changing and growing area of study (Cross, 2009). Teachers who viewed mathematics in this light used student-centered-learning instructional strategies so that their students could build knowledge and at the same time problem solve (Cross, 2009). Gningue, Peach, and Schroder (2013) found that math teachers who used student-centered-learning instructional strategies had students who were more engaged in class activities and assignments. Ripp (2014) and Taylor and Phillips (2010) found that some science teachers used instructional strategies that encouraged student-to-student interaction such as group work, experiments, and think-pair-share. It was reported that science students were more

involved and interested in learning when student-centered-learning instructional strategies were used (Ripp, 2014; Taylor & Phillips, 2010).

Scholars discovered that career technical education teachers commonly used student-centered-learning instructional strategies in their classrooms (Gentry et al. 2007; Lawanto, Santoso, & Liu, 2012; Singh, 2011). These teachers promoted and used student-centered learning by allowing students to make choices about completing classwork and mastering skills. Career and technical education teachers were comfortable acting as facilitators in their classrooms, and students were often allowed to work at their own paces (Gentry et al., 2007; Lawanto et al., 2012; Singh, 2011). It was also reported that learner autonomy and independence were present in career technical education classrooms (Gentry et al., 2007; Lawanto et al., 2012). These instructors used student-centered-learning instructional strategies to promote connections to other content areas, such as math, science, and social studies. Participants in the Gentry et al. (2007) study shared that connections to careers and jobs were most important and kept students interested in the daily coursework. Participants from the study reported that this connection to careers and jobs made them feel like they were learning things they would actually use and that they could apply their skills and knowledge to real-world situations (Gentry et al., 2007).

Education level. Akbari and Dadvand (2011) found that teaching methodology is often attributed to teachers' education and training. Borg (2003) stated that teaching is a "complicated activity in which teachers are active decision makers who make instructional choices by drawing on complex, practically-oriented, personalized, and context-sensitive networks of knowledge, thoughts, and beliefs" (p. 81). With more education and training, teachers are able to make more informed decisions about which instructional strategies to use with their students (Akbari & Dadvand, 2011; Borg, 2003; Mann, 2005).

Table 3.1 identifies research supporting gender, primary subject area, and education level as independent variables in this study.

Table 3.1

Independent Variables and Supporting Research

Independent Variable	Supporting Research
Gender: man or woman	Centra & Gaubatz, 2000; Elmas, Demirdogen, & Geban, 2011; Grossman & Grossman, 1994; Hayat et al., 2016; Laird et al., 2011; Lauber & Wimer, 2004; Starbuck, 2003; Yasar, Baker, Robinson-Kurpius, Krause, & Roberts, 2006
Primary Subject Area: core or non-core	Cross, 2009; Ellis, 1993; Gentry, Peters, & Mann, 2007; Gningue, Peach, & Schroder, 2013; Hopkins, McGillicuddy-De Lisi, & De Lisi, 1997; Ripp, 2014; Taylor & Phillips, 2010
Education Level: undergraduate degree or graduate degree	Akbari & Dadvand, 2011; Almarza, 1996; Bangs, 2008; Barnett, 2003; Borg, 2003; Chu, Martinez-Griego, Cronin, 2010; Early et al., 2007; Ediger, 2011; Findell, 2007; Goldhaber & Brewer, 2000; Ignash & Slotnick, 2007; Lu, Shen, & Poppnik, 2007; Mann, 2005; Meeder & Suddreth, 2012; Moore, Jez, Chisholm, & Shulock, 2012; Richards, Ho, & Giblin, 1996; Roccanova, 2000; Scheerer, 2012; Shaul, 2003; Washbon, 2012; Whitebook, 2003

As reported on the Georgia Department of Education website (2016), Georgia employs 112,177 teachers in grades preschool through twelve. No reports were located categorizing teachers specifically by instructional level, such as preschool, elementary, middle, and high school. However, according to a Georgia Department of Education representative, there are 46,487 high school teachers (M. Vignati, personal communication, January 7, 2016). Teachers with a bachelor's degree make up 32.8% of the teaching population in Georgia. Teachers with a master's degree make up 43.9% of this population, while teachers with a specialist degree and

doctoral degree make up 20.5% and 2.4% of this population, respectively. Teachers with an associate degree are categorized as "other" and represent less than 1% of the Georgia teaching population (Georgia Department of Education, 2016).

Research using degrees earned by teachers is often explored by looking at those with undergraduate degrees and those with graduate degrees. The term "graduate degree" serves as an umbrella for several advanced degrees beyond a bachelor's degree. In survey research, separate graduate degrees are often fused together as one category (David & Bwisa, 2013; Hrbackova & Vavrova, 2012; Marston, 2010; Restorff, Sharpe, Abery, Rodriguez, & Kim, 2012; Spires, Morris, & Zhang, 2012; Wolters, Fan, & Daugherty, 2011).

In this study, the education level variable was divided into two groups: undergraduate degree and graduate degree. Undergraduate degree included associate degree and bachelor's degree. Graduate degree included master's degree, education specialist degree, and Doctorate of Education or Doctorate of Philosophy degree. Associate degreed teachers were included as part of the undergraduate group because Georgia has a limited number of these teachers (less than 1%: Georgia Department of Education, 2013). Teachers with an associate degree are in specified career technical education areas (Trade and Industry Education and Healthcare Sciences Education) and may obtain teaching certificates with this degree and documented occupational experience (C. Doherty, personal communication, July 18, 2014; Georgia Professional Standards Commission, 2014). In past research, associate and bachelor's degrees have been combined to form one category (Buerhaus, Auerbach, & Staiger, 2014; Deming, Goldin, & Katz, 2013; Ginder & Kelly-Reid, 2013; Kena et al., 2014; Knapp, Kelly-Reid, & Ginder, 2012; Mareno & Hart, 2014; Porr & Acar, 2010; Santiago & Soliz, 2012; Sparks, & Malkus, 2013). Since this study sought to find differences in teachers' perceptions regarding their application of student-

centered-learning instructional strategies across education levels and between core and non-core teachers, it was important to include associate degree as part of the undergraduate degree category for the education level variable.

Research provided evidence that teachers holding an associate degree use teaching strategies that mimic those from technical colleges and include activities commonly found in the workplace (Meeder & Suddreth, 2012; Moore, Jez, Chisholm, & Shulock, 2012; Washbon, 2012). However, most teachers with an associate degree were those teaching in preschools or other pre-kindergarten programs (Barnett, 2003; Chu, Martinez-Griego, & Cronin, 2010; Ignash & Slotnick, 2007; Shaul, 2003; Whitebook, 2003). The literature also revealed that most states have programs for an associate degree in education or teaching. However, to become a certified teacher in most states, one must successfully complete a bachelor's degree program in education (Boswell & Tackett, 2005; Louisiana State Board of Regents, 2005; Washington State Higher Education Coordinating Board, 2006). Research done in preschools and pre-kindergarten classrooms found that teachers with an associate degree lacked pedagogical knowledge and other classroom skills (Early et al., 2007).

Ediger (2011) found that teachers holding a bachelor's degree were often inadequate and unprepared to teach. Scheerer (2012) found similar results: those with a bachelor's degree received poor reviews, lacked pedagogical skills, and struggled with day-to-day tasks in the classroom. Lu, Shen, and Poppnik (2007) found that many teachers with a bachelor's degree were seldom teaching in their field, meaning they were teaching out of their area of certification. These teachers were often hesitant to utilize a variety of instructional strategies. Lu et al. (2007) discovered that some teachers holding a bachelor's degree had not earned their degree in education or teaching; degrees were often in fields not related to education.

Bangs (2008) found that teachers with a master's degree demonstrated more self-confidence, autonomy, and expertise in their content area and in their daily classroom practices. Teachers with a master's degree were more likely to try different approaches to student learning. Also, they were more likely to reflect upon and improve their teaching strategies in order to provide for all types of students (Bangs, 2008; Ediger, 2011; Findell, 2007). Several studies found that these teachers have more knowledge about different instructional strategies and use a variety of instructional strategies with their students (Akbari & Dadvand, 2011; Almarza, 1996; Findell, 2007; Richards, Ho, & Giblin, 1996). Students were more successful in the classroom when their teacher had at least a master's degree (Akbari & Dadvand, 2011; Goldhaber & Brewer, 1997). Teachers with a master's degree were found to be more prepared to "do well in public school teaching" (Ediger, 2011, p. 849).

Students benefited in school when their teachers had earned a doctoral degree. Roccanova (2000) reported that having a doctorate was most beneficial in teaching advanced classes. It also proved beneficial when teaching general classes. Reported benefits included additional knowledge of content area, formation of better relationships with students, and implementation of a variety of instructional strategies in the classroom. Completion of doctoral research was found to be a contributing factor influencing teachers' use of various instructional strategies in the classroom (Ediger, 2011; Roccanova, 2000).

Dependent Variable

Before defining teacher perception, the dependent variable, it was necessary to first define student-centered-learning instructional strategies. The educators and philosophers Dewey, Rogers, Piaget, Knowles, and Froebel have each contributed to student-centered learning (McDonald, 2012; O'Neill & McMahon, 2005). Student-centered learning is based in

constructivism and includes the active involvement and development of students' knowledge and understanding rather than passively obtaining surface-level information given to them by their teacher (Doyle, 2008; Elen, Clarebout, Leonard, & Lowyck, 2007; Peters, 2010; Phillips & Volker, 2014; Pucha & Utschig, 2012; Wright, 2011). The primary focus is on students' learning rather than on the teacher. Therefore, attention is paid to what students learn, how they perform and master concepts, and how they build meanings, capabilities, and skills versus what the teacher does (Bishop, Caston, & King, 2014; Chu, 2010; Doyle, 2008; Elen et al., 2007; Lara, 2007; Pucha & Utschig, 2012). Teachers' role is one of a facilitator, not a presenter of information (Hein, 2012; Ke & Kwak, 2013; Kember, 1997; O'Neill & McMahon, 2005; Phillips & Volker, 2014; Peters, 2010). Student-centered-learning instructional strategies are concerned with students carrying out tasks, demonstrating skills, and constructing meaningful knowledge that show understanding rather than memorizing facts through participation in rote learning (Bishop et al., 2014; Doyle, 2008; Lara, 2007; McDonald, 2012). Student-centered-learning instructional strategies give students choices; they may choose what to learn, how to learn, and the reason why they chose a particular topic. Learning choices help encourage deep learning and understanding within students (Bishop et al., 2014; Doyle, 2008; Lara, 2007; McDonald, 2012). Student-centered-learning instructional strategies require students to be responsible and accountable for their own learning while at the same time promote learning in others (Brandes & Ginnis, 1986). Personal growth and development, learner independence, and the development of relevant life-long learning skills and knowledge are results of students' responsibility and accountability (Chu, 2010; Elen et al., 2007; Lara, 2007; McDonald, 2012; O'Neill & McMahon, 2005; Peters, 2010).

The literature contained broad and complex definitions of student-centered learning and the instructional strategies supporting the construct. However, Lea et al. (2003) and O'Neill and McMahon (2005) summarized the literature on student-centered learning to include nine tenets. The tenets provide a clear and concise description of student-centered learning and its key components. Instructional strategies supporting these tenets were investigated in this research. The tenets are as follows:

1. Learning is active, not passive. Involvement and participation are necessary for learning.
2. There is emphasis on deep learning and understanding.
3. Students are responsible and accountable for their own learning. The learner has full responsibility for her/his learning.
4. There is autonomy in the learner.
5. There is interdependence between the teacher and learner.
6. There is mutual respect between the learner and teacher.
7. There is a reflexive approach to the teaching and learning process on the part of both teacher and learner.
8. The relationship between learners is equal and promotes growth and development.
9. The teacher is a facilitator and resource person.

The dependent variable in this study was Georgia high school teachers' perceptions of their application of student-centered-learning instructional strategies. Several different, yet related, definitions of teacher perception exist. In its simplest meaning, teacher perception was defined as cognition of teaching and learning (Andrews & Brown, 2015). Another definition referred to one's own beliefs, viewpoints, principles, or opinions about teaching and learning (Czerniak et al., 1999). One definition indicated that teacher perception was a reflection of

teachers' thoughts, beliefs, and opinions regarding teaching and learning (Merç, 2015). Teacher perception has also been described as conscious or unconscious beliefs that are gathered from what others say or do (Rokeach, 1968; Tarman, 2012). Each day, teachers make decisions and judgements that are influenced by their perceptions. In this survey study, teachers' perceptions of their application of teaching strategies designed to elicit student-centered learning was conceived as a univariate construct and was defined as the beliefs teachers have about their own use of instructional strategies that support the tenets of student-centered learning. The nine tenets are used for describing student-centered learning in its entirety; they are not used for segregating it or dissecting it. Each tenet relates to the others and comprised the whole of student-centered learning (Ajzen & Fishbein, 1980; Andrews & Brown, 2015; Applefield, Huber, & Moallem, 2001; Bayindir, 2010; Belton & Scott, 1998; Czerniak et al., 1999; de Kock, Sleegers, & Voeten, 2004; Grieve, 2010; Hrbackova & Vavrova, 2012; Lau, 2013; Lea et al., 2003; Merç, 2015; O'Neill & McMahon, 2005; Peters, 2010; Raya & Fernandez, 2002; Rokeach, 1968; Tarman, 2012). A univariate construct is an idea encompassing one thing. In this study, the univariate construct was represented collectively by overlapping survey statements representing instructional strategies supported by one or more of the nine tenets of student-centered learning.

Subjective norms reveal an individual's perception regarding what other important people think about the behavior (Ajzen & Fishbein, 1980). In this study, subjective norms, or other important people, included school administrators and fellow teachers. Educational studies used administration and fellow teachers as the subjective norms and found that these people can in fact influence teachers' instructional practices (Blase & Blase, 1999; Blase & Blase, 2000; Capo & Orellana, 2011; Hsieh, Yen, & Kuan, 2014; Marks & Printy, 2003; Omwenga, Nyabero, &

Okioma, 2015; Pierce & Ball, 2009; Salleh & Laxman, 2015; Stewart Stanec, 2009; Stols & Kriek, 2011; Supovitz, Sirinides, & May, 2010; Talbot & Campbell, 2014; Teo, 2009; Teo, 2010; Teo, Lee, & Chai, 2007; Wahlstrom & Louis, 2008).

Research Questions

The research questions below guided data collection and data analysis process in this study.

1. What are the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies?
2. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on gender?
3. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on primary subject area?
4. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on education level?
5. What is the correlation between teachers' perceptions of their application of student-centered-learning instructional strategies and perceived school administration support of these same strategies?
6. What is the correlation between teachers' perceptions of their application of student-centered-learning instructional strategies and perceived fellow teachers' support of these same strategies?

Research Design

Survey research was used in this study. Educational researchers often use this type of research when exploring perceptions (Gall, Gall, & Borg, 2007; Gross, Whitbred, Skalski, & Liu, 2013; Hrbackova & Vavrova, 2012; Lau, 2013; Susuwele-Banda, 2005; Tarman 2012). Survey research is nonexperimental and uses questionnaires to collect data. Survey research explores relationships in groups where independent variables are present (Groves, Singer, Lepkowski, Heeringa, & Alwin, 2004; Johnson & Christensen, 2012). This study determined if the dependent variable, high school teachers' perceptions about student-centered-learning instructional strategies, was different based on gender, primary subject area, and education level.

This study sought to discover high school teachers' perceptions about their application of student-centered-learning instructional strategies using an original survey (see Appendix A) developed by the researcher. As part of the study, participants were asked to identify their gender (men or women), primary subject area (English Language Arts and Reading, Mathematics, Science, Social Studies, Fine Arts, Health Education, Physical Education, Modern Languages and Latin, and Career Technical Education), and education level (associate degree, bachelor's degree, master's degree, educational specialist degree, and Doctorate of Education or Doctorate of Philosophy). Responses were grouped to reflect the following independent categories: gender (men or women), primary subject area (core or non-core), and education level (undergraduate or graduate degree). Based on data collection and statistical analyses, it was determined if the dependent variable, perception about application of student-centered-learning instructional strategies, was different based on identified independent variables (Johnson & Christensen, 2012).

There are several advantages to survey research. Survey research allows respondents to be anonymous. This anonymity can influence respondents to respond more truthfully about information involving risks or embarrassment (Hill, 2001). Survey research provides opportunities to work with samples that may be in different geographical areas. Survey research is compatible with quantitative research because it provides numeric data. Survey research is low in cost and often requires less time for data collection compared to other research designs. A survey, the main tool in this type of research, can be in many forms including oral, written, or web-based (Gall et al., 2007; Hill, 2001).

There are, however, several disadvantages to survey research. First, respondents are in control of the data collection process. Respondents are able to decide whether or not to complete the survey. Respondents can also choose how much time and effort to put forth when completing the survey. The researcher also has limitations; a survey does not allow the researcher to gain a deeper understanding about the topic or issues. The researcher is unable to change the survey questions or add any clarification about questions presented. The researcher cannot delve deeper into respondents' thoughts or answers. Issues or topics will be presented in a survey provided for a limited response format. Data collected from a survey may pose difficulty when presenting the findings or findings may be unclear (Gall et al., 2007, Hill, 2001).

Participants

The participants for this study included Georgia high school teachers from the Northeast Georgia Regional Educational Service Agency (RESA). There are 16 RESAs strategically located throughout Georgia. Georgia RESAs support public school systems by sharing "services designed to improve the effectiveness of the educational programs of member school systems" (Georgia Standards, 2014). RESAs also inform school systems of innovation and conduct

research on programs of interest when warranted (Georgia Standards, 2014). The Northeast Georgia RESA is comprised of the following 13 school systems: Barrow County, Clarke County, Commerce City, Elbert County, Greene County, Jackson County, Jefferson City, Madison County, Morgan County, Oconee County, Oglethorpe County, Social Circle City, and Walton County.

A convenience sample was used in this study. A convenience sample is one that is selected due to availability of a population or easy access to the population (Gall et al., 2007). In this sample type, results are not generalizable to a larger population. All core and non-core teachers in the convenience sample received the questionnaire developed by the researcher (see Appendix A) in electronic format via email.

According to Dillman (2007), response rates of internet-based surveys range from 13%-60%. Of the 1,030 teachers who received this survey via email, 768 were core teachers and 262 were non-core teachers. The literatures suggested that for a sample of this size, between 278 and 284 surveys must be completed and returned in order for results to be statistically valid (Johnson & Christensen, 2012). A total of 539 surveys were returned to the researcher, however only 470 were usable. This yielded a response rate of 45.6%. Of the 470 respondents, 191 were men and 279 were women, 304 were core teachers and 166 were non-core teachers, and 3 had an associate degree, 96 had a bachelor's degree, 221 had a master's degree, 126 had an educational specialist degree, and 24 had a doctoral degree.

Instrumentation

In this study, teachers' perceptions of their application of student-centered-learning instructional strategies, the dependent variable, was a continuous variable with a single total score that was calculated by adding together the responses from 28 survey statements about

one's perceptions of application of student-centered-learning instructional strategies. Adding the components of perceptions of student-centered-learning application together provided the researcher with teachers' perceptions of their application of student-centered-learning instructional strategies.

The researcher had two options to conceptualize, measure, and report teacher perceptions. One was to use an approach with multiple subscales for scores. Multiple scores are often used when researchers wish to determine different factors that may contribute to one's attitude, belief, or perception of a given subject. Example of subscales include benefits, needs, confidence, instructors, clientele, mood, or persistence (Athavale, Davis, & Myring, 2008; Baxter, 2011; Colwell, 2008; Elledge et al., 2013; Huelsman, Gagnon, Kidder-Ashley, & Griggs, 2013). Another option was to use an approach with a single score. A single score is often used when researchers want to determine the overall attitude, belief, or perceptions of individuals for a given subject (Gardner, 1996; Jenkinson, Fitzpatrick, Peto, & Greenhall, 1997; Jenkinson et al., 2002; Marbaniang, Mishra, & Khuhly, 2014; Topkaya, 2010). Survey items that measure the same construct are usually summed to give a single score (Sloan et al., 2002).

A single perception score allowed the overall concept of teachers' perceptions of their application of student-centered-learning strategies to be identified. Investigating teachers' overall perception of their application of instructional strategies that support the nine tenets of student-centered learning was important. Tenets cannot be separated from one another or student-centered-learning instructional strategies would be incomplete. Each tenet relates to the others, and together they clearly summarize student-centered-learning instructional strategies. An overall score combined all nine tenets into a single score rather than looking at nine separate scores, one for each tenet. The researcher decided not to examine any specific area of student-

centered-learning instructional strategies because overall teacher perception was what was important.

There were several advantages to using a single teacher perception score. The number of statistical comparisons and chances for error were reduced when testing hypotheses for a single score instead of nine separate scores (Jenkinson et al., 1997, 2002). In this study, errors were reduced because the researcher did not perform statistical tests on each of the nine tenets. When making multiple statistical comparisons, false positives can often occur (McDonald, 2014). When using multiple tests, the literature suggested Bonferroni correction, which reduces the alpha level, or using other less strict methods (McDonald, 2014; Van Hecke, Emsell, & Sunaert, 2016). A single score, however, was less complex than a profile of scores. It is easier for people in other disciplines to understand because the score is a summary of a clearly defined construct. People in other disciplines may not be familiar with terms or jargon specific to a different field, thus making it difficult to understand findings of the study (Bangor, Kortum, & Miller, 2009; Jenkinson et al., 1997, 2002). One score allows researchers to look at the big picture (Jenkinson et al., 1997).

On the other hand, a single or univariate score to represent a complex construct does not allow researchers to see differences between individual survey items or the relative contributions of the various tenets or subscale scores. This can be viewed as less satisfactory in some cases because differences between survey items or subscale scores data may prove worthwhile or meaningful (Stewart, Hays, & Ware, Jr., 1988). Gardner (1996) argued that adding items' scores together to produce a single score can be a weak procedure in survey research if the common construct is not clearly defined. Often, researchers assume that all survey items "inter-correlate with each other [and] share common variance" therefore their survey measures a "common

construct" and can use a single score (Gardner, 1996, p. 913). If unrelated items are summed into a single total, useless results may emerge. Researchers using surveys sometimes assume that a high Cronbach alpha level provides proof that all survey items measure the same construct (Gardner, 1996). Although Gardner (1996) argued that one score can be viewed as a weak procedure, he is not against the idea of using a single score. It was recommended that in order to use a single score, the common construct for which the survey is designed to measure be clearly defined (Gardner, 1996).

No appropriate survey instrument was found to measure teachers' perceptions of their application of student-centered-learning instructional strategies as described in this study. Therefore, an original survey was developed to collect data on the topic (see Appendix A). After reviewing the literature, key words and concepts related to student-centered learning and perception were identified. The nine tenets of student-centered learning from Lea et al. (2003) and O'Neill and McMahon (2005) and common language from the literature were used to compose statements that allowed the researcher to collect data about teachers' perceptions of their application of student-centered-learning instructional strategies.

Scholars argued that an individual's overall perception is directional. It implies that people already have a directional view or attitude toward objects or ideas, and that people have differing strengths and intensities of likes or dislikes toward objects or ideas (Petty & Krosnick, 1997; Raden, 1985). In other words, people may really like an object or idea or they may really dislike an object or idea; their like or dislikes could fall anywhere in between one intensity or another. Therefore, the survey used a five-point Likert scale to determine the frequency of application of each student-centered-learning instructional strategy (Brown, 2010; Vagais, 2006). Likert scales are often used to measure attitudes, beliefs, or behaviors and are interval (Huck,

2012). To ensure an appropriate level of validity and reliability, four is the minimum number of choices recommended when using Likert scales. Reliability and validity often increase as the number of options increases. However, if using more than five choices, reliability and validity barely increase (Lozano, Garcia-Cueta, & Muniz, 2008). Garland (1991) found that the more choices respondents have, the less likely they are to choose the neutral option. There is evidence, however, that a neutral option can cause survey results to be distorted (Garland, 1991). The literature revealed surveys that used a variety of frequency Likert scale options and descriptions, with response options ranging from 1 to 4 choices to 1 to 7 choices (Aldridge, Fraser, Bell, & Dorman, 2012; Bernaus & Gardner, 2008; Danaia, Fitzgerald, & McKinnon, 2013; Elledge et al., 2013; Nix, Fraser, & Ledbetter, 2003; Riley, 2013; Smith, 2010; Smith & Valentine, 2012; Taylor, Fraser, & Fisher, 1997; Zhou & Intaraprasert, 2015). Upon an extensive search through the literature, no prior study was found that provided the researcher with a suitable scale for this study. Using existing scales and their descriptions from the literature, the researcher developed the scale for this part of the survey (Aldridge et al., 2012; Bernaus & Gardner, 2008; Danaia et al., 2013; Elledge et al., 2013; Nix et al., 2003; Riley, 2013; Smith, 2010; Smith & Valentine, 2012; Taylor et al., 1997; Zhou & Intaraprasert, 2015). Twenty-eight survey statements asked respondents to decide how often they use each student-centered-learning instructional strategy described in each item on a scale of one to five, where values are as follows: 1 = never (0% of the time or 0 times per week), 2 = seldom (25% of the time or 1-2 times per week), 3 = sometimes (50% of the time or 2-3 times per week), 4 = often (75% or 3-4 times per week), and 5 = always (100% of the time 4-5 or times per week). All survey items were worded positively so that confusion often associated with negative wording could be avoided, and thus eliminated the need to reverse-score item responses. Four statements

were scored using a rating scale, where 0 was least likely to occur and 10 was most likely to occur, to indicate perception of support and encouragement of student-centered-learning instruction and instructional strategies from teachers' administration and fellow teachers. The scale for this part of the survey was developed using studies that had similar scales to measure unlikely to likely occurances (Anderson & Fishbein, 1965; Begeny, Eckert, Montarello, & Storie, 2008; Kalmijn, 2013). These four items were included to meet the subjective norm component of the theory of reasoned action, and allowed the researcher to determine which subjective norm, school administration and fellow teachers, influenced teachers' perceived use of student-centered-learning instructional strategies. The survey also included a short demographics section at the beginning to collect information about participants' gender, primary subject area, and education level. Responses to the survey were used to determine high school teachers' perceptions concerning their application of student-centered-learning instructional strategies based on gender, primary subject area, and education level.

Validity

An important part of this study was content validity. Content validity is the degree to which an instrument measures what it is designed to measure (Johnson & Christensen, 2012; McMillan & Schumacher, 1989; Phillips & Stawarski, 2008). Punch (2003) argued that content validity also falls on respondents' answers to survey items. Respondents should answer honestly and put forth time and effort to ensure accurate answers (Punch, 2003).

The survey used in this study was validated by using an expert panel and a pilot study (Dillman, 1978; Gall et al., 2007). An expert panel is a group of people who are knowledgeable of and involved in student-centered learning. This group was formed to evaluate individual survey items and the entire survey (Dillman, 1978). The number of people needed for an expert

panel varied in the literature. Grant and Davis (1997) suggested two to twenty members, depending on the desired expertise and range of representation of the panel. Lynn (1986) recommended using at least three content experts. In addition to content experts, the literature suggested that a minimum of three lay experts should be included on the panel (Rubio, Berg-Wegner, Lee, & Rauch, 2003). To ensure that the population for whom the instrument is being developed is represented, it is necessary to have content and lay experts on the panel. Content experts are professionals who have published or worked in the field being researched. Lay experts are people for whom the subject is most relevant (Rubio et al., 2003).

Since no exact number between two and twenty was provided in the literature, eight experts were recruited for the panel to evaluate the study's instrument. The expert panel consisted of two content experts and six lay experts. For content experts, the researcher used a university professor and the director of curriculum at a local school system. Both individuals have been K-12 classroom teachers and have worked in university settings preparing students to enter the field of teaching and education. For lay experts, the researcher used three high school teachers in the core subject areas of English language arts, math, and science, and three high school teachers in the non-core areas of agriculture, business, and family and consumer sciences. Each of these six teachers had at least ten years of teaching experience and at least a master's degree.

Each member of the expert panel received a cover letter (see Appendix C) and a copy of the survey. Cover letters included the purpose of the study, the reasons the individuals were selected to serve on the panel, a description of the survey and its' scoring, and an explanation of the responses. The cover letter asked for feedback for each item and for feedback on the instrument in general.

Based on feedback from panel members, revisions were made to the instrument. The first version of the instrument focused on the nine tenets of student-centered learning as described in the literature and used a 4-point Likert scale with choices ranging from Strongly Agree to Strongly Disagree and no neutral option. There were 20 items. The nine tenets of student-centered learning were divided into individual statements and were used to create survey items. For example, one item read, "Learning is active," which is the first sentence in the first tenet. Another item read, "Learning is passive," which is part of the second sentence in the first tenet. An additional item read, "The relationship between learners promotes growth." Again, this was part of one of the tenets and made into a survey item. Feedback from the panel indicated that the survey statements were too simple and too similar to the tenets. Panel members also expressed that the items were vague and that teachers responding to the survey might be confused. The panel suggested using examples of student-centered-learning instructional strategies from the literature that were supported by the nine tenets.

The second version of the instrument was created based on recommendations from the expert panel. Items were formed using examples of student-centered learning from the literature. For example, one item said, "Students learn best when they are doing hands-on activities." Another item stated, "Learning occurs when students are engaged in authentic learning activities that are interdisciplinary." These items, and others, were written based on examples in the literature. This version of the instrument, like the first version, used a 4-point Likert scale and had 40 items. After reviewing the survey, the expert panel recommended combining items from the first and second versions to capture the whole idea of student-centered-learning instructional strategies. They also suggested using a frequency scale instead of an agreement scale.

For the third version of the instrument, the researcher changed the scale to a frequency scale with five choices ranging from Never to Always. Several items were removed to create the third version of the survey. These items were:

1. Statement 2: "The teacher knows everything."
2. Statement 3: "Student-centered-learning activities take up time needed for instruction."
3. Statement 13: "Student-centered instructional activities are difficult to manage in the classroom."

Four items were reworded. These included:

1. Statement 1: "Hands-on activities increase student learning" was changed to "Students engage in hands-on activities."
2. Statement 10: "Lectures increase student learning." was changed to "Lectures dominate instruction."
3. Statement 12: "Real-life learning activities improve students' abilities to retain information" was changed to "Real-life learning activities are included in instruction."
4. Statement 25: "Students are motivated to learn when they have instructional choices" was changed to "Students are given instructional choices."

The panel agreed further review would be needed after combining and constructing items. The panel also suggested that descriptions of never, seldom, sometimes, often, and always be added to the survey scale. After review of the third version of the instrument, changes to several items were made to create the fourth version of the instrument.

The seven items below were added and included:

1. Statement 7: "Students demonstrate skills."
2. Statement 8: "Students help each other accomplish tasks."

3. Statement 11: “Students engage in interdisciplinary learning activities.”
4. Statement 12: “Students initiate their own learning.”
5. Statement 13: “Students carry out investigations to test ideas.”
6. Statement 16: “Student are provided opportunities to discuss their work.”
7. Statement 18: “Students complete assignments using a variety of sources.”

The panel recommended that all items on the fourth version which would need to be reversed for scoring should be removed so that the survey only reflected actual application of student-centered-learning instructional strategies. These items were removed. Four items were added to reflect the subjective norm piece of the theory of reasoned action. These items asked respondents to rate their perceived support from administrators and fellow teachers. Once all item revisions, additions, and deletions were made, the instrument consisted of 32 items that reflected instructional strategies that supported the nine tenets of student-centered learning and examples of student-centered learning from the literature. The scale provided descriptions for never, seldom, sometimes, often, and always. Finally, the panel reviewed the instrument again and had no further recommendations.

Once finalized, a pilot study was conducted to further validate the survey (Gall et al., 2007). Krueger (2001) recommended selecting a small sample size, between 10 and 30 teachers, to participate in the pilot study. A pilot study was administered to teachers at one high school in Georgia. This high school was not one of those in the RESA selected for this study. Twenty high school teachers were randomly selected from a list of 54 core and non-core teachers at one high school in Georgia. All participants were sent an email explaining the purpose of the study, why members were selected to participate, and what was required to participate (see Appendix D). Pilot study participants were asked to complete the survey and were asked to criticize or

make recommendations for improving the survey. After the pilot study was completed, no revisions were made to the survey. All participants had positive comments and feedback regarding the survey.

Reliability

Reliability is defined as the ability of an instrument to consistently produce similar results when used at different times. It is also the level of internal consistency of a measuring device over time. A survey is reliable when responses are the same on different administrations of the survey. This will occur if nothing changes in respondents' knowledge between administrations (Gall et al., 2007; Johnson & Christensen, 2012). Mertens (1998) found that beliefs do not change over time unless there is an intervention. An instrument is said to be unreliable if significant deviation responses occur. With increased reliability, the researcher will have a better and more accurate view of teachers' perceptions of application of student-centered-learning instructional strategies (Johnson & Christensen, 2012; Mertens, 1998; Phillips & Stawarski, 2008).

To determine reliability, two common approaches are often used: repeated measure and internal consistency. The most common repeated measure technique is test-retest form of reliability and internal consistency. In test-retest reliability, a group is given a test or other instrument and then they are given the same test or instrument after a specific amount of time has passed. Scores from the two administrations are compared to determine if responses are consistent. An issue with a test-retest approach is the chance that respondents could remember test items from the first administration. Another test-retest approach is called equivalent forms. In this approach, the second administration of the test is an equivalent form of the first test. However, it is difficult to determine if the two tests are truly equivalent (Creswell, 2008; Johnson

& Christensen, 2012; Mertens, 1998). Although a popular approach to determine reliability, the test-retest form of reliability and internal consistency was not used in this study. Instead, the researcher used Cronbach's coefficient alpha from the pilot study and study sample to determine reliability and internal consistency.

Johnson and Christensen (2012) defined internal consistency as "how consistently the items on a test measure a single construct or concept" (p. 140). A commonly used measured of internal consistency is Cronbach's coefficient alpha. Cronbach's alpha provides a formula that estimates the reliability within one administration of a survey (Johnson & Christensen, 2012; Mertens, 1998). Cronbach's alpha was appropriate because the survey was a psychometric instrument that measured teachers' perceptions about their application of student-centered-learning instructional strategies (Huck, 2012; Keppel & Wickens, 2004). Cronbach's alpha was used on items that have a range of responses, such as the range of responses using the Likert scale on the survey (Creswell, 2008; Johnson & Christensen, 2012). Reliability scores range from .00 to 1.0, where scores closer to .00 indicate little or no reliability and scores closer to 1.0 indicate strong reliability. For research purposes, Cronbach's alpha should be .70 or higher (Gall et al., 2007; Johnson & Christensen, 2012). So, in this study, reliability scores of .70 or higher were used to indicate that the survey was sufficient to administer to Georgia high school teachers. Cronbach's alpha was also used in this study to test for internal consistency with scores closer to 1.0 indicating strong reliability. Cronbach's alpha was .89 for the pilot study and .94 for the sample. These scores indicated strong reliability and internal consistency.

After validity and reliability were established, the survey was given to Georgia high school teachers in electronic format via email. The survey had instructions for completion, 28 items that measured teachers' perception of application of student-centered-learning instructional

strategies, and four items that indicated teachers' perceptions of support and encouragement from administration and fellow teachers. It also contained three questions at the beginning of the survey asking participants to choose their gender, primary subject area in which they teach, and education level.

There were several influences that could have caused the data to be invalid or unreliable. Some participants may have felt that statements on the survey were confusing or unclear. Participants could have demonstrated a variety of characteristics such as being nervous, tired, rushed, uninterested, or interrupted. These influences were beyond control of the researcher. However, they were anticipated and addressed with planning of the survey and in all survey administration procedures (Johnson & Christensen, 2012). For example, the number of returned surveys was 539. However, only 470 were useable, as 69 were incomplete. The researcher formatted the online survey so that no questions could be submitted unanswered. However, the website used to house the online survey automatically submits any data even if the "submit" button is not pressed. The 69 incomplete surveys were submitted due to the participant closing his or her survey and bypassing the submit button feature.

Procedure

This study was conducted with participants from high schools in Georgia. Approval from the Institutional Review Board (IRB) at the University of Georgia was granted to carry out this study (see Appendix E).

Data collection began in mid-March 2016. A list of 1,030 (768 core and 262 non-core) Georgia high school teachers' email addresses from Barrow County, Clarke County, Commerce City, Elbert County, Green County, Jackson County, Jefferson City, Madison County, Morgan County, Oconee County, Oglethorpe County, Social Circle City, and Walton County school

systems was compiled by obtaining this information from each school's web site. The list was used for coding and follow-up purposes. The coding allowed participants to be anonymous; confidentiality was maintained. All 1,030 teachers on the list were sent an email that invited them to participate in the study (see Appendix F). These teachers were also sent a consent letter in the initial email (see Appendix G). When surveys were completed, participants were identified as respondents. The survey did not contain any identifiable information. When data collection was complete, all codes were destroyed.

Dillman (1978) suggested multiple contacts with participants to ensure high response rates. After a one-week and a three-week period from when the initial survey email was sent, reminder emails were sent to nonrespondents (Millar & Dillman, 2011). The emails reminded participants that their responses were important in order for this study to be completed (see Appendices H and I). Directions for completion and a link to the survey were provided again (Couper, Traugott, & Lamias, 2001; Dillman, Smith, & Christian, 2009; Wood, Noska, Desmarais, Ross, & Irvine, 2006). After the invitation email was sent, the research received 166 valid responses. After first and second reminder emails were sent, the researcher received 189 and 115 valid responses, respectively.

Data Analysis

Descriptive statistics such as mean, standard deviation, variance, and range were used to describe high school teachers' perceptions of application of student-centered-learning instructional strategies. These statistics show a summary of participants' basic perceptions of application of student-centered-learning instructional strategies. These descriptive statistics answered research question 1. For research questions 2 through 4, one-way analyses of variance (ANOVA) were used to compare teachers' perceptions of application of student-centered-

learning instructional strategies based on their gender (man or woman), primary subject area in which they teach (core or non-core), and education level (undergraduate degree or graduate degree). The groups formed from the independent variables were compared on the dependent variable in order to find any significant differences between responses. ANOVA was an appropriate method because two or more groups were compared on dependent constructs (Keppel & Wickens, 2004). ANOVA produces a statistic that is an estimate of the total amount of variability in the data. This test allowed a researcher to determine what contributes to the variability between groups, which is what this study sought to find (Keppel & Wickens, 2004).

If assumptions of one-way ANOVAs are met, the results can provide evidence to determine if differences exist. To begin, the researcher made sure the dependent variable was interval; it was a score that was measured using results from the survey. The independent variables were three categorical, independent groups. No participants were in more than one group of each category. For example, teachers were only in either the men or women group.

There are three assumptions required in ANOVA that must be met in order to form credible conclusions: (a) independence, meaning that the dependent variable was only influenced by the independent variable, (b) normality, meaning that data from the dependent variable for each group were distributed normally, and (c) homogeneity of variance, meaning that the standard deviation for each group was approximately the same (Keppel & Wickens, 2004; Laerd Statistics, 2013; Rojewski, Lee, & Gemici, 2012). Independence, normality, and homogeneity of variance assumptions were accounted for after data analysis was performed using statistical software. The dependent variable was only influenced by the independent variable. Normality was tested using Shapiro-Wilk test of normality and homogeneity of variance was tested using Levene's test for homogeneity of variance. Statistical software did not present any outliers in the

data. After analysis, the researcher determined if teacher perception was influenced by gender, primary subject area, and education level. Secondly, the researcher determined if perceptions from each group (gender, primary subject area, and education level) was normally distributed. Lastly, the researcher compared the standard deviations for perception based on each independent variable (gender, primary subject area, and education level) to see if they were approximately the same (Keppel & Wickens, 2004; Laerd Statistics, 2013; Rojewski et al., 2012).

Inferences about teacher perception were found by looking at the overall mean score for perception of their application of student-centered-learning instructional strategies. A mean score of 3.1 to 5 would show that teachers perceive they use student-centered-learning strategies, and a mean score of less than 3 would show that teachers perceive they do not use student-centered-learning strategies in their classrooms. The mean score for perception of application of student-centered-learning instructional strategies was 3.36.

In this study, an alpha level of .05 was used. An alpha level of .05 means that if the results are statistically significant, the observed value would not happen more than five percent of the time, and it was not likely to happen by chance (Keppel & Wickens, 2004). Other studies on teacher perceptions and on student-centered learning used the alpha level of .05 in their research (Cubukcu, 2012; Rawat, Thomas, & Qazi, 2012; Restoff et al., 2012; Taskin-Can, 2011; Uzunboylu & Ozdamli, 2011). The researcher looked at the overall scores to determine teacher perception of their application student-centered-learning instructional strategies.

Effect size measures practical significance and allowed the researcher to make inferences about the population from which the sample came (Huck, 2012; Keppel & Wickens, 2004). Effect sizes were calculated for all significant findings. Cohen's d was used to measure effect

size in this study. Cohen's d "is a natural measure of effect size when only two groups are involved" (Keppel & Wickens, 2004, p. 161). Cohen's d will be zero when there is no difference between the two groups and will increase when the difference gets larger (Keppel and Wickens, 2004). Kepple and Wickens (2004) stated that Cohen's guidelines define a small effect size as .25, a medium effect size as .5, and a large effect size as .8. Because these are only guidelines, researchers should interpret them carefully (Kepple & Wickens, 2004).

For research questions 5 and 6, correlations between teachers' perceptions of their application of student-centered-learning instructional strategies and perceived school administration and fellow teachers' support of these same strategies were obtained to determine the strength and direction of the relationship. The researcher combined the response data from survey items related to perceived school administration support to use in this correlation. The response data from survey items related to perceived fellow teachers' support also was combined to use in the second correlation.

Data analysis for this study is summarized in Table 3.2 and includes statistical analyses that were used for each research question. Independent and dependent variables are included.

Table 3.2

Data Analysis for Research Questions

Research Question	Dependent Variable	Independent Variable	Statistical Analysis
1. What are the perceptions of Georgia high school teachers about student-centered learning?		High school teachers' perceptions of application of student-centered-learning instructional strategies	Mean, standard deviation, variance, range

(continued)

Table 3.2 (continued)

Data Analysis for Research Questions

Research Question	Dependent Variable	Independent Variable	Statistical Analysis
2. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on gender?	Perception	1= men 2= women	One-way ANOVA
3. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on primary subject area?	Perception	1= core (English Language Arts & Reading, Mathematics, Social studies, and Science) 2= non-core (Health, Physical Education, Fine Arts, Modern Languages & Latin, and Career Technical Education)	One-way ANOVA
4. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on education level?	Perception	1= undergraduate degree (associate degree or bachelor's degree) 2= graduate degree (master's degree, education specialist degree, or doctoral degree (EdD or PhD))	One-way ANOVA
5. What is the correlation between teachers' perception of their application of student-centered-learning instructional strategies and perceived school administration support of these same strategies?	Perception of student-centered-learning instructional strategies	Perception of school administration support of student-centered-learning instructional strategies	Correlation
6. What is the correlation between teachers' perception of their application of student-centered-learning instructional strategies and perceived fellow teachers' support of these same strategies?	Perception of student-centered-learning instructional strategies	Perception of fellow teachers' support of student-centered-learning instructional strategies	Correlation

CHAPTER 4

RESULTS

This chapter presents an analysis of the data collected for each of the research questions posed. Analysis techniques included descriptive statistics and analysis of variance. A summary of the descriptive statistics pertaining to teacher perception about student-centered-learning instructional strategies, shown in research question 1, is presented. Research questions 2 through 4 relate to the effect of the independent variables on the dependent variable. Separate analyses were executed to assess the effect of each independent variable on the dependent variable. An alpha level of .05 was used. Research questions 5 and 6 used a bivariate correlation to understand the relationship between perception and subject norms. To conclude this chapter, a summary of the results is provided.

Purpose

The purpose of this study was to determine Georgia high school teachers' perceptions of application of student-centered-learning instructional strategies based on gender, primary subject area, and education level. Teacher perception of application of student-centered-learning instructional strategies was the dependent variable and was measured using the questionnaire (see Appendix A). Gender, primary subject area, and education level were the three independent variables in this study.

Analysis of Research Questions

Research Question 1

What are the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies?

The perception variable had a possible overall score that ranged from 1 to 5. A score of 1 indicated that teachers perceived they apply student-centered-learning instructional strategies 0% of the time or zero times per week, while a score of 5 indicated that teachers' perceived they apply student-centered-learning instructional strategies 100% of the time or four to five times per week. The mean score of 3.36 indicated that teachers perceived that they sometimes (50% of the time or 2-3 times per week) applied student-centered-learning-instructional strategies. Table 4.1 presents descriptive statistics for all teachers in the study on perception measures.

Table 4.1

Descriptive Statistics for Teachers' Perceptions of Application of Student-Centered Learning

	Mean	SD	Variance	Range
Overall Perception	3.36	.92	.86	3.96

Note. Possible mean score range was from 1 to 5.

Descriptive statistics also were analyzed for each individual survey statement to determine which strategies teachers perceived they apply in their classrooms. All survey statements had a mean score of 3.01 or higher, except for statements 13, 14, 15, 16, 17, 24, and 27, which showed low perception of application of student-centered learning. These statements had a mean score of 2.73, which proposed that teachers seldom implemented student-centered-learning instructional strategies as described in these items. The mean and standard deviation for each statement is displayed in Table 4.2.

Table 4.2

Descriptive Statistics for Individual Survey Items

Survey Statement	Mean	SD
1. Students engage in hands-on activities	3.39	1.06
2. Students find their own solutions to problems	3.34	.85
3. Authentic tasks require students to apply skills	3.58	.93
4. Teacher serves as a resource person	3.93	.87
5. Students have options when completing assignments	3.01	.96
6. Students participate in critical thinking	3.71	.87
7. The relationship between learners promotes development	3.69	.86
8. Classroom discussions facilitate student learning	3.81	.88
9. Real-life learning activities are included in instruction	3.65	1.01
10. Students demonstrate skills	3.97	.89
11. Students help each other accomplish tasks	3.72	.84
12. Teacher serves as a classroom facilitator	3.93	.85
13. Students are given instructional choices	2.94	.91
14. Students engage in interdisciplinary learning activities	2.83	.96
15. Students initiate their own learning	2.64	.92
16. Students carry out investigations to test ideas	2.41	.99
17. Students choose the way they learn best to complete assignments	2.68	.98
18. Hands-on activities are used to increase student learning	3.44	1.08
19. Students are provided opportunities to discuss their work in class	3.59	.93
20. Students find their own solutions to questions	3.32	.85

(continued)

Table 4.2 (continued)

Descriptive Statistics for Individual Survey Items

Survey Statement	Mean	SD
21. Deep learning and understanding are emphasized	3.85	.91
22. Students take responsibility for their learning	3.26	1.00
23. Students demonstrate autonomy in their learning	2.97	.88
24. The relationship between learners promotes growth	3.53	.91

Note. n = 470. Possible mean score range was from 1 to 5.

Research Question 2

Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on gender?

A one-way ANOVA was performed to determine the relationship between gender and teacher perception. This independent variable, gender, included two categories: men and women. The dependent variable was teachers' perception of their application of student-centered-learning instructional strategies. The mean score and standard deviation for each of the two categories, men and women, is displayed in Table 4.3. Data from the ANOVA for gender are shown in Table 4.4.

Table 4.3

Descriptive Statistics for Gender

Gender	N	Mean	SD
Men	191	3.29	.55
Women	279	3.34	.52

Note. Possible mean score range was from 1 to 5.

Table 4.4

Results of ANOVA for Perception by Gender

	SS	df	MS	F	Sig.
Between Groups	.354	1	.354	1.243	.265
Within Groups	133.176	468	.285		
Total	133.530	469			

Note. SS = sum of squares, df = degrees of freedom, MS = mean square, Sig. = significance.

In this study, teachers' perceptions of their application of teaching strategies designed to elicit student-centered learning was conceived as a univariate construct and was defined as the beliefs teachers have about their own instructional strategies that support the tenets of student-centered learning. The independent variable, gender, was compared to the dependent variable, perception, to provide the overall image of teacher perception. An alpha level of .05 was used. Results from the ANOVA, F (1, 468) = 1.24, p = .31, indicated that differences between gender were not significant at alpha = .05. So, there was no significant difference between men and women teachers with regard to perception of application of student-centered learning.

Normality was tested using Shapiro-Wilk test of normality and homogeneity of variance was tested using Levene's test for homogeneity of variance. Statistical software did not present any outliers in the gender data. Data for the gender group was normally distributed and Levene's test for homogeneity of variance indicated assumptions were met.

Research Question 3

Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on primary subject area?

A one-way ANOVA was performed to explore the relationship between primary subject area and teacher perception. The independent variable, primary subject area, included two

categories: core and non-core. The dependent variable was perception of application of student-centered-learning instructional strategies. Table 4.5 reports the mean score and standard deviation for each category.

Table 4.5

Descriptive Statistics for Primary Subject Area

Primary Subject Area	N	Mean	SD
Core	304	3.11	.49
Non-core	166	3.44	.49

Note. Possible mean score range was from 1 to 5.

The researcher compared the two categories of primary subject area, core and non-core teachers. Data from the ANOVA are reported in Table 4.6.

Table 4.6

Results of ANOVA for Perception by Primary Subject Area

	SS	df	MS	F	Sig.
Between Groups	11.623	1	11.62	48.52	.000
Within Groups	112.113	468	.24		
Total	123.736	469			

Note. SS = sum of squares, df = degrees of freedom, MS = mean square, Sig. = significance.

In this study, teachers' perceptions of their application of teaching strategies designed to elicit student-centered learning was conceived as a univariate construct and was defined as the beliefs teachers have about their own use of instructional strategies that support the tenets of student-centered learning. The independent variable, primary subject area, was run against the dependent variable, perception, to provide the overall image of teacher perception. An alpha level of .05 was used. Results from the ANOVA, F (1, 468) = 48.517, p = .000, indicated that differences between primary subject area were significant at alpha = .05. Therefore, there was

significant difference between core and non-core teachers with regard to perception of application of student-centered learning.

Homogeneity of variance was tested using Levene's test for homogeneity of variance. Statistical software did not present any outliers in the primary subject area data. Levene's test for homogeneity of variance indicated assumptions were met. Shapiro-Wilk test of normality was used to ensure that each group was distributed normally. Data for core teachers was normally distributed, however, data for non-core teachers was positively skewed. Figures 4.1 and 4.2 show the distribution of perception scores for core and non-core teachers.

Figure 4.1 Histogram for Core Teachers' Perception Scores

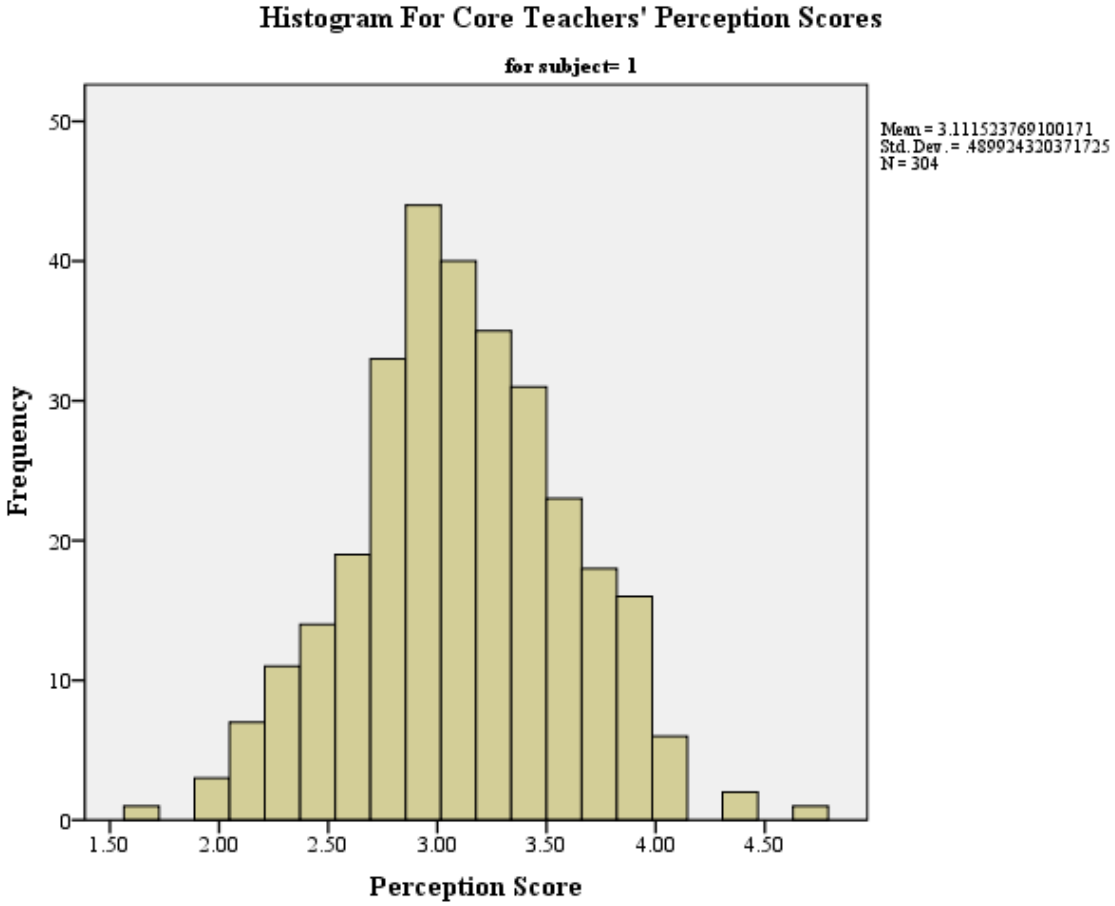
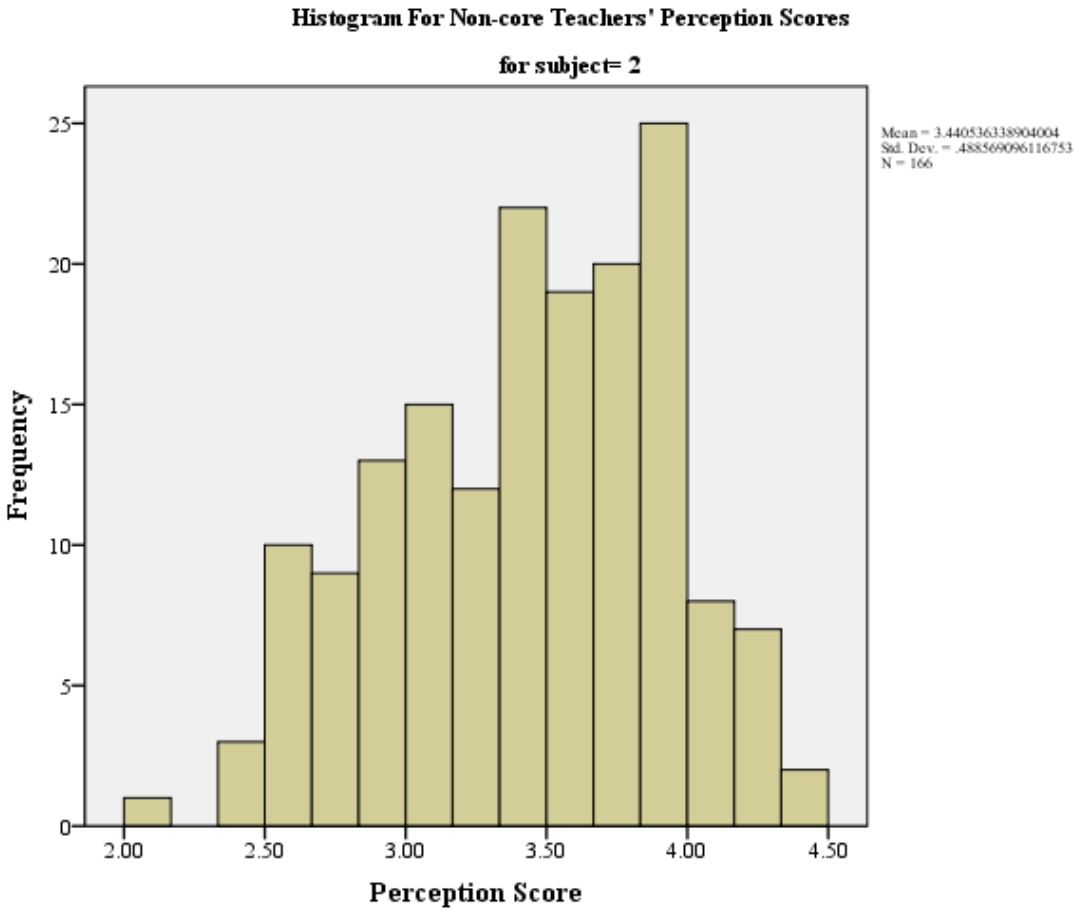


Figure 4.2 Histogram for Non-core Teachers' Perception Scores



The Shapiro-Wilk test of normality indicated that the distribution of perception scores for each group of teachers was normally distributed and that shapes were similar. The data for non-core teachers was positively skewed, indicating a higher perception of frequency of use of student-centered learing instructional strategies. This skewness was supported by the literature, and non-core teachers in this study were significant in the ANOVA findings. Perception scores for each group of teachers were normal, and the sample as a whole, were normal, thus the normality assumption for this group was met (Klockars, 2010).

Research Question 4

Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on education level?

A one-way ANOVA was performed to explore the relationship between education level and teacher perception. The independent variable, education level, included the two categories undergraduate degree and graduate degree. The dependent variable was teachers' perception of their application of student-centered-learning instructional strategies. The mean score and standard deviation for each category of education level is displayed in Table 4.7.

Table 4.7

Descriptive Statistics for Education Level

Education Level	N	Mean	SD
Undergraduate	99	3.18	.46
Graduate	371	3.18	.53

Note. Possible mean score range was from 1 to 5.

Originally, the researcher wanted to compare associate degree, bachelor's degree, and graduate degree. However, it was discovered that a very small percent of the total teacher population in Georgia hold only an associate degree. So, the associate and bachelor's degrees were combined to create one category, undergraduate. Hence, undergraduate and graduate educational levels were compared. Data from the ANOVA are reported in Table 4.8.

Table 4.8

Results of ANOVA for Perception by Education Level

	SS	df	MS	F	Sig.
Between Groups	.001	1	.001	.005	.944
Within Groups	122.976	468	.263		
Total	122.978	469			

Note. SS = sum of squares, df = degrees of freedom, MS = mean square, Sig. = significance.

In this survey study, teachers' perceptions of their application of teaching strategies designed to elicit student-centered learning was conceived as a univariate construct and was defined as the beliefs teachers have about their own use of instructional strategies that support the tenets of student-centered learning. The independent variable, education level, was run against the dependent variable, perception. An alpha level of .05 was used. Results from the ANOVA, F (1, 468) = .005, p = .944, indicated that no differences between education level were significant at alpha = .05. Therefore, there was no significant difference between teachers with an undergraduate degree and teachers with a graduate degree with regard to perception of application of student-centered learning.

Normality was tested using Shapiro-Wilk test of normality and homogeneity of variance was tested using Levene's test for homogeneity of variance. Statistical software did not present any outliers in the education level data. Data for the education level group was normally distributed and Levene's test for homogeneity of variance indicated assumptions were met.

Research Question 5

What is the correlation between teachers' perceptions of their application of student-centered-learning instructional strategies and perceived of school administration support of these same strategies?

A Pearson correlation was performed to determine the relationship between teachers' perception of their application of student-centered-learning instructional strategies and teachers' perceptions of school administration support of these same strategies. Response data from the two items regarding perception of school administration support were combined to use in this correlation. A statistically significant positive relationship was present at the .01 level ($r = -0.87$, $r^2 = .76$). This indicated strong, positive correlation. This finding of a positive relationship indicated that as teachers' perceptions of school administration support of student-centered-learning instructional strategies increase, teachers' perceptions of application of student-centered-learning instructional strategies also increase. This finding was consistent with other studies where positive correlations between teachers' perceptions of instructional strategies and school administration support were found (Blase & Blase, 1999; Blase & Blase, 2000; Hsieh, Yen, & Kuan, 2014; Marks & Printy, 2003; Omwenga, Nyabero, & Okioma, 2015; Salleh & Laxman, 2015; Supovitz, Sirinides, & May, 2010; Talbot & Campbell, 2014; Teo, 2009; Wahlstrom & Louis, 2008).

Research Question 6

What is the correlation between teachers' perception of their application of student-centered-learning instructional strategies and perceived fellow teachers' support of these same strategies?

A Pearson correlation was performed to determine the relationship between teachers' perception of their application of student-centered-learning instructional strategies and teachers' perceptions of fellow teacher support of these same strategies. Response data from the two items regarding perception of fellow teachers' support were combined to use in this correlation.

A statistically significant positive relationship was present at the .01 level ($r = 0.26$, $r^2 = .07$). This indicated a weak, positive correlation. This finding of a positive relationship indicated that as teachers' perceptions of fellow teachers' support of student-centered-learning instructional strategies increase, teachers' perceptions of application of student-centered-learning instructional strategies also increase. This finding was consistent with other studies where positive correlations between teachers' perceptions of instructional strategies and fellow teacher support were found (Capo & Orellana, 2011; Pierce & Ball, 2009; Salleh & Laxman, 2015; Supovitz et al., 2010; Talbot & Campbell, 2014; Teo, 2009, 2010; Teo, Lee, & Chai, 2007; Stewart Stanec, 2009; Stols & Kriek, 2011).

Summary

The results of this study revealed no significant differences in teachers' perceptions of application of student-centered-learning instructional strategies based on gender. There was a significant difference in teachers' perceptions of application of student-centered-learning instructional strategies based on primary subject area. Data from analyses also showed no significant difference in teachers' perceptions of application of student-centered-learning instructional strategies based on their education level. Overall, teachers seemed to have a high perception of frequency of application of student-centered-learning instructional strategies. Teachers indicated that their perceptions of administration support was slightly higher than their perceptions of fellow teachers' support regarding student-centered-learning instructional strategies. The mean scores suggest that teachers feel student-centered-learning instructional strategies would be beneficial to students and teachers, would be a fine choice for their classrooms, and is a type of instruction that is encouraged in Georgia.

CHAPTER 5

SUMMARY, CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

In this chapter, the rationale, purpose, and research questions for this study are restated. A short section of the study method and results of the analyses are presented as well. Conclusions made from the analysis and the suggestions of the findings are described. To close the chapter, recommendations for practice and future research are provided.

Rationale

Although researchers claimed that a shift from teacher-centered learning to student-centered learning is needed, educators still are not using student-centered learning as a widespread instructional strategy in classrooms (Brackenbury, 2012; Doyle, 2008; Mckenna, 2013; Miller, Gross, & Ouijdani, 2013; Rawat, Thomas, & Qazi, 2012; Smart, Witt, & Scott, 2012). Teachers may lack knowledge about this strategy or may not know how to use it within their teaching area. Benefits of the strategy might not be known. Teachers may be scared of changes in instructional strategies or maybe teachers are reluctant or lack motivation to try a different instructional approach (Applefield, Huber, & Moallem, 2001; Mckenna, 2013; Paige, 2010; Rawat et al., 2012).

A few of the obstacles mentioned above are somewhat easy to overcome. Teachers who may lack knowledge about student-centered learning can learn about this strategy through professional resources, courses through local school systems, or courses at colleges and universities. To learn how to implement student-centered learning in their content areas, teachers can, again, use professional resources or explore courses through local school systems

or colleges and universities. They could also work with colleagues who successfully use student-centered learning in the same or similar content area. Benefits of student-centered learning can easily be researched and understood by visiting online sources or discussing the strategy with colleagues (Belton & Scott, 1998; de Kock, Sleegers, & Voeten, 2004; Ke & Kwak, 2013; Miller et al., 2012; Perry, Phillips, & Hutchinson, 2006; Raya & Fernandez, 2002; Rodriguez-Valls & Ponce, 2013; Sampsell-Willmann, 2014). Although these remedies appear to be fairly simple, it is much more challenging to address and change instructional practices due to fear, unwillingness to change practices, and little motivation to try different instructional methods (Applefield et al., 2001; Mckenna, 2013; Paige, 2010; Rawat et al., 2012). In this case, researchers must wish to comprehend perception and factors that will cause a change. This obstacle is related to attitude and behavior and can urge or hinder teachers from using student-centered learning (Ajzen & Fishbein, 1980; Benoit & Benoit, 2008).

Purpose

The purpose of this study was to determine Georgia high school teachers' perceptions of application of student-centered-learning instructional strategies based on gender, primary subject area, and education level. Teacher perception was measured using an original survey (see Appendix A). For this study, the independent variables were gender, primary subject area, and education level.

Research Questions

This study focused on the following research questions.

1. What are the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies?

2. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on gender?
3. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on primary subject area?
4. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on education level?
5. What is the correlation between teachers' perception of their application of student-centered-learning instructional strategies and perceived school administration support of these same strategies?
6. What is the correlation between teachers' perception of their application of student-centered-learning instructional strategies and perceived fellow teachers' support of these same strategies?

Method

Design

Survey research was the design used in this study. This type of research is often used in the field of education to explore perceptions (Gall, Gall, & Borg, 2007; Gross, Whitbred, Skalski, & Liu, 2013; Hrbackova & Vavrova, 2012; Lau, 2013; Susuwele-Banda, 2005; Tarman, 2012). Survey research investigates relationships in groups where independent variables are present (Groves, Singer, Lepkowski, Heeringa, & Alwin, 2004; Johnson & Christensen, 2012). This type of research entails administering questionnaires or similar data tools that mainly use

limited response or open-ended response formats (Hill, 2001). Studies exploring teachers' perceptions on instructional strategies have used survey research designs (Gall et al., 2007; Gross et al., 2013. Hrbackova & Vavrova, 2012; Lau, 2013; Susuwele-Banda, 2005, Tarman, 2012).

Participants

For this study, high school teachers from the Northeast Georgia Regional Educational Service Agency (RESA) were the convenience sample. According to data given to the researcher, there were 46,487 high school teachers in Georgia during the 2015-2016 school year (M. Vignati, personal communication, January 7, 2016). Surveys were distributed to 1,030 core and non-core high school teachers. Of the 1,030 surveys distributed, a total of 470 valid, usable responses were received, yielding a response rate of 45.6%.

Instrument

The measure for this study was the questionnaire created by the researcher (see Appendix A). The instrument contained 32 statements related to student-centered-learning instructional strategies. Twenty-eight items were scored using a 5-point Likert frequency scale. Four items were scored using a rating scale, where 0 was least likely to occur and 10 was most likely to occur, to indicate perception of support of student-centered-learning instructional strategies from administration and fellow teachers. In addition to these 32 items, a short demographic section was included to obtain information on gender, primary subject area, and education level.

Procedure

Before administering the survey, permission to conduct this study was granted by the IRB at the University of Georgia. To ensure confidentiality of participants, a coding number was assigned to each one. Individual identifiable information was not included on the survey and comprehensive data was reported. Once all data collection was complete, all participants' codes

were destroyed. Online survey administration procedures suggested in the literature were used (Dillman, 2007). Dillman (1978) suggested multiple contacts with participants to increase response rates. All participants received an email that included an invitation to participate in and explanation of the study, consent forms, and a link to the online survey.

Data Analysis

The Statistical Package for the Social Sciences (SPSS) version 24 was use for data analysis. Descriptive measures pertaining to teacher perceptions of student-centered learning were calculated first. Then, separate analyses of variance were performed to evaluate the impact of the three independent variables on the dependent variable using an alpha level of .05. The three independent variables (gender, primary subject area, and education level) were treated as categorical variables. The dependent variable, teacher perception, was treated as a continuous variable and was analyzed using a series of one-way ANOVAs. A correlation was performed using data from four survey items to understand how subjective norms influence teachers' perceptions of application of student-centered-learning instructional strategies. The descriptive statistics for subjective norms were reported.

Summary of Findings

A total of 1,030 surveys were distributed to high school teachers at every high school in the Northeast Georgia Regional Educational Service Area. A total of 539 teachers responded. However, only 470 of these were usable, yielding a 45.6% response rate.

The survey collected demographic information about teachers' gender, primary subject area, and education level. Of the 470 respondents, 191 were men and 279 were women, 304 were core teachers and 166 were non-core teachers, and 3 had an associate degree, 96 had a

bachelor's degree, 221 had a master's degree, 126 had an educational specialist degree, and 24 had a doctoral degree.

Descriptive statistics were performed on the overall responses from teachers to determine perception of application of student-centered-learning instructional strategies. A mean score of 3.36 indicated that teachers had high perceptions regarding their application of student-centered-learning instructional strategies. Results also showed that teachers had high perceptions regarding support of student-centered-learning instructional strategies from school administration and fellow teachers.

Descriptive statistics were also carried out for each individual statement beginning with statement 1 through statement 28 on the survey. Mean scores for items 13, 14, 15, 16, 17, 24, and 27 fell below a mean score of 3.00. These items were related to student choices, interdisciplinary activities, learner autonomy, and investigation activities. One can conclude that teachers perceive they are not using these types of student-centered-learning instructional strategies often.

Results from this study uncovered no significant differences in teacher perception of their application of student-centered-learning instructional strategies based on gender or education level. Significance scores for each of these independent variables were greater than the .05 alpha level used in this study. The p value for perception by gender was .265 and the p value for perception by education level was .944. There was, however, a significant difference in teacher perception of their application of student-centered-learning instructional strategies based on primary subject area. The p value for perception by primary subject area was .000. A Cohen's d was run on this data to determine effect size. The resulting score was -0.32 which suggests a small effect, not because it's negative, but because its absolute value is less than .80.

Conclusions

Based on the findings of this study, the following conclusions were drawn:

1. High school teachers perceived that they sometimes implemented student-centered-learning instructional strategies. Responses to survey items provided an overall mean score of 3.36 for perception of application of student-centered-learning instructional strategies. This was consistent with other studies found in the literature (Andrews, 2010; Applefield et al., 2001; Bondie, Gaughran, & Zusho, 2014; Brush & Saye, 2000; Gningue, Peach, & Schroder, 2013; Lawanto, 2011). Based on the results from this study, not all high school teachers are implementing student-centered learning components of student choice, interdisciplinary activities, learner autonomy, and investigating activities. Items related to these four parts of student-centered learning had mean scores lower than the overall mean score. This result was inconsistent with other studies that discovered teachers who regularly implement strategies involving student choice, interdisciplinary activities, learner autonomy, and investigating activities (Applefield et al., 2001; Brackenbury, 2012; Peters, 2010).
2. There was no significant difference in perceptions of teachers based on gender. This finding was inconsistent with studies in the literature that also used survey research. Elmas, Demirdogen, and Geban (2011) and Lauber and Wimer (2004) reported that men teachers were more likely to have lecture-based lessons, while women teachers were more likely to use discussions and technology. According to the literature, women teachers used student-centered learning more frequently than men teachers (Centra & Gaubatz, 2000; Elmas et al., 2011; Grossman & Grossman, 1994; Hayat, Bibi, & Ambreen, 2016; Laird, Garver, & Niskode, 2011; Lauber & Wimer, 2004; Starbuck, 2003). Men and women teachers in this

study did not fit this trend. The Cohen's d for the gender variable was -0.10, which indicates a small effect size.

3. There was a significant difference in perceptions of teachers based on primary subject area. In this study, primary subject area consisted of two categories: core and non-core subjects. This result was consistent with findings in the literature. In the core subjects of math, science, social studies, and English, teachers did not use student-centered learning (Ellis, 1993; Hopkins, McGillicuddy-De Lisi, & De Lisi, 1997). Other studies found that math and science teachers did in fact use student-centered learning (Cross, 2009; Gningue et al., 2013; Ripp, 2014; Taylor & Phillips, 2010). Non-core teachers, such as career technical education, fine arts, health, physical education, and foreign language used student-centered learning as an instructional strategy (Andrews, 2010; Bondie et al., 2014; Brush & Saye, 2000; Castellano, Stringfield, & Stone III, 2003; Gentry, Peters, & Mann, 2007; Hesser, 2009; Lawanto, Santoso, & Liu, 2012; Maloy & LaRoche, 2010; Park, Santamaria, Keene, and van der Mandele, 2010; Rezaee & Saeedakhtar, 2014; Singh, 2011; Vega & Tayler, 2005; Wang & Reeves, 2006). Thus, results from this study revealed consistencies with the literature. Core teachers' perceptions of application of student-centered learning indicated that they were not implementing the strategy often and non-core teachers' perceptions indicated that they were using the strategy regularly. The Cohen's d for this variable was -0.32, which suggests a small effect.
4. There was no significant difference in perceptions of teachers based on education level. This was inconsistent with studies in the literature. Research found that teachers with an associate degree used strategies that were often used in technical colleges and used activities that mimicked workplace activities (Meeder & Suddreth, 2012; Moore, Jez, Chisholm, &

Shulock, 2012; Washbon, 2012). Further research found that teachers with an associate degree did not have pedagogical knowledge or other classroom competencies (Early et al., 2007). Research discovered that some teachers with a bachelor's degree were inadequate, unprepared, lacked necessary pedagogical skills, and struggled with every day classroom procedures (Ediger, 2011; Scheerer, 2012). These teachers were hesitant to use various instructional strategies (Lu, Shen, & Poppnik, 2007). Teachers with a master's degree were more likely to use a variety of teaching strategies with their students because they have more knowledge about strategies (Akbari & Dadvand, 2011; Almarza, 1996; Bangs, 2008; Findell, 2007; Richards, Ho, & Giblin, 1996). Similar to teachers with a master's degree, teachers with a doctoral degree were more likely to use various instructional strategies (Ediger, 2011; Roccanova, 2000). In this study, the undergraduate (associate and bachelor's degree) and graduate (master's, educational specialist, and doctoral degree) categories of the education level revealed no significant difference.

5. There was a statistically positive relationship between teachers' perceptions of student-centered-learning instructional strategies and teachers' perceptions of school administration support of those same strategies. The practical significance of this finding was large. This finding is consistent with the literature and other studies that found positive correlations between teachers' perception of instructional strategies and perceived school administration support (Blase & Blase, 1999; Blase & Blase, 2000; Hsieh, Yen, & Kuan, 2014; Marks & Printy, 2003; Omwenga, Nyabero, & Okioma, 2015; Salleh & Laxman, 2015; Supovitz, Sirinides, & May, 2010; Talbot & Campbell, 2014; Teo, 2009; Wahlstrom & Louis, 2008).
6. There was a statistically positive relationship between teachers' perceptions of student-centered-learning instructional strategies and teachers' perceptions of fellow teacher support

of those same strategies. The practical significance of this finding was moderate. This finding is consistent with the literature and studies that found positive correlations between teachers' perceptions of instructional strategies and perceived fellow teacher support (Capo & Orellana, 2011; Pierce & Ball, 2009; Salleh & Laxman, 2015; Stewart Stanec, 2009; Stols & Kriek, 2011; Supovitz et al., 2010; Talbot & Campbell, 2014; Teo, 2009; Teo, 2010; Teo, Lee, & Chai, 2007).

Discussion and Implications

The literature discussed several criticisms of student-centered learning, and these may be hindrances to its implementation. Scholars agreed that teachers' beliefs, viewpoints, principles, and opinions of teaching and learning affect their daily classroom decisions (Czerniak, Lumpe & Haney, 1999; Merç, 2015; Rokeach, 1968; Tarman, 2012). Hence, all of these thoughts play a role in the implementation of instructional strategies. The purpose of this study was to investigate influences of gender, primary subject area, and education level on high school teachers' perceptions of application of student-centered learning in an effort to understand its implementation or lack thereof.

This study adds to the existing literature on student-centered learning and gives a better understanding of high school teachers' perceptions of application of this instructional strategy. The literature revealed responsibilities and roles of teachers and students for successful implementation of student-centered learning (Hannafin & Land, 2000; Hansen & Stephens, 2000; Hein, 2012; Ke & Kwak, 2013; O'Neill & McMahon, 2005; Peters, 2010). Researchers found that implementation of student-centered learning was most successful when teachers had knowledge of the strategy, believed in the benefits of it, and had a sound understanding of their role and students' roles (Applefield et al., 2001; Belton & Scott, 1998; de Kock et al., 2004;

Hannafin & Land, 2000; Hansen & Stephens, 2000; Hein, 2012; Ke & Kwak, 2013; Mckenna, 2013; Miller et al., 2012; O'Neill & McMahon, 2005; Paige, 2010; Perry et al., 2006; Peters, 2010; Rawat et al., 2012; Raya & Fernandez, 2002; Rodriguez-Valls & Ponce, 2013; Sampsell-Willmann, 2014). Therefore, teacher education programs should focus on providing training and preparation to use student-centered learning. School administration should encourage and support the use of student-centered learning to meet national and state curriculum standards. Collecting feedback from teachers may increase ability in implementing this strategy and overall positive perception toward student-centered learning. The theory of reasoned action supports the connection between beliefs, attitudes, and behaviors. The theory posits a contributory sequence of events where actions come from behavioral intentions. Intentions are consistent with attitudes formed based on accessible beliefs about a behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975).

While this study merely serves as a foundation for further research about perceptions of application of student-centered learning, it presented interesting results. Descriptive statistics showed that teachers had positive perceptions of application of student-centered learning. Teachers of non-core classes seemed to use the strategy most often. Teachers of core classes did not use student-centered learning as often but still provided evidence that it is used at times. Such finding were consistent with the literature (Andrews, 2010; Bondie et al., 2014; Brush & Saye, 2000; Castellano et al., 2003; Gentry et al., 2007; Hesser, 2009; Lawanto et al., 2012; Maloy & LaRoche, 2010; Park et al., 2010; Rezaee et al., 2014; Singh, 2011; Vega & Tayler, 2005; Wang & Reeves, 2006). Gender and education level had no influence on perceptions of application student-centered learning. This was inconsistent with the literature, as it revealed that men and women teachers and teachers with varying levels of education differ in their

classroom instruction (Akbari & Dadvand, 2011; Borg, 2003; Elmas et al., 2011; Lauber & Wimer, 2004; Mann, 2005; Yasar, Baker, Robinson-Kurpius, Krause, & Roberts, 2006). However, these inconsistent results may be due to the small sample size or the sample used in this study. Overall mean scores for perceived administrations' and fellow teachers' support suggest that teachers are influenced by and feel supported by these two groups of people. This finding was consistent with the literature (Blase & Blase, 1999; Blase & Blase, 2000; Hsieh, Yen, & Kuan, 2014; Marks & Printy, 2003; Omwenga, Nyabero, & Okioma, 2015; Pierce & Ball, 2009; Salleh & Laxman, 2015; Supovitz et al., 2010; Talbot & Campbell, 2014; Teo, 2009; Wahlstrom & Louis, 2008).

Respondents perceived that the strategies they used most often were as follows: strategies where high school teachers served as a resource person (Applefield et al., 2001; Brush & Saye, 2000;), strategies such as discussions (Andrews, 2010; Applefield et al., 2001; Bondie et al., 2014; Brush & Saye, 2000; Gningue et al., 2013), strategies where students demonstrate skills (Applefield et al., 2001; Gningue et al., 2013; Lawanto, 2011), and strategies where deep learning and understanding were emphasized (Applefield et al., 2001; Bondie et al., 2014; Brush & Saye, 2000; Gningue et al., 2013). Respondents perceived that they were not applying components of student-centered learning related to student choice, interdisciplinary activities, learner autonomy, and investigation activities. Responses to such items had mean scores that ranged from 2.41 to 2.97, all lower than 3.00. Although these are important components of student-centered learning, teachers' mean scores suggest that they are rarely implementing them.

There was no statistically significant difference in perceptions of teachers based on gender. Men and women teachers had similar levels of frequency regarding their application of student-centered-learning instructional strategies. This was inconsistent with the literature,

which reported that women used student-centered learning more often than men (Centra & Gaubatz, 2000; Elmas et al., 2011; Grossman & Grossman, 1994; Hayat et al., 2016; Laird et al., 2011; Lauber & Wimer, 2004 Starbuck, 2003).

There was a statistically significant difference in perceptions of teachers based on primary subject area. Core and non-core teachers had differing levels of frequency regarding their application of student-centered-learning instructional strategies. This was consistent with the literature (Andrews, 2010; Bondie et al., 2014; Brush & Saye, 2000; Castellano et al., 2003; Cross, 2009; Ellis, 1993; Gentry et al., 2007; Gningue et al., 2013; Hopkins et al., 1997; Lawanto et al., 2010; Maloy & LaRoche, 2010; Park et al., 2010; Ripp, 2014; Taylor & Phillips, 2010). However, it was important to mention the differences in response rates of core and non-core teachers. A total of 768 core teachers received the survey via email and 304 of those teachers completed it, yielding a response rate of 39.6%. A total of 262 non-core teachers received the survey via email and 166 of those teachers completed it, yielding a response rate of 63.4%. The higher response rate of non-core teachers could be a factor in the statistically significant difference found in this group.

There was no statistically significant difference in perceptions of teachers based on education level. Respondents with an undergraduate degree (associates or bachelor's) reported the same levels of frequency of application of student-centered-learning instructional strategies as those with a graduate degree (master's, educational specialist, or doctoral), as the means of the two groups were equal (3.18). This was inconsistent with the literature, as several scholars reported that teachers who had graduate degrees used a variety of strategies more frequently (Akbari & Dadvand, 2011; Almarza, 1996; Findell, 2007; Richards et al., 1996; Roccanova, 2000). It was noteworthy to mention that 21% of respondents indicated that they held an

undergraduate degree, while 79% of respondents indicated that they held a graduate degree. Even with many more graduate degree respondents, findings from this study were inconsistent with the literature.

A positive correlation was found between teachers' perceptions of school administration support of student-centered-learning instructional strategies and teachers' perceptions of their application of student-centered-learning instructional strategies. This was consistent with findings in the literature; positive correlations exist between teachers' perceptions of instructional strategies and school administration support of the same strategies (Blase & Blase, 1999; Blase & Blase, 2000; Hsieh et al., 2014; Marks & Printy, 2003; Omwenga, Nyabero, & Okioma, 2015; Salleh & Laxman, 2015; Supovitz, Sirinides, & May, 2010; Talbot & Campbell, 2014; Teo, 2009; Wahlstrom & Louis, 2008).

A positive correlation was found between teachers' perceptions of fellow teachers' support of student-centered-learning instructional strategies and teachers' perceptions of their application of student-centered-learning instructional strategies. This was consistent with findings in the literature; positive correlations exist between teachers' perceptions of instructional strategies and fellow teachers' support of instructional strategies (Capo & Orellana, 2011; Pierce & Ball, 2009; Salleh & Laxman, 2015; Stewart Stanec, 2009; Stols & Kriek, 2011; Supovitz et al., 2010; Talbot & Campbell, 2014; Teo, 2009; Teo, 2010; Teo, Lee, & Chai, 2007). Although perceptions of both subjective norms' support (school administration and fellow teachers) indicated that positive relationships exist with regard to perception of student-centered-learning instructional strategies, perception was more influenced by administration than fellow teachers. Administration is responsible for the hiring and evaluating of teachers; this may play a role in the support teachers perceived of their administration.

Recommendations

Recommendations for further research were constructed based upon the findings and conclusions of this study.

1. Research that compares specific subject areas should be performed. Instead of comparing core and non-core teachers, it could prove worthwhile to compare teachers' perception of application of student-centered-learning instructional strategies on specific subject areas. The literature discussed that subject area taught has an impact on how course content is covered or delivered (Andrews, 2010; Bondie et al., 2014; Cross, 2009; Gentry et al., 2007; Gningue et al., 2013; Hesser, 2009; Lawanto et al., 2012; Maloy & LaRoche, 2010; Park et al., 2010; Rezaee et al., 2014; Ripp, 2014; Singh, 2011; Taylor & Phillips, 2010). A significant difference was, in fact, found in participants of this study at the .05 alpha level.
2. A study of the influence of gender and education level on teachers' perceptions of application of student-centered-learning instructional strategies should be carried out with a sample representing the whole state of Georgia or the nation to see if results are the same. Although there were many studies that investigated the effects of gender on teacher perception and the effects of education level on teacher perception, none addressed the effects of either of these two variables on teacher perception of application student-centered-learning instructional strategies. Therefore, it would be wise to repeat this study with a larger sample to find out if results are the same.
3. A study of the influence of years of teaching experience on teachers' perceptions of application of student-centered-learning instructional strategies should be carried out with the same sample or a larger sample representing the state of Georgia or the nation to see if any significant differences are found. Research indicated that years of teaching experience play a

role in factors that affect teachers; these factors include stress, burnout, self-efficacy, classroom management, and instructional strategies (Fisher, 2011; Kokkinos, 2007; Martin, Yin, & Mayall, 2006; Pierce & Ball, 2009; Salleh & Laxman, 2015; Shoulders & Krei, 2015; Tran, 2015; Wahlstrom & Louis, 2008; Yasar, Baker, Robinson-Kurpius, Krause, & Roberts, 2006).

4. In order to gain a deeper understanding of teachers' perception of application of student-centered-learning instructional strategies, a qualitative study should be conducted. Such a study should investigate why teachers perceive they are or are not using student-centered learning. This type of study should also allow teachers to express what they need to implement these strategies if they are not already applying. It should also allow teachers to give their opinions of the strategy and why they are or are not using it.

The following recommendations for practice were developed in response to the findings in this study.

1. This study confirmed the relationship between teaching style and subject area. So, teacher education programs should provide courses and practical experiences, along with guidance and feedback, where teachers of all subject areas can learn about and learn to successfully implement student-centered learning. This is important because more teachers across all subject areas will be exposed to and knowledgeable of student-centered learning.
2. A second recommendation is for teacher education programs to provide courses and instruction about student-centered learning at all levels – associate degree through doctoral degree – so that this strategy could be used more often regardless of the degree held by the teacher. This is important because more teachers with varying levels of education will have had opportunities to learn about and possibly implement student-centered learning.

3. Another recommendation to help better prepare teachers to use student-centered learning would be to provide valuable professional development within local school systems to educate teachers about student-centered learning and how to use it within their content area. This is important for two reasons. First, teachers may not be able to go back to school to learn about student-centered learning. Second, it would show that local school systems are supportive of this strategy.
4. Research found that teachers will use variety of instructional strategies when they know they are supported by administration and colleagues. Hence, it is recommended that administration and fellow teachers voice their support and encouragement of instructional strategies. It is further recommended that teachers work together to share information about student-centered-learning instructional strategies.

Table 5.1 presents a summary of research questions, findings, and implications from this study.

Table 5.1

Summary of Findings

Research Question	Findings	Conclusion/Implication
1. What are the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies?	Teachers had positive perceptions of their application of student-centered-learning instructional strategies. Overall, teachers indicated they were using the strategy. Data for individual survey items indicated that teachers seldom used components of student-centered-learning instructional strategies related to student choice, interdisciplinary activities, learner autonomy, and investigation activities.	Teachers sometimes use student-centered-learning instructional strategies.

(continued)

Table 5.1 (continued)

Summary of Findings

Research Question	Findings	Conclusion/Implication
2. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on gender?	No statistically significant difference .265 > .05 alpha	Teacher perception did not differ based on gender. Implications: *Professional development that is equally beneficial to both men and women teachers
3. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on primary subject area?	Statistically significant difference .000 < .05 alpha -0.32 effect size	Teacher perception differed based on primary subject area. Implications: *Post-secondary training across all subject areas that includes student-centered learning implementation *Regular and worthwhile professional development

(continued)

Table 5.1 (continued)

Summary of Findings

Research Question	Findings	Conclusion/Implication
4. Is there a statistically significant difference in the perceptions of Georgia high school teachers concerning their application of student-centered-learning instructional strategies based on education level?	No statistically significant difference .944 > .05 alpha	Teacher perception did not differ based on education level. Implications: *Post-secondary training across all degree levels that includes student-centered learning implementation *Regular and worthwhile professional development
5. What is the correlation between teachers' perception of their application of student-centered-learning instructional strategies and perceived school administration support of these same strategies?	Statistically positive correlation .284 > .01 alpha r = -0.87	Practical significance was large Implications: *Teachers are more likely to use instructional strategies deemed valuable by their administration
6. What is the correlation between teachers' perceptions of their application of student-centered learing instructional strategies and perceived fellow teachers' support of these same strategies?	Statistically positive correlation .318 > .01 alpha r = 0.26	Practical significance was low Implications: * While not as influential as administration, teachers care about support from fellow teachers

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APPENDIX A

Application of Student-centered-learning instructional strategies Survey

Application of Student-Centered-Learning Instructional Strategies Survey

Survey Purpose: The purpose of this survey is to determine your perceptions concerning your application of student-centered instructional strategies. Your participation in this survey is greatly appreciated – THANK YOU!

Demographic Information: (Choose the answer that best describes your gender, primary subject area, and education level. Please choose only one response to the following items.)

1. Please enter your survey code from the invitation email: _____

2. Please indicate your gender.

   (1) Man (2) Woman

3. Please indicate the item that best describes the primary subject area in which you currently teach. If you teach in more than one subject area, please choose the area to which you dedicate most of your instructional time. Please choose only one.

   (1) English Language Arts & Reading
   (2) Mathematics
   (3) Science
   (4) Social Studies
   (5) Fine Arts
   (6) Health
   (7) Physical Education
   (8) Modern Languages and Latin
   (9) Career, Technical, and Agricultural Education

4. Please indicate the item that best describes the highest degree you have obtained. Please choose only one.

   (1) Associate degree
   (2) Bachelor's degree
   (3) Master's degree
   (4) Educational Specialist degree
   (5) Doctorate of Education or Philosophy

Directions: Using the rating scale provided, **please indicate the extent to which you USE the identified instructional strategies in your classroom.** Please choose only ***ONE*** response for each item. Please do not leave any statements unanswered.

Rating Scale
1 = Never (0% of the time or 0 times per week)
2 = Seldom (25% of the time or 1-2 times per week)
3 = Sometimes (50% of the time or 2-3 times per week)
4 = Often (75% of the time or 3-4 times per week)
5 = Always (100% of the time or 4-5 times per week)

Application of Instructional Strategies	Never (0% of the time or 0 times per week)	Seldom (25% of the time or 1-2 times per week)	Sometimes (50% of the time or 2-3 times per week)	Often (75% of the time or 3-4 times per week)	Always (100% of the time or 4-5 times per week)
1. Students engage in hands-on activities					
2. Students find their own solutions to problems					
3. Authentic tasks require students to apply skills					
4. Teacher serves as a resource person					
5. Students have options when completing assignments					
6. Students participate in critical thinking					
7. The relationship between learners promotes development					
8. Classroom discussions facilitate student learning.					
9. Real-life learning activities are included in instruction					
10. Students demonstrate skills					
11. Students help each other accomplish tasks					
12. Teacher serves as a classroom facilitator					
13. Students are given instructional choices					
14. Students engage in interdisciplinary learning activities					
15. Students initiate their own learning					
16. Students carry out investigations to test ideas					

Application of Instructional Strategies	Never (0% of the time or 0 times per week)	Seldom (25% of the time or 0 times per week)	Sometimes (50% of the time or 2-3 times per week)	Often (75% of the time or 3-4 times per week)	Always (100% of the time or 4-5 times per week)
17. Students choose the way they learn best to complete assignments					
18. Hands-on activities are used to increase student learning					
19. Students are provided opportunities to discuss their work in class					
20. Students find their own solutions to questions					
21. Students complete assignments using a variety of sources					
22. Students take initiative for their learning					
23. Activities encourage students to assume an active role in their learning					
24. Students are involved in instructional decisions					
25. Deep learning and understanding are emphasized					
26. Students take responsibility for their learning					
27. Students demonstrate autonomy in their learning					
28. The relationship between learners promotes growth					

Using the rating scale provided, where 0 is the least likely to occur and 10 is the most likely to occur, indicate your perception of support from your administration and fellow teachers.

29. School administrators support the use of student-centered-learning instruction.

0 1 2 3 4 5 6 7 8 9 10

30. School administrators encourage the use of student-centered-learning instructional strategies.

0 1 2 3 4 5 6 7 8 9 10

31. Fellow teachers support the use of student-centered-learning instruction.

0 1 2 3 4 5 6 7 8 9 10

32. Fellow teachers use student-centered-learning instructional strategies.

0 1 2 3 4 5 6 7 8 9 10

APPENDIX B

Supporting Research for Survey Statements

Table B

Student-Centered-Learning Tenets, Survey Statements, and Supporting Research

Tenet	Survey Statement	Supporting Research
1. Learning is active, not passive. Involvement and participation are necessary for learning.	1, 2, 3, 6, 8, 9, 10, 13, 14, 16, 18, 19, 20. 21, 23, 24	Applefield, Huber, & Moallem, 2001; de Kock, Sleegers, & Voeten, 2004; Doyle, 2008; Elen, Clarebout, Leonard, & Lowyck, 2007; Georgia Department of Education, 2014; Hamilton, Stecher, & Yuan, 2008; Hannafin & Land, 2000; Ke & Kwak, 2013; Lara, 2007; Peters, 2010; Phillips & Volker, 2014; Pucha & Utschig, 2012; Sandholtz, 2011; U.S. Department of Education, 2012; Zimmerman, 2002.
2. There is emphasis on deep learning and understanding.	1, 2, 3, 6, 8, 9, 10, 13, 14, 16, 17, 18, 19, 20, 21, 24, 25	Applefield, Huber, & Moallem, 2001; Belton & Scott, 1998; Bishop, Caston, & King, 2014; Brackenbury, 2012; Brame, 2014; Doyle, 2008; Lara, 2007; Perkins, 2008; Westermann, 2014.
3. Students are responsible and accountable for their own learning. The learner has full responsibility for her/his learning.	5, 11, 13, 15, 17, 21, 23, 24, 26, 27	Ahn & Class, 2011; Armitage, 2011; de Kock, Sleegers, & Voeten, 2004; Garnett & Vanderlinden, 2011; Ke & Kwak, 2013; Lea, Stephenson, & Troy, 2003; Novak, 2010; O'Neill & McMahon, 2005; Peters, 2010; Pucha & Utschig, 2012; Robertson & Jones, 2013.
4. There is autonomy in the learner.	2, 5, 13 15, 17, 20, 21, 22, 23, 24, 26, 27	Brackenbury, 2012; de Kock, Sleegers, & Voeten, 2004; Elen, Clarebout, Leonard, & Lowyck, 2007; Garrett, 2008; Gentry, Peters, & Mann, 2007; Jobs for the Future, 2012; Ke & Kwak, 2013; Lau, 2013; Lea, Stephenson, & Troy, 2003; Paige, 2010; Perry, Phillips, & Hutchinson, 2006; Peters, 2010; Robertson & Jones, 2013; Wright, 2011.

(continued)

Table B (continued)

Student-Centered-Learning Tenets, Survey Statements, and Supporting Research

Tenet	Survey Statement	Supporting Research
5. There is interdependence between the teacher and learner.	2, 4, 5, 12, 13, 15, 17, 21, 22, 24	Ahn & Class, 2011; Brackenbury, 2012; Brame, 2014; Donato, 1994; Hannafin & Land, 2000; Ke & Kwak, 2013; Pucha & Utschig, 2012; Riazi & Rezaii, 2011; Sun, Wang, & Chan, 2011; Van Lier, 2004; Walqui, 2006; Westermann, 2014; Wright, 2011.
6. There is mutual respect between the learner and teacher.	2, 4, 5, 7, 11, 12, 13, 17, 20, 24	Bishop, Caston, & King, 2014; Garrett, 2008; Hein, 2012; Jobs for the Future, 2012; Lea Stephenson, & Troy, 2003; Miller, Gross, & Ouijdani, 2012; O'Neill & McMahon, 2005; Peters, 2010; Rodriguez-Valls & Ponce, 2013; Wright, 2011.
7. There is a reflexive approach to the teaching and learning process on the part of both teacher and learner.	1, 2, 3, 5, 6, 8, 9, 14, 15, 16, 19, 21	Armitage, 2011; Duncum, 2012; Garnett & Vanderlinden, 2011; Hara, 2010; Krishnamurty, 2007; Sonntag, 2006.
8. The relationship between learners is equal and promotes growth and development.	1, 2, 3, 5, 6, 7, 8, 9, 11, 13, 17, 19, 22, 28	Brandes & Ginnis, 1986; Lea, Stephenson, & Troy, 2003; O'Neill & McMahon, 2005; Peters, 2010; Pucha & Utschig, 2012; Zimmerman, 2002.
9. The teacher is a facilitator and resource person.	4, 5, 6, 10, 11, 12, 15, 18, 22, 24	Ajzen & Fishbein, 1980; Applefield, Huber, & Moallem, 2001; Belton & Scott, 1998; Brush & Saye, 2000; Elen, Clarebout, Leonard, & Lowyck, 2007; Gainsburg, 2009; Hannafin & Land, 2000; Hertzog, 2007; Ke & Kwak, 2013; Lara, 2007; Lea, Stephenson, & Troy, 2003; Mckenna, 2013; Miller, Gross, & Ouijdani, 2012; O'Neill & McMahon, 2005; Pedersen & Liu, 2003; Peters, 2010; Ripp, 2014; Vanderbilt, 2005; Wright, 2011.

APPENDIX C

Cover Letter to Expert Panel

Dear <TITLE><FIRST><LAST>:

I am developing an instrument to measure high school teachers' perceptions of their application of student-centered learning in their own classrooms. Student-centered learning has been a topic of conversation in many educational settings across the nation and the state of Georgia. Literature surrounding the developmental and educational needs of high school students advocates that student-centered learning can better meets the needs of students than traditional instructional strategies. Findings in the research also suggest that high schools are a wonderful environment to implement student-centered learning.

Even with the encouragement to implement student-centered learning in classrooms, not much attention has been paid to the competence, effectiveness, and role of the teacher in student-centered learning classrooms. Research has indicated that student-centered learning has many benefits for all students and it is appropriate to implement at the high school level because of the students' ages. However, teachers are still not using it or using it appropriately. My study will look at teacher perceptions of student-centered learning in an effort to add to and extend the literature on teachers and student-centered learning.

You are being asked to serve as a member of the expert panel that will be reviewing my instruments to measure teacher perceptions. You were chosen because of your work in the field of education either with instruction or teaching at the high school level. Your participation in the instruments review process is valuable as a preliminary step to future studies that investigate perceptions concerning student-centered learning.

The instrument consists of items related to the dimensions of perceptions of student-centered learning. Perception is one variable; it is not broken down into several parts. Perception will be measured using a set of statements that are assessed on a four-point Likert scale, with 1 representing never and 4 representing always, for each statement.

Attached is the survey. Please provide feedback for the following:
1. Do items represent student-centered learning?
2. Do items represent perception of student-centered learning?
3. Is each item clear?
4. What change(s) would you make to individual items?
5. What change(s) would you make to the overall survey?

Please return your responses by the end of the week. Responses may be sent electronically or as a hardcopy. Thank you for your time and assistance!

Sincerely,

Ms. Lindsay Rock

APPENDIX D

Email to Pilot Study Participants

Good evening!

I hope everyone's semester is off to a great start! As you may or may not know, I am working on my EdD at UGA. My study includes a survey on high school teachers' perceptions of the instructional strategy student-centered learning. With that being said, you have been randomly selected from the faculty at FCHS to participate in the pilot study. If you could kindly visit the link below and complete the survey, I would appreciate it very much. If you see any spelling errors, etc. please let me know. Lastly, if you could just send me a quick email letting me know you've completed it (your name or your results will **NOT** appear in my study or dissertation), that would be wonderful.

https://www.surveymonkey.com/s/HL9QNV7

I thank you in advance for your time and help.

-Lindsay

APPENDIX E

IRB Approval

The University of Georgia

Phone 706-542-3199

Office of the Vice President for Research
Institutional Review Board

Fax 706-542-3660

APPROVAL OF PROTOCOL

February 5, 2015

Dear Joyce Adams:

On 2/5/2015, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	High School Teachers' Perceptions of Student-Centered Learning
Investigator:	Joyce Adams
IRB ID:	STUDY00001774
Funding:	None
Grant ID:	None

The IRB approved the protocol from 2/5/2015.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103).

Sincerely,

Larry Nackerud, Ph.D.
University of Georgia
Institutional Review Board Chairperson

APPENDIX F

Survey Email to Participants

Dear Teacher:

I am a busy high school teacher like you requesting your assistance. I am a doctoral candidate at the University of Georgia studying high school teachers' perceptions of student-centered learning. I have created a survey to collect data on this topic.

If you could be so kind to visit the link below and complete the survey, I would appreciate it more than you know. Please enter the following code in item 1 on the survey (code). This code is only for coding purposes. Please be assured that the information collected from the survey is confidential and will be used only for purposes of this research effort.

https://www.surveymonkey.com/r/SJRYF3R

I understand the life of a teacher is a busy one. My dissertation chair and I greatly appreciate your time and effort!

Sincerely,

Lindsay Rock
High School Teacher
Doctoral Candidate

Dr. Elaine Adams, Dissertation Chair
Professor
University of Georgia

APPENDIX G

Consent Document

Dear Teacher:

You have been randomly selected to participate in a survey for a research study titled "APPLICATION OF INSTRUCTIONAL STRATEGIES SURVEY" conducted by Lindsay Rock from Hopewell Middle School (470-254-3240) under the direction of Dr. Elaine Adams, Department of Career and Information Studies, University of Georgia (706-542-4204). Your email address was obtained by the researcher by visiting the website for the school at which you teach.

By completing this survey, you have agreed to participate in the research study stated above. Your participation is voluntary. You can refuse to participate or stop taking part at any time without giving any reason, and without penalty or loss of benefits to which you are otherwise entitled. Your participation in this study will have no effect on your employment status. Upon completion, you can ask to have all of the information about you returned to you, removed from the research records, or destroyed. You should complete the survey in a private setting. Because this is an Internet-based survey, you must be at least 18 years old to participate.

The reason for this study is to investigate high school teachers' perceptions of student-centered learning. National and state curricula call for the use of this strategy to enable students to become life-long learners with the ability to think critically and build their own knowledge. This is a challenge for many teachers for a variety of reasons including time, knowledge of the strategy or lack thereof, and encouragement or support from administration.

With the implementation of TKES (Teacher Key Effectiveness System) here in Georgia, administrators are looking for student-centered learning during teacher evaluations. Your knowledge and teaching experience is sought through the completion of the survey. This survey will take approximately 10-20 minutes to complete. This survey will assist is revealing high school teachers' perceptions of student-centered learning.

The data collected from this study may be beneficial in several ways. First, it can show whether student-centered learning is being implemented in high school classrooms across Georgia. Second, it can provide guidance for professional development or teacher education to improve or implement student-centered learning. Third, it shows the importance of teacher voice and input in this and any other educational reform approach since teachers will actually use the strategy.

By completing this survey, you have volunteered to participate in the study. No risk is expected. You are not allowed to skip questions. However, if a there is a question you do not want to answer for any reason, you may discontinue your participation in this study. Internet communications are insecure and there is a limit to the confidentiality that can be guaranteed due to the technology itself. However, once the researcher receives responses, standard confidentiality procedures will be employed. Please be assured that the information on the survey is confidential and will be used solely for the purposes of this research effort. No individually-identifiable information about you, or provided by you during research, will be shared with others without your written permission, except to protect your welfare or if required by law. You will be assigned an identifying number and this number will be used on the survey you complete.

The investigator will answer any further questions about the research, now or during the course of the research.

Again, by completing the survey, you have agreed to participate in this research project. Please keep this document for your records.

Lindsay Rock
(706)-296-0891
rockl@fultonschools.org

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

APPENDIX H

First Follow-up Email

Dear Teacher:

About a week ago, a survey seeking your opinions about student-centered learning was emailed to you. As of today, I have not received your responses to the online survey. I understand that you may not have had time to complete it. However, I would genuinely appreciate hearing from you.

If you could be so kind to visit the link below and complete the survey, I would appreciate it more than you know. Please enter the following code in item 1 on the survey: (code). This code is only for coding purposes. Please be assured that the information collected from the survey is confidential and will be used only for purposes of this research effort.

https://www.surveymonkey.com/r/SJRYF3R

I understand the life of a teacher is a busy one. My dissertation chair and I greatly appreciate your time and effort!

If you do not wish to receive these emails in the future, please click the following link to opt out.

Sincerely,

Lindsay Rock
High School Teacher
Doctoral Candidate

Dr. Elaine Adams, Dissertation Chair
Professor
University of Georgia

APPENDIX I

Second Follow-up Email

Dear Teacher:

About three weeks ago, a survey seeking your opinions about student-centered learning was emailed to you. As of today, I have not received your responses to the online survey. I understand that you may not have had time to complete it. However, I would genuinely appreciate hearing from you.

If you could be so kind to visit the link below and complete the survey, I would appreciate it more than you know. Please enter the following code in item 1 on the survey (code). This code is only for coding purposes. Please be assured that the information collected from the survey is confidential and will be used only for purposes of this research effort.

https://www.surveymonkey.com/r/SJRYF3R

I understand the life of a teacher is a busy one. My dissertation chair and I greatly appreciate your time and effort!

Sincerely,

Lindsay Rock
High School Teacher
Doctoral Candidate

Dr. Elaine Adams, Dissertation Chair
Professor
University of Georgia