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General Education Science and Special Education Teachers' Experiences with Inclusive Middle School Science Classrooms

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General Education Science and Special Education

Teachers' Experiences with Inclusive Middle

School Science Classrooms

by

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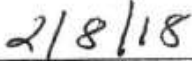
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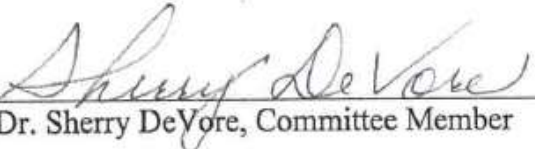
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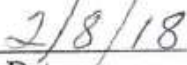
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Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work at Lindenwood University and that I have not submitted it for any other college or university course or degree.

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Abstract

While inclusion of students with disabilities has been a topic of debate for decades, uncertainty still exists concerning best practices for their participation in general education contexts (Carter et al., 2016). This study was designed to investigate teachers' experiences and perceptions with inclusion in general education science classrooms. While students with disabilities are generally included in general education science classrooms today, statistics show students with disabilities are graduating from high school unprepared to major in science-related fields or to enter the workforce in science-related careers (Brusca-Vega, Alexander, & Kamin, 2014). Therefore, the content area of science was targeted for the purposes of this study. Five similar school districts in southwest Missouri were selected for this study. Middle school science and special education teachers were interviewed to obtain perceptions concerning inclusion of students with disabilities in general education science classrooms. Information gathered was compared with the literature reviewed to identify themes, ensure validity, and ascertain conclusions. After analyzing the data, it was revealed all students benefit both academically and socially when effective inclusive practices are incorporated in general education science classrooms. These benefits are dependent upon teachers' self-efficacy and attitudes and collaboration between and among special education and general education teachers. Paraprofessional support for students with disabilities can contribute to successful inclusion in general education science classrooms.

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Chapter One: Introduction

In 2016, the National Center for Education Statistics issued a report revealing changes in placement distribution of students ages six through 21 served under the Individuals with Disabilities Education Act from 1998 through 2013. According to the report, the percentage of students with disabilities placed in regular education classrooms at least 80% of the time steadily increased from 31.7% to 60.5% between 1998 and 2010; however, since that time, placement percentages have held fairly steady with very little change in the placement distribution (National Center for Education Statistics, 2016). Cosier, Causton-Theoharis, and Theoharis (2013) confirmed an increase in the number of students who were taught in general education classrooms alongside their peers. Conversely, they also exposed about 50% of students with disabilities were still taught part of the day in resource rooms or were placed in self-contained classrooms apart from their general education peers (Cosier et al., 2013).

This current study involved a review of experiences of middle school general education science teachers and special education teachers who work with students included in general education classroom settings. Perceptions and experiences were elicited through interviews and then analyzed. Included was an investigation of the perceptions of middle school science teachers and middle school special education teachers in reference to the barriers faced by students with disabilities in inclusive classrooms and the strategies utilized to help students with disabilities succeed. Additionally, the investigation included the perceptions of special education teachers who serve students included in middle school science general education classroom settings. Teachers were interviewed to determine key factors which provide students with

disabilities optimal educational experiences in middle school general education science classes.

In Chapter One, the background of the study includes an historical overview of inclusion to gain perspective on the present state of education with respect to inclusion of students with disabilities in general education contexts. The theoretical framework which follows provides a basis to support this study. The problem and purpose are explained to highlight the need for further growth in the area of inclusion.

Background of the Study

The growth of educational equality for children with disabilities began to take root through *Brown v. the Board of Education,* the landmark Supreme Court case which declared education to be a right for every United States citizen, and as such, an education must be afforded to all on equal terms (Antosh & Imparato, 2014). Antosh and Imparato (2014) further emphasized the statement made in the Brown case, "Separate educational facilities are inherently unequal" (para. 1), which was a civil rights springboard for a crusade to ensure individuals with disabilities are included in every facet of society.

The *Brown v. Board of Education* ruling allowed for the argument children with disabilities should not and cannot legally be denied an education in the public school system (Antosh & Imparato, 2014). In the 1960s, students with intellectual disabilities were rarely educated in public schools (Antosh & Imparato, 2014). In fact, according to Antosh and Imparato (2014), prior to 1975, approximately one million United States citizens with disabilities were excluded from public education.

With the passage of the Elementary and Secondary Education Act of 1965 and the Education for All Handicapped Children Act (PL 94-142) in 1975, the doors opened for

all populations of segregated individuals to demand equal treatment under the law with

regard to education, including those with disabilities (Darling-Hammond, 2015). Sailor

and McCart (2014) explained, "While perhaps somewhat oversimplified, the

Congressional debates leading up to passage of PL 94-142 could be roughly characterized

by favoring delivery of special education supports and services in segregated schools and

classrooms versus integrated settings (general education classrooms)" (p. 56). Debates

began to center upon the least restrictive environment language of the law, and the

pendulum swung in the other direction as a plethora of court cases emerged (Sailor &

McCart, 2014).

Li (2013) reported one such court case, the 1972 *Pennsylvania Association for*

Retarded Children (PARC) v. Commonwealth of Pennsylvania, brought a lawsuit before

the Eastern District of Pennsylvania to fight a statute that permitted public schools to

refuse an education to some intellectually disabled individuals. The law was used to

keep children from receiving a public education if they had not reached an intellectual

age of five years old before their sixth birthday (Li, 2013). These students, according to

Li (2013), were determined to be too much of a burden on the public school system to

warrant offering them an education. The plaintiffs in the case offered compelling

evidence that a public education would benefit the disabled students by providing them

with skills to improve their quality of life and that not providing education could have

detrimental consequences (Li, 2013). Late in 1972, U.S. District Court Judge

Masterson deemed the current laws unconstitutional and commissioned Pennsylvania to

provide a free education in the public school system to all individuals between six and

21 years of age (Li, 2013).

Additionally, the state had to prove they were providing disabled children with the same level of education as nondisabled children (Li, 2013). At the time of this case, many states had similar laws; the PARC case was the first to challenge this protocol, and many followed suit (Li, 2013). It led the way for such legislation as the Education for All Handicapped Children Act (EHA or PL 94-142), the Individuals with Disabilities Education Act, the Americans with Disabilities Act, and the Every Student Succeeds Act, which are the basis of daily decision-making practices for public school special educators who ensure children with disabilities receive the education they deserve and are entitled to under the law (Boroson, 2017).

According to Boroson (2017), over the years, laws such as the EHA, mandating inclusion and least restrictive environment, have been modified multiple times. In the 1989 case, *Daniel R.R. v. State Board of Education*, the court set up a two-pronged test for determining least restrictive environment:

- consider if the disabled student with the help of supplementary aids and services could experience satisfactory success, and

- consider if the student was integrated to the maximum extent appropriate if placed in a more restrictive setting. (Discover IDEA, n.d., para. 1)

In the latest Individuals with Disabilities Education Act (2004) amendment, the U.S. Department of Education modified the regulation to state all students with disabilities in private or public schools are to be included as much as possible in the same educational opportunities as their peers without disabilities. The law specifies children with disabilities should only be removed from the same educational opportunities as their

peers when a child's disability is such that it renders the child incapable of functioning in the general education setting with the use of accommodations and modifications.

Theoretical Framework

The theoretical framework which guided this study was Lev Vygotsky's social constructivism theory. The basic premise behind Vygotsky's theory is knowledge is constructed though social means where the learner is an active participant in the learning process (Vygotsky, 1978). Social constructivism theory was selected because the theory supports the importance of inclusion as it promotes interaction between students of diverse ability levels where higher ability students are encouraged to work alongside lower ability students in the same classroom (McLeod, 2014).

The theory of social constructivism was used to provide evidence concerning the importance of providing students with disabilities opportunities to learn alongside their nondisabled peers in inclusive classroom settings. From a social constructionist viewpoint, allowing students with disabilities to interact both socially and academically with nondisabled peers is the only way to avoid the development of a secondary social disability (Gindis, 1999; Rodina, 2006). Social constructionism was the focus of this current study to place emphasis on the idea that knowledge is created in socially mediated contexts, thereby advocating for the importance of inclusive classroom settings.

According to Gallagher (1999), Vygotsky, a Russian-born Jew who graduated with a degree in law from the University of Moscow, ironically never practiced law, but instead spent his life as a teacher and educational psychologist. Upon his death in 1934 at the age of 38, Vygotsky's ideas were rejected by the Communist Russian government

and were widely unknown until after the Cold War (Gallagher, 1999). Gallagher (1999)

divided Vygotsky's theory into four essential principles:

- children construct their knowledge,

- development cannot be separated from its social context,

- learning can lead to development, and

- language plays a central role in mental development. (para. 5)

Begg (2015) maintained, "From a Vygotskian approach the learning environment is seen

as the social milieu that affects the actions taken by learners, and knowledge is socially

constructed through the use of language (signs and symbols) in a social context" (p. 74).

As Begg (2015) further explained, from the social constructivist view, learning is the

composition of past and present experiences, including those related to use of language

occurring in both formal educational and informal daily life settings, to construct a lucid

and practical view of the world.

Statement of the Problem

In line with a Vygotskian mindset, Missouri's vision for special education is as

follows:

We, the people of Missouri, believe that diversity enhances our culture; therefore,

we commit our resources and efforts to accept, educate, and support all children

and youth. All children and youth, being of diverse backgrounds and abilities,

will have access to all learning activities with accommodations and supports to

enable them to succeed. All children and youth are actively engaged in creating

their own futures and are prepared for life as independent, informed, and

empowered citizens; and, are embraced as vital, valued, and contributing

members of their communities. (Missouri Department of Elementary and

Secondary Education [MODESE], 2017b, p. iv)

To make this vision a reality, schools must dedicate resources to providing equal

opportunities, build upon individual strengths and abilities, and work together for the

benefit of every student (MODESE, 2017b).

According to Carter et al. (2016), "Despite decades of debate and discussion,

critical questions endure about how best to support the meaningful participation of

students with severe disabilities in general education classrooms" (p. 226). Marshall

(2015) surmised, with the introduction of the New Generation Science Standards, change

is underway in what students learned, in how science is taught, and in how students are

assessed in science classrooms today. Brusca-Vega, Alexander, and Kamin (2014)

inferred the trend to include students with disabilities in general education science

classrooms will continue, as will the need for science teachers and special education

teachers to collaborate.

Marshall (2015) concluded, "This is more of a revolution than just another

iteration of the same old stuff. It's a dramatic shift in the expectations that we have for all

students" (p. 16). Statistics show students with disabilities graduate from high school

unprepared to major in science-related fields or to enter the workforce in science-related

careers (Brusca-Vega et al., 2014). Furthermore, the absence "of basic science

knowledge for daily living, such as eating for health and nutrition, conserving energy,

and safely dealing with potential household hazards, has long- and short-term

implications on quality of life concerns including independent living, wellness, and

employment" (Brusca-Vega et al., 2014, p. 38). For this reason the U.S. Department of

Education is committed to equal opportunities in education, ensuring that all students have access to science, technology, engineering, and mathematics (STEM) education, so all students are prepared to succeed in life (Anderson, Whalen, Uvin, and Swenson, 2017). Therefore, this study was designed to identify both middle school special education and general education science teachers' experiences with inclusion in order to provide practical insights to help schools succeed in achieving the mission of creating academically productive inclusive environments for all individuals.

Purpose of the Study

The purpose of this study was to investigate how inclusion in the content of science is implemented and perceived by special education and middle school science teachers in rural school districts in southwest Missouri. Since science is not generally a subject taught in special education classrooms, it was chosen as a focus for this study (Bureau of Labor Statistics, 2015). As Russell and Bray (2013) explained, due to the mandates of providing the least restrictive environment under the Individuals with Disabilities Education Act and meeting the highly qualified teacher component of No Child Left Behind, increasing numbers of students with disabilities were mainstreamed in content-area courses such as science.

In 2016, the MODESE sent out an administrative memo stating the highly qualified teacher requirement was removed, but the law under the Individuals with Disabilities Education Act requiring schools to consider the least restrictive environment still stands (MODESE, 2016a; Preis, 2016). According to Brusca-Vega et al. (2014), "Improving the science achievement of students with disabilities is a doubtful goal without the combined effort of science and special educators" (p. 38). Science teachers

provide content and instructional expertise, while special educators are experts in providing specialized and adapted methods to meet needs of students who need individual supports (Brusca-Vega et al., 2014).

Research questions. The following research questions guided the study:

1. What are the perceptions of middle school science teachers in reference to the barriers faced by students with disabilities in inclusive classrooms?

2. What strategies are used by middle school science teachers who have had students with disabilities in the general education science classroom?

3. What are the perceptions of middle school special education teachers serving students who are included in general education science classrooms?

4. What key factors provide students with disabilities optimal educational experiences in middle school general education science classes?

Significance of Study

Mallery (2016) conducted an investigation to ascertain administrators' experiences in providing an inclusive education for children with Autism Spectrum Disorders within their respective schools. Mallery (2016) suggested a qualitative study is needed to fill the gap that exists in research with regard to teachers' personal experiences with inclusion and how those experiences have supported their efforts with inclusive practices. Holley (2015) conducted a study to investigate attitudes toward inclusion of various middle school teachers from a wide range of content areas. In her study, Holley (2015) concluded teachers need additional opportunities through either Likert-scale or open-ended questions to share thoughts and concerns in regard to their experiences with inclusion. Yet another researcher, Bouer (2013), conducted a study to determine whether

or not special education teachers, general education teachers, and administrators felt as if inclusion was beneficial for students with moderate to severe disabilities. Bouer (2013) indicated additional investigation should be directed at determining necessary supports for successful inclusion programs in schools.

Definition of Key Terms

For the purposes of this study, the following terms are defined:

Collaboration. Olson, Leko, and Roberts (2016) described collaboration as "…various educational personnel contributing their expertise in ways that were valued by all stakeholders" (p. 155). For the purpose of this study, collaboration refers to teachers who work together in the public school system in order to meet the needs of students with disabilities who are included in general education classrooms.

Co-teaching. Co-teaching is a service delivery model of teaching where a general education teacher and a special education teacher equally share teaching responsibilities in a general education classroom in order to ensure students with disabilities gain access to the general education curriculum while receiving the specialized instruction they need to succeed (Friend, 2015).

Highly qualified teacher. The MODESE (2016b) reported the term highly qualified teacher refers to all employed public school teachers who are state-certified, hold at least a bachelor's degree, and have demonstrated subject-matter proficiency in any academic subject they teach.

Inclusion. Dev and Haynes (2015), defined inclusion as"…a service-delivery model whereby students with and without disabilities are taught the same content and in the same settings, with modifications and accommodations as necessary" (p. 53).

Least restrictive environment. The Individuals with Disabilities Education Act (2004) defined the least restrictive environment as the opportunity to be educated with non-disabled peers to the greatest extent appropriate given a students' individual needs.

Middle school. According to the MODESE (2017a), middle school includes grades 5-9. For the purpose of this study, middle school was defined as grades 5-8.

Students with disabilities. According to the MODESE (2016b), students with disabilities are children, ages three to 21, who have been properly evaluated and identified as meeting the Individuals with Disabilities Education Act criteria and require special education and/or related services as a result of their disabilities. For the purpose of this study, the phrase "students with special needs" is sometimes used in direct quotes but is synonymous with students with disabilities.

Limitations and Assumptions

The following limitations were identified in this study:

Sample demographics. This study was limited in focus to five rural school districts in southwest Missouri. The districts selected are part of a southwest Missouri conference of school districts which not only compete in sports, but are often used for comparison purposes when analyzing data such as state assessment scores, dropout rates, and free/reduced price meal rates. This study was also limited by the interviewees' willingness to be forthcoming when responding to interview questions. Furthermore, there could be unknown factors at different schools which could prejudice participant responses to interview questions.

Instrument. The interview questions were created and developed by the researcher to ascertain teachers' perceptions and experiences with inclusion practices.

The following assumptions were accepted:

1. The responses of the participants were offered honestly and without bias.

2. Participants had a sincere interest in participating in this study and had no other motives for doing so.

3. The participants have had similar opportunities to teach students with disabilities who are included in general education science classrooms; therefore, the selection was appropriate for this study.

Summary

As explained by Antosh and Imparato (2014), "There is a history of people with intellectual and developmental disabilities learning, living and working in separate settings" (para 2). However, since the 1950s, starting with *Brown vs the Board of Education*, laws have evolved mandating the inclusion of students with disabilities in general education classrooms (Boroson, 2017). In Chapter One an overview of this history of inclusion was provided. The theoretical framework which guided this study, based upon Vygotsky's social constructivism theory, was then presented.

Next, the statement of the problem was introduced. Although much progress has been made to ensure students with disabilities are included in general education classrooms, statistics prove students with disabilities continue to graduate from high school lacking basic science knowledge needed for everyday living and unprepared to enter science related careers (Brusca-Vega et al., 2014). Following the statement of the problem, the purpose of the study, which was to investigate perceptions of teachers concerning inclusion of students with disabilities in general education science

classrooms, was established. Thereafter, the research questions were introduced and key terms and limitations were also addressed.

In Chapter Two, Vygotsky's theory of social constructivism is explored in more depth. The definition of inclusion is refined, and the current status of education with respect to inclusion is reviewed. Various inclusive strategies are investigated, as well as the barriers to and advantages of including students with disabilities in general education settings. The perceptions of both general education and special education teachers concerning experiences with inclusion is also investigated.

Chapter Two: Review of Literature

Determining the best practices for supporting students with disabilities in the general education curriculum has gained expansive attention in recent years (Ryndak, Jackson, & White, 2013). Carter et al. (2016) noted, "Myriad legislative, policy, and research developments have changed expectations not only for what students with severe disabilities can and should learn, but also where they should receive this instruction" (p. 210). Gehrke, Cocchiarella, Harris, and Puckett (2014) concurred despite the attention it has garnered, inclusion remains a misunderstood concept and is inconsistently implemented across general education environments. Instructing a classroom of diverse students with a wide range of needs, including those with disabilities, remains a challenge for teachers (Buli-Holmberg & Jeyaprathaban, 2016).

The purpose of this review of literature was to explore current research as it pertains to inclusion of students with disabilities in general education contexts. First, Vygotsky's social constructivism theory was investigated in greater depth. Next, inclusion was defined for the purposes of this study and an analysis of the advantages and barriers to inclusion were provided.

Finally, the experiences of special education and general education teachers who have had practice with including students with disabilities in the general education curriculum, was examined. This chapter includes a review of literature to provide a basis for the data gathered in this study and how the data can be used to assist middle school science educators with inclusive strategies to promote placement of students with disabilities in general education science classrooms in an effort to provide the least restrictive environment.

Theoretical Framework

To gain a better understanding of Vygotsky's theory, there are two main principles to explore: the more knowledgeable other and the zone of proximal development (McLeod, 2014). According to McLeod (2014), the more knowledgeable other is simply someone or even something that has a more substantial grasp on the concept to be acquired than the learner. McLeod (2014) clarified the more knowledgeable other can be an adult, a peer, or even an electronic device.

As explained by McLeod (2014), the concept of the more knowledgeable other is fundamentally related to the second important principle, the zone of proximal development. Gallagher (1999) detailed, Vygotsky developed this idea based on his research that revealed how children are able to solve problems far beyond their stage of development. Vygotsky (1978) rationalized the zone of proximal development 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" (p. 86). The zone of proximal development is located between these two developmental levels (Roberson, 2017).

Vygotsky (1978) further portrayed this idea using a metaphor of a flower and its fruit. While the flower represents those processes in an individual that have yet to mature but are progressing toward that end, the fruit represents maturation of the individual (Vygotsky, 1978). Farr (2014) asserted the zone of proximal development is the most important application of Vygotsky's theory as it allows teachers to discover what children are capable of doing on their own and what skills require scaffolding.

Roberson (2017) believed, "It is within the gap created by those zones of proximal development that opportunities for maximum learning are found" (p. 286). Roberson (2017) contended the student struggles within this gap to learn concepts by interacting with more capable peers who have an influence on the student's understanding through sharing, trial and error, and collaboration of efforts. The result is that learning occurs as the student gains necessary elements of information to enhance prior knowledge.

Based on these premises, Vygotsky (1978) criticized the idea intellectually disabled children should be limited to concrete ideas due to belief they are incapable of thinking abstractly. He held this kind of thinking as a culprit for creating a greater disability in cognitively disabled children, because it does not offer them a chance to develop to their potential (Vygotsky, 1978). As Vygotsky (1978) pointed out, using concrete knowledge as a means to think in abstract terms helps to advance what is inherently missing from their development.

Vygotsky (1978) indicated schools should push intellectually disabled students to develop abstract thinking by exposing them to this skill, arguing it will never develop on its own without intervention. Vygotsky (1978) proposed an essential element of learning is the zone of proximal development, "that is, learning awakens a variety of internal developmental processes that are able to operate only when the child is interacting with people in his environment and in cooperation with his peers" (p. 35). As Rodina (2006) interpreted, Vygotsky believed "primary disorders (i.e. visual and hearing, language and speech-related, motor and CNS [central nervous system] related impairment) lead to the child's 'exclusion' from the socio-cultural, traditional and educational environment—in turn causing secondary (socio-cultural) disability" (p. 11). Rodina (2006) further

explained Vygotsky's work is a major reason exclusive special education settings are almost non-existent in Russia.

Vygotsky's (1978) theory has long been used as a theoretical framework for inclusion in education. As Vygotsky (1978) declared:

> Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals. (p. 57)

According to Begg (2015), Vygotsky's "view of instruction was that interaction with adults or more advanced peers was necessary for development and that this required the active involvement of all participants" (p. 72). Vygotsky's theories flow with the idea of collaborative learning, which incorporates the grouping of students of diverse ability levels so more-advanced students can help less-advanced students learn (McLeod, 2014).

As analyzed by Gindis (1999), "His idea that the development of a child with a disability is determined by the social implication of his or her organic impairment creates a new perspective for socialization, acculturation, and development of children with special needs" (p. 339). Vygotsky (1978) determined students with learning disabilities experience greater success when placed in settings with higher-achieving peers. In line with this idea, Deason (2014) concluded, "Inclusion offers students of varied academic levels the opportunity to learn from and interact with one another" (p. 8). Kurth, Morningstar, and Kozleski (2014) reported, "Placement in the general education setting

offers a qualitatively different learning experience than segregated settings" (p. 228). In their article, Kurth et al. (2014) found besides academic improvement, students with disabilities have shown growth in social, communication, and employment skills when they are included in the regular education classroom.

Being in the general education classroom allows students "to make meaning and connections, opportunities that are more plentiful in inclusive (general education) settings" (Kurth et al., 2014, p. 228). It took Vygotsky several years to develop his unique vision for the future model of special education referred to today as inclusion (Gindis, 1999). Kurth et al. (2014) determined it was beneficial for non-disabled students to interact with peers with disabilities to learn about such things as diversity, equality, understanding, and compassion.

Furthermore, Kurth et al. (2014), added, even with mounting evidence in support of inclusive settings, the most restrictive placements too often have become life-long appointments for thousands of students, and very little progress has been made in moving some groups of disabled students out of these restrictive settings. As clarified by Gindis (1999), Vygotsky's main goal of special education was "…not only to compensate for primary defects through facilitation and strengthening of intact psychological functions but, mainly, to prevent, correct, and rehabilitate secondary defects by psychological and pedagogical means" (p. 339). Vygotsky's theory of social constructivism stresses the learner's role as an active participant (Stefanich, 2001).

Gindis (1999) expounded, "The socially, culturally, and developmentally oriented theory of the late genius has the potential to unify, restructure, and promote special and remedial education as a science, profession, and social institution" (p. 339). Vygotsky

attested mainstreamed classrooms are the only adequate context where secondary disabilities can be prevented and remediation can occur (Gindis, 1999). Stefanich (2001) maintained because of the nature of the subject, science is considered an ideal content area to integrate students with disabilities when possible. Stefanich (2001) continued, "Science is conducive to inclusion, as it has a strong base of research supporting the value of hands-on multi-modality instruction as a superior form of instructional delivery" (p. 107). A principal function of the science teacher is to help students make correlations between perceptions and scientific law concerning how entities act and interact in the abstract world (Stefanich, 2001).

Inclusion

As noted by Olson et al. (2016), "Authentic inclusion transcends mere physical presence in general education contexts, requiring educational personnel to consider how students with severe disabilities are accessing the content, being held accountable for what they are learning, and participating in classroom and school communities" (p. 153). Buli-Holmberg and Jeyaprathaban (2016) indicated students obtain more exposure to content and societal norms in inclusive settings. From a Vygotskian viewpoint, Buli-Holmberg and Jeyaprathaban (2016) explained children develop and achieve best when working in cooperation with others, especially those who are more adept. This section includes an in-depth look at inclusion and where the practice stands today with respect to providing the least restrictive environment as mandated by law.

The self-contained room is depicted as a place students with disabilities spend all or almost all of their day separated from students without disabilities to receive specialized instruction from special education teachers or therapists (Dev & Haynes,

2015). Beattie, Algozzine, and Jordan (2014) brought to light four special education

categories under the Individuals with Disabilities Education Act account for 90% of all

students with disabilities: specific learning disability (50%), speech or language

impairment (19%), intellectual disability (11%), and emotional disturbance (8%). As

Kurth et al. (2014) noted, despite the law and evidence that inclusion provides enhanced

opportunities for students with disabilities to learn and develop, segregated educational

programming is still the standard for thousands of students in the United States.

Dev and Haynes (2015) explained the resource room is a place where students

with disabilities go to obtain academic or other supports from special educators or

therapists for part of the school day. Kurth et al. (2014) found states are not setting

rigorous improvement goals, and students with low-incidence disabilities are placed in

restrictive placements at a disproportional rate to those with high-incidence disabilities.

As Kurth et al. (2014) claimed, there may be several reasons for this disproportional

placement, including a lack of knowledge or negative attitudes among teachers and

schools related to inclusive programming.

Fovet (2014) asserted recent realizations concerning the necessity of inclusion

and the harmony that can exist between learning and inclusion are giving rise to

improved inclusion practices. Fovet (2014) insisted educators are growing in

understanding that inclusion materializes from daily reflection on practice, curriculum,

and evaluation of methods. In line with this argument, Gajewski (2014) pointed out

rather than understanding inclusion as a practice that meets the individual needs of all

students, many educators continue to view inclusion as a placement. While proximity is

necessary, it alone is insufficient to build an inclusive, cooperative community of learners (Lawrence-Brown & Sapon-Shevin, 2014).

Furthermore, Fovet (2014) recognized, "…It is high time for educators to realize that inclusion is the product of systematic everyday pedagogical processes, not an afterthought left to Friday afternoons, the day when all other class objectives are met, or pedagogical days" (p. 18). As Lawrence-Brown and Sapon-Shevin (2014) testified, inclusion is often narrowly defined and misunderstood; to achieve the goal, full inclusion requires more than merely placing students with diversity in the same environment. Ryndak et al. (2013) disclosed a lack of understanding and knowledge of least restrictive environment policy and procedures as one reason for the lack of implementation.

Spaulding and Flannagan (2012) presented, "Effective inclusion involves intentional planning to meet the varied and individualized needs of each student in the classroom" (p. 14). Many schools have functioned under the guise of inclusion, Lawrence-Brown and Sapon-Shevin (2014) clarified, but have been unsuccessful in creating an environment that values differences and provides necessary supports for students and teachers; therefore, even though a classroom might contain a diverse population of students, the segregated classroom is sustained.

Ryndak et al. (2013) assessed the least restrictive environment has been "interpreted in ways that perpetuate segregation, rather than increase students' access to meaningful curriculum in inclusive educational contexts" (p. 65). Ryndak et al. (2013) suggested this is partially due to a lack of understanding of best practices in providing the least restrictive environment and skepticism of team members about the appropriateness

of the general education curriculum for all students. Spaulding and Flannagan (2012)

claimed the least restrictive environment and inclusion practices for children with

disabilities are oftentimes misunderstood and not implemented within a framework which

leads to success.

Spaulding and Flannagan (2012) also asserted researchers have suggested most of

the time the inclusion classroom is lacking special education, and thus, the placement has

a fairly small influence on academic achievement. However, the authors suggested this is

due to a lack of understanding of best practices for successful inclusion (Spaulding &

Flannagan, 2012). Gehrke et al. (2014) believed:

> Establishing a clear, consistent definition of inclusion and enhancing teacher
>
> candidates' ability to recognize and implement inclusion… has the potential to
>
> better prepare future special educators to successfully support the education of
>
> students with disabilities in general education classrooms. (p. 92)

Additionally, Kurth et al. (2014) maintained a better understanding of district policy and

the placement decision-making processes of Individual Education Plan (IEP) teams is

needed in order to provide the most appropriate placement for students with disabilities.

Effective Strategies

For successful inclusion to become a reality, Gajewski (2014) stated, "Classroom

practices that foster equity and fairness and support students with different needs and

abilities are fundamental to its realization" (p. 29). The U.S. Department of Education

(2013) reported as increasing numbers of students are included in general education

settings, the dilemma continues as to the effective practices needed to make inclusion

successful. Cook and Odom (2013) agreed effective practices require consistency and commitment for successful implementation.

Shogren et al. (2015) considered supports "that emphasize high-quality, evidence-based academic, social, and behavioral support for all students based in general education… have further changed the landscape of general education and the support for learning and participation available for all students" (pp. 243-244). Dev and Haynes (2015) determined general education classrooms where students with disabilities are included follow a variety of styles to enhance success for students with and without disabilities.

Collaboration among many team members from varying positions and grade levels is a necessity for effective inclusion (Olson et al., 2016). Olson et al. (2016) asserted:

> Educational personnel… should adopt and communicate a vision of shared responsibility for access. This meant fostering a school culture in which collaboration was grounded in various educational personnel contributing their expertise in ways that were valued by all stakeholders. (p. 155)

Gann, Ferro, Umbriet, and Liaupsin (2014) ascertained students in inclusive classrooms experience greater success when collaboration between the general education and special education teacher is incorporated.

Additionally, as Buli-Holmberg and Jeyaprathaban (2016) contended, "Collaboration requires an important amount of faith between partners and a flexible approach in lesson planning and implementation of instructional strategies" (p. 121). Leader-Janssen, Swain, Delkamiller, and Ritzman (2012) provided specific information

concerning joint roles and responsibilities of the multiple team members accountable for

the education of students with disabilities. Possible team members include general

educators, special educators, speech-language pathologists, reading interventionists,

school psychologists, school counselors, paraprofessionals, and school administrators

(Leader-Janssen et al., 2012).

Leader-Janssen et al. (2012) concluded, "Effective collaboration benefits

everyone; however, successful collaboration takes careful planning" (p. 117). Moreover,

Fenty, McDuffie-Landrum, and Fisher (2012) added, one way schools are providing the

least restrictive environment for students with disabilities is through co-teaching, which is

an effective means of collaboration that can lead to success for students with disabilities

in inclusive classroom settings. Each year should begin with a collaborative team in place

based on each student's individual needs, and administrators should provide for common

plan time needed to effectively plan a course of action, analyze success, and make

adjustments as needed so students with disabilities can be successfully included and can

progress in the general education curriculum (Leader-Janssen et al., 2012).

Montgomery and Mirenda (2014) noted through collaboration and team

teaching, special education teachers have opportunities to share disability-specific

knowledge as well as best practices with their general education teaching partners.

According to Buli-Holmberg and Jeyaprathaban (2016):

> The best instructional practice in inclusive classroom should possess effective
>
> interaction of teachers and students with proper support from the teachers with
>
> adapted special teaching competencies that cater successfully to the needs of
>
> children with special needs in inclusive classroom. (p. 132)

Dieker, Finnegan, Grillo, and Garland (2013) researched effective co-teaching strategies for middle school science teachers. Dieker et al. (2013) described how the special education teacher, Ms. Hill; the general education science teacher, Mr. Berg; and a paraprofessional, Mr. Stein, worked together to create a successful co-teaching environment. Dieker et al. (2013) argued teaching students with disabilities requires the cooperation of both teachers who focus on each other's strengths and consider the aptitude of the students they serve.

In the case of Mr. Berg's science class, Universal Design for Learning (UDL) was used as the springboard for planning weekly lessons (Kurth, 2013). As rigor increases and classes move at a faster pace, students with disabilities struggle to find success; however, Kurth (2013) suggested one answer for this dilemma lies in the educational concept of UDL, where "teachers design instruction with the needs of diverse learners in mind, rather than making adjustments for individual students with specific educational needs" (p. 35). According to Dieker et al. (2013), the premise behind UDL is for teachers to assess, teach, and plan activities for students by building upon strengths and avoiding areas of known weakness.

In line with Universal Design for Learning is the practice of making accommodations which allow students with disabilities to experience greater success in general education classrooms (Prater, Redman, Anderson, & Gibb, 2014). Prater et al. (2014) stated, "Providing accommodations helps facilitate students' access and success with that curriculum" (p. 298). Kurth and Keegan (2014) conducted a study to determine the effectiveness of adaptations, or modifications and accommodations, made by teachers to support students with disabilities in general education classrooms. In their study, the

most common adaptations utilized by general education teachers included lowering reading levels, reducing the length of assignments, incorporating manipulatives or other tools, supplementing with visuals, and allowing extended time to complete tasks (Kurth & Keegan, 2014).

Carter et al. (2016) sought to evaluate the use of peer-mediated supports as an approach for supporting inclusion and found the supports produce remarkable benefits both socially and academically for students. While it would be ideal to provide the services of a special education teacher in every inclusive classroom, this is just not possible (Olson et al., 2016). Olson et al. (2016) discovered collaboration among general education teachers, peers, and paraprofessionals is an alternative that allows for students with disabilities to access the general education curriculum.

Olson et al. (2016) further explained paraprofessionals can not only be utilized to assist students with disabilities but also to provide general education teachers with valuable information regarding students' abilities. As the name suggests, peer support-involved students without disabilities pair with students who have disabilities in order to provide ongoing social and academic support in the general education setting (Brock & Carter, 2016). Brock and Carter (2016) ascertained after being given brief training by a special educator, support was facilitated by a paraprofessional who initiated the interaction by inviting the peers to participate, introducing them to their roles, and providing the scaffolding needed to provide successful supports.

Carter et al. (2016) attested when schools include peer support arrangements, there are undeniable advantages over sole dependence upon assistance from individually assigned paraprofessionals. Shogren et al. (2015) revealed, "Many students without

disabilities appeared to view 'helping' students with disabilities as a critical element of inclusion…" (p. 250). Carter et al. (2016) stressed:

> We emphasize that peers are not replacements for instruction from classroom teachers, but instead support involvement in shared learning opportunities provided by the classroom teacher. Rather than pulling students with disabilities away from instruction in pursuit of social outcomes, working with peers appears to engage students more fully in activities planned by the general educator for all members of the class. (p. 226)

Brock and Carter (2016) concurred, "Special educators should ensure high rates of interaction through implementation of strategies such as peer support arrangements" (p. 369). Based on the findings of their study, Olson et al. (2016) also agreed peer support is one effective way to allow students with severe disabilities to access general education contexts.

Advantages of Inclusion

According to the MODESE (2017b), one responsibility of IEP team members when determining the appropriate placement of a child with a disability is "the degree to which the child… will receive educational benefit from regular education (i.e. consideration of the potential positive effects with respect to cognitive, academic, physical, social, or other areas of development)" (p. 29). Critical conversations concerning the inclusive settings in which students with disabilities can access the general education curriculum and the opportunities these settings can provide should take place when the IEP team is making decisions about placement (Olson et al., 2016).

Students, both disabled and non-disabled, benefit socially and academically from effective inclusion (Ryndak et al., 2013).

Olson et al. (2016) found merely being in an inclusive educational setting where students with disabilities access the general education curriculum allows for many social and academic opportunities beyond what a self-contained setting provides. Shogren et al. (2015) determined students connected their "sense of belonging to the philosophy of inclusive education that permeated their schools" (p. 248). Because inclusive classrooms are full of an array of diverse learners, students in the Shogren et al. (2015) study voiced pride in being part of classrooms where reciprocal learning was commonplace.

Harma, Gombert, and Roussey (2013) construed, "Seeing people with disabilities solely in terms of their impairments or regarding them as people who are different can result in discriminatory behavior toward them" (p. 326). Shogren et al. (2015) also pointed out students expressed "a positive environment was present in their classrooms when the focus was not only on learning but also on other areas that promoted effective interaction among all students, some of whom may learn and interact in different ways" (p. 249). Students who have more experience with disabled peers place less emphasis on the disability and greater emphasis on the disabled person as a regular member of the classroom (Harma et al., 2013).

Shogren et al. (2015) further indicated providing students with disabilities more opportunities to interact with their non-disabled peers produced greater social outcomes beyond the realm of the study. As Carter et al. (2016) divulged, "In our study, toward the end of the semester students involved in peer support arrangements were engaged in consistent activities… significantly more than students in the comparison group (71% vs.

58% of the class period)" (p. 227). Furthermore, many students conveyed inclusion seemed to help teachers become more focused on the learning of all students notwithstanding the presence of a disability (Shogren et al., 2015).

McCarty (2013) discovered two benefits recognized by teachers in inclusive settings. One, "the learning environment of a co-taught inclusion classroom benefits all the students because it provides them the much-needed added support of differentiation of instruction and a second source of professional guidance and feedback" (McCarty, 2013, p. 56). Two, by sharing knowledge and ideas in a co-teaching context, teachers feel they benefit professionally (McCarty, 2013).

Barriers to Inclusion

As specified by Loreman and Forlin (2014), schools have a responsibility to accept diverse students and to eliminate barriers to allow for maximum participation. Forlin (2013) argued it is imperative schools implement practices of inclusion with the knowledge that at the same time, they should be ready to dismantle mechanisms and practices leading to exclusion. Ainscow, Dyson, and Weiner (2013) ascertained, "Inclusive classroom practices involve mobilizing available human resources in order to overcome barriers to participation and learning" (p. 10). Education is not simply about making schools available to those who are already able to access it; it is about being proactive in identifying the barriers and obstacles learners encounter when accessing opportunities for quality education, as well as removing the barriers and obstacles that lead to exclusion (UNICEF, 2016).

Shogren et al. (2015) found students overwhelmingly identify their teacher as the most important factor in creating a safe and supportive environment. Likewise, since

teachers are the key element of effective inclusion, success is dependent upon teacher support (Gajewski, 2014). Therefore, teachers who view students with disabilities as unable to learn free themselves of responsibility for the educational growth of those students (Gajewski, 2014).

Furthermore, Gajewski (2014) claimed teachers become unwilling to collaborate or plan for students with disabilities and become resistant to active participation of students with disabilities within their classrooms. Carter et al. (2016) believed, "Descriptive data from both observational studies and the baseline phases of intervention studies often paint a portrait of students with disabilities who are present in general education classrooms without having a presence and enrolled without being meaningfully engaged" (p. 210). However, Carter et al. (2016) argued to ensure successful inclusive environments in the school setting, effective implementation of interventions must be coupled with sustained commitment from general education teachers to see all students, including those with disabilities, as their responsibility.

Carter et al. (2016) raised concerns with general education classrooms which utilize the support of paraprofessionals, arguing this often turns into one-on-one support, which can ostracize students rather than include them in interactions with their peers. According to Samuels (2015), "Despite agreement that paraeducators are important school personnel, surveys of paraprofessionals show that many say they have little or no formal training for the roles they are required to take on" (p. 1). She further challenged while paraprofessionals are often the least-trained special education personnel, they are placed with students with the highest needs (Samuels, 2015).

Carter et al. (2016) admitted paraprofessional support can be effective when working in tandem with peer interactions and instruction from highly qualified teachers. However, he warned when utilized in and of itself as a practice to include students in the general education environment, paraprofessional support may exclude rather than include students (Carter et al., 2016). Brock and Carter (2016) insisted paraprofessionals must be trained by special educators to support students in inclusive classrooms, and peer support should be closely monitored and should not replace primary instruction from the highly qualified teacher.

Brock and Carter (2016) wrote, "It is inappropriate for students with severe disabilities to receive the bulk of their instruction from paraprofessionals as classmates learn primarily from a general educator" (p. 369). Further, Brock and Carter (2016) maintained merely seating students with disabilities next to students without disabilities in inclusive settings does not meet the criteria of successful peer mediation. Moreover, as Cook and Odom (2013) ascertained, students often do not know how to relate to one another; therefore, without intervention from the teacher as a social mediator, successful inclusion is inhibited.

Gajewski (2014) stated, "A culture of collegiality or a norm of loyalty, which supersedes all professional responsibility and accountability to students, poses a significant obstacle to the measurement of inclusion" (p. 33). Rix (2015) explained recognition of the need for teamwork does not necessarily translate into teams who work well together. Often conflicts arise over allocation, management, and utilization of resources (Rix, 2015).

Gajewski (2014) discovered teachers are reluctant to confront colleagues for attitudes and behaviors obstructive to successful inclusion; they more often choose to avoid conflict rather than advocate for students. This is unfortunate, as Ainscow et al. (2013) reasoned, since changes in adult attitudes and conduct are paramount to ensuring positive outcomes for at-risk groups of students. Conflicts among colleagues who do not agree on the practice of inclusion can cause enormous pressure, anxiety, and tension (Gajewski, 2014).

Montgomery and Mirenda (2014) contended the key elements of collaboration, including goal setting and regular meetings with a variety of expert team members, require extra time and competences that are not automatically in teachers' knowledge base. Ainscow et al. (2013) insisted, "This means that the development of inclusive practices requires those within a particular context to work together to address barriers to education experienced by some learners" (p. 9). Therefore, it is imperative to find creative ways to provide the additional planning time needed for general education teachers to take ownership of students with disabilities who require additional support (Montgomery & Mirenda, 2014).

According to Wright (2016), class size was yet another barrier to successful inclusion. In fact, Wright's (2016) study listed large class size as the second most common barrier just behind a shortage in staff. Kurth and Keegan (2014) discovered it is not always possible for teachers to devote adequate time and commitment to making necessary adaptations to ensure success of students with disabilities in general education settings when caseloads and class sizes were large. Addis et al, (2013) further noted large class size as a challenge to successful inclusion.

Both Addis et al. (2013) and Wright (2016) documented a lack of resources or materials as a barrier faced by teachers. Braunsteiner and Mariano-Lapidus (2014) expressed concern surrounding limited resources as well. As teachers are expected to teach an ever increasing diverse array of students to meet state achievement expectations, resources to meet the demand can be scarce, especially with recent cutbacks in funding (Braunsteiner and Mariano-Lapidus, 2014).

Experiences of Special Education Teachers

As education has moved further away from self-contained classrooms for students with disabilities to more inclusive settings, Dev and Haynes (2015) rationalized the role of the special education teacher has changed as well. In some cases, the special education teacher has been seen as a consultant to help plan for student success in inclusive classrooms, while others have actually worked hand-in-hand with general education teachers as partners in planning and instructing (Dev & Haynes, 2015). This section includes exploration of some experiences of inclusion from special education teachers' perspectives.

Dev and Haynes (2015) conducted a qualitative study to examine special education teachers' experiences with inclusion. When asked what skills or training are needed to promote success of students included in general education settings, the most frequent answer involved pre-service teacher training on evidence-based practices for implementing intervention plans (Dev & Haynes, 2015). Unfortunately, Dev and Haynes (2015) explained, many participants felt their training was insufficient. Additionally, special education teachers cited support from administration in the form of time for

collaboration with general education teachers and hiring paraprofessionals to help as other supports that lead to success (Dev & Haynes, 2015).

In their study, Dev and Haynes (2015) found, "Co-teaching was not without tension for about 50% of our participants" (p. 58). Personality and philosophy differences concerning behavior and expectations of students were described as sources of conflict (Dev & Haynes, 2015). In addition, special education teachers sometimes felt as if they were seen merely as assistants rather than highly qualified teachers capable of providing valuable information and support (Dev & Haynes, 2015).

Some teachers also felt as if inclusive settings were not always the least restrictive environment for students with disabilities, especially those with severe behavioral, emotional, or physical disabilities (Dev & Haynes, 2015). Dev and Haynes (2015) declared, "About two-thirds of the teachers in our study stated lack of or inadequate social skills among students with disabilities as the biggest hurdle to their integration, especially in secondary schools" (p. 59). Special educators also stated teachers were more successful in managing inclusive classrooms when they were adept at classroom management and differentiating instruction (Dev & Haynes, 2015).

Gajewski (2014) relayed the story of Susan, a special education teacher who faced many challenges with general education teachers at her school when trying to integrate students with disabilities into general education classrooms. Gajewski (2014) recounted, "Susan believes that students should be full and active participants in their regular classrooms, rather than being withdrawn by her for additional support" (p. 20). However, Susan explained her philosophy was often unmatched by general education teachers, and

although she attempted to support general education teachers, she still faced much resistance (Gajewski, 2014).

Susan further shared rather than fully include students with disabilities into classrooms, general education teachers often asked Susan to pull the students aside to work with them separately (Gajewski, 2014). Furthermore, general educators complained about the students being in their classrooms because they were unable to perform at grade-level expectation, and regular education teachers seemed oversensitive to the smallest problematic behavior a child exhibited (Gajewski, 2014). To complicate Susan's dilemma, Gajewski (2014) expounded, Susan worried about maintaining positive relationships with her colleagues and felt her presence and input could create feelings of intimidation or acrimony and unwillingness to cooperate, which would lead to general education teachers being unreceptive to her presence and input in their classrooms.

Kurth (2013) explored how another special education teacher, Ms. Lawson, worked to collaborate with teachers to make adaptations in their general education classrooms to allow students with disabilities to experience success in inclusive settings. Kurth (2013) conveyed Ms. Lawson found it became increasingly difficult with each passing year to keep students with disabilities in the mainstream classroom. As concepts became increasingly more complex and moved at a faster rate, students with disabilities often struggled to keep pace due to their cognitive delays (Kurth, 2013).

Kurth (2013) illuminated the steps Ms. Lawson took to ensure collaboration and proper adaptations to allow students with disabilities to be meaningfully involved and to progress through the general education curriculum. This process involved the steps of determining necessary student learning supports, evaluating classroom routines, defining

student learning outcomes, gathering materials and creating specific adaptations, implementing adaptations, and finally, evaluating adaptations (Kurth, 2013). As these steps were taken, Ms. Lawson worked to certify teachers were adhering to IEP goals and facilitating social skills, independence, self-advocacy, and problem-solving skills without isolating or singling out students (Kurth, 2013). However, through this process, Ms. Lawson learned teachers should cautiously make modifications (Kurth, 2013). Teachers should design a vast collection of general modifications that can be utilized by all students in inclusive classrooms to render better participation and learning outcomes for all students (Kurth, 2013).

Fenty et al. (2012) offered another example of how a special education teacher successfully included students with disabilities in general education classrooms. Mrs. Hunt, a middle school special education teacher, spent a few hours of the day providing direct services to students with disabilities in a resource room (Fenty et al., 2012). The remainder of her time was spent collaborating with general education teachers by planning instruction and assessments and offering strategies to make content more accessible to struggling students (Fenty et al., 2012).

Mrs. Hunt was also involved in a collaborative approach of co-teaching where she and a general education teacher took equal part in planning, delivering, and assessing instruction in the general education classroom where students with disabilities were included (Fenty et al., 2012). According to Fenty et al. (2012), Mrs. Hunt felt "special and general education teachers who planned instruction together were more likely to equally share classroom instructional duties than those who did not engage in collaborative planning" (p. 30). Fenty et al. (2012) further asserted effective

collaboration and strategies can increase content acquisition and ensure success of student with disabilities in various general education content settings.

Among the necessities special educators mentioned for successful inclusion in the Dev and Haynes (2015) study were support from administrators in the way of time for collaboration and planning, adequate training, and paraprofessional support. Both Gajewski (2014) and Dev and Haynes (2015) mentioned collegial relationships were sometimes strained by co-teaching when philosophical differences existed between the general education and special education teachers. Special education teachers from both the Kurth (2013) study and the Dev and Haynes (2015) study revealed inclusion was not best for all students, especially when behaviors were a significant problem or the content was too rigorous. Gajewski (2014) found a positive attitude from the general education teachers concerning inclusion was an important factor to success. However, as Fenty (2012) and Kurth (2013) surmised, a more positive inclusive environment was possible when measures were taken to ensure general education teachers were supported by special education teachers in their efforts to include students with disabilities in their classroom.

Experiences of General Education Teachers

Although it has become a fundamental policy in many countries around the world, teachers have held varying perspectives on the usefulness, implementation, and success of inclusion (Monsen, Ewing, & Kwoka, 2014). As indicated by Montgomery and Miranda (2014), "Both teachers' self-efficacy and teachers' attitudes, among other variables, have been identified as key factors that influence the success of inclusion" (p. 27). MacFarlane and Woolfson (2013) held, "Investigating the determinants of teachers'

attitudes and behavior and their relative importance is crucial for improving teaching practices, initial teacher education and professional development opportunities for effective inclusion of children with special needs…" (p. 51). This section includes a review of literature containing some typical experiences and perspectives of general education teachers in regard to inclusion.

Gajewski (2014) conducted a study of 12 teachers and found, "Teachers often experience ethical challenges and dilemmas in the context of inclusion that tug at their consciences and leave them with feelings of uncertainty and doubt" (p. 24). Through her study, Gajewski (2014) realized teachers worry values of justice and sensitivity are lost in inclusive classrooms, causing students with disabilities to be deprived of the individual instruction they need to succeed. While teachers lay blame in part on a "lack of support and training, feelings of unpreparedness and inadequacy, and special education policies and regulations, the most pressing were those associated with colleagues and collegial relations" (Gajewski, 2014, p. 24). Participants pointed to experiences involving disturbing behaviors from some fellow educators who treated students with disabilities unfairly, were not willing to make accommodations and modifications to allow success, and were unwilling to allow students to be included in their classrooms at all (Gajewski, 2014). As Gajewski (2014) pointed out, rather than understanding inclusion as a practice that meets the individual needs of all students, many educators continued to view it as a placement.

In 2013, Bentley-Williams and Morgan conducted a study on the power of teachers having a positive attitude with regard to being inclusive educators. Student teachers were placed in differing environments and were given opportunities to engage

with various individuals with a wide range of disabilities (Bentley-Williams & Morgan, 2013). The student teachers were then asked to reflect on their experiences through journal writing (Bentley-Williams & Morgan, 2013). The findings of the study showed direct personal contact with individuals with disabilities prompted pre-service teachers to become more aware of their own physical, emotional, and intellectual reactions (Bentley-Williams & Morgan, 2013).

Moreover, the participants developed a strong sense of social justice and a commitment to becoming inclusive educators (Bentley-Williams & Morgan, 2013). Bentley-Williams and Morgan (2013) surmised, "Clearly, attitudes are influenced by experiences and professional training, while progress towards inclusion is slow" (p. 174). Bentley-Williams and Morgan (2013) noticed teachers with fewer years of experience had more positive attitudes toward inclusion than those with many years of experience; yet, those with experience and training in inclusion were even more positive than those with less experience and less training.

Similarly, Monsen et al. (2014) conducted a study of 95 teachers to determine if their attitudes toward including students with disabilities in general education settings had a substantial influence on how they handled their classrooms and how effectively they understood existing supports. In addition to questioning teachers, Monsen et al. (2014) questioned 2,514 of their students to determine if there was a correlation between teacher attitude and classroom environment. Students testified teachers with more positive attitudes toward inclusion created classroom environments with more satisfaction and less hostility, competitiveness, and difficulty than in those classrooms where the teachers' attitudes were less positive (Monsen et al., 2014). It was also

discovered with increased perception of competency and support, teacher experiences with and attitudes toward inclusion improved (Monsen et al., 2014). This supported MacFarlane and Woolfson (2013), who found a positive correlation between teachers who are willing to entertain inclusive practices and those with positive beliefs and higher self-efficacy.

The studies of Gajewsky (2014), Bentley-Williams and Morgan (2013), Monsen (2014), and MacFarlane and Woolfson (2013) illuminated the correlation between a positive teacher attitude and successful inclusive classroom environments. Gajewski (2014) discovered some teachers felt as if students with disabilities' needs were not always met in the general education classrooms, and sometimes teachers' negative attitudes toward inclusion precluded success. However, Monsen (2014) and Bentley-Williams and Morgan (2013) realized though training and experience in inclusive practices, teachers' attitudes and self-efficacy improved (Monsen, 2014).

Summary

This chapter contained a review of Lev Vygotsky's social constructivism theory as a theoretical framework. A basic explanation of inclusion was explored, along with effective practices for implementation, such as collaboration, co-teacher or paraprofessional support, and peer mediated supports. As Gajewski's (2014) research showed, while inclusion can lead to positive results for students with and without disabilities, barriers, such as negative teacher attitude or low self-efficacy, misuse of paraprofessional support, colleague conflicts, and a lack of collaboration, must be eradicated for successful inclusion to occur. Advantages of inclusion discovered through this review of literature were a sense of belonging and acceptance for students with

disabilities and students with and without disabilities learn to understand and appreciate diversity while developing social skills by working with a diverse population of students.

Chapter Two also included a review of literature containing experiences of both special education and general education teachers who have worked to implement inclusive strategies in general education classrooms. While some teachers imparted positive results, others, who faced some of the barriers mentioned in this chapter, reported negative experiences with inclusion (Gajewski, 2014). Both special education teachers and general education teacher noted the importance of a positive teacher attitude and self-efficacy for successful inclusion to exist (Bentley-Williams & Morgan, 2013; Gajewski).

Chapter Three begins with an overview of the problem and purpose, followed by an examination of the research questions and a review of the methodology. The research design, instrumentation, and data collection for the study are also outlined.

Chapter Three: Methodology

Boroson (2017) argued, "One of the central principles of our melting pot in the United States has been to greet diversity with inclusivity" (p. 18). According to the U.S. Department of Education, Office of Special Education and Rehabilitative Services (2015), "Since 1975, we have gone from excluding nearly 1.8 million youths with disabilities from public schools to providing over 6.9 million students with disabilities special education and related services designed to meet their individual needs" (para. 3). The National Center for Education Statistics (2016) indicated 81.2% of students with disabilities are now in the general education classroom at least 40% of the time.

Although schools are legally obligated under the Individuals with Disabilities Education Act, coupled with the Americans with Disabilities Act, the Every Student Succeeds Act, and other legislation, to provide equal access for individuals with disabilities, traditional postulations, stereotypes, and educational practices have perpetuated in the educational system (Boroson, 2017). As Giangreco, Dymond, and Shogren (2016) pointed out, successfully educating students with disabilities requires access to inclusive environments, meaningful programming, focused instruction, and supports necessary for diverse learning needs. Salend and Whittaker (2017) asserted all students, not just those identified with disabilities, have strengths, challenges, and preferences that impact the way they learn. Effective educators realize this fact and differentiate their instruction and expectations accordingly (Salend & Whittaker, 2017).

In this chapter, the purpose of the study is reiterated and the research questions are restated. The research design is reviewed, and the population and sample are thoroughly described. Next, this chapter includes a detailed explanation of the process

for data collection and data analysis for this study. Finally, the ethical considerations are addressed.

Problem and Purpose Overview

Salend and Whittaker (2017) explained, "Educators are challenged to teach students with a range of learning differences. If these differences are not addressed, they can hinder student's learning and educator's instructional effectiveness" (p. 63). Armstrong (2017) contended special education has traversed on its own course parallel to regular education for far too long, emphasizing deficits, disorder, and dysfunction rather than embracing more progressive methods of educating students with diverse learning styles.

In recent years, the need for increased knowledge in the area of science has resulted in the New Generation Science Standards, which states can choose to adopt or base their own standards upon (Marshall, 2015). These new standards "require students to engage in doing science by modeling, analyzing, and designing" (Marshall, 2015, p. 21). Because these standards align with inquiry-based instruction, teachers can experience success with students who have a wide range of ability levels, thus making mastery more equitable (Marshall, 2015).

Science education provides students with the knowledge needed to be informed and contributing citizens of the world on issues such as "the environment, the food supply, health, and energy" (Marshall, 2015, p. 64). Additionally, as jobs increasingly require more scientific knowledge, students who are well-versed in scientific knowledge have greater career opportunities than those who are not (Shumow & Schmidt, 2015). Guidance in a *Dear Colleague* letter from the U.S. Department of Education written by

Anderson, Whalen, Uvin, and Swenson (2017) affirmed for students with disabilities to be prepared to succeed in college, career, and life, there must be equal opportunity in education with respect to science, technology, engineering, and math instruction.

Brusca-Vega et al. (2014) pointed out curriculum and instructional modifications, which general education science teachers are unfamiliar with and may need help implementing, are essential to success. The authors further asserted, "In special education settings, students may have teachers who possess sophisticated understanding of their learning and behavioral needs but have limited preparation in science content and pedagogy" (Brusca-Vega et al., 2014, p. 39). It is rare to find a special education teacher or general education science teacher who is an expert in both fields; therefore, it is necessary for the experts in each field to share knowledge and skills in order to maximize the benefits of inclusion (Brusca-Vega et al., 2014).

The purpose of this study was to examine how general education science teachers and special education teachers in rural school districts in southwest Missouri implement inclusive strategies in the general education science classroom and to explore educator perceptions of inclusion. Brusca-Vega et al. (2014) declared, "In spite of greater inclusion in the U.S. and internationally, promoting the science achievement of students with disabilities has been largely overlooked" (p. 38). These authors argued improving science achievement of students with disabilities is unlikely unless science and special education teachers join forces in accomplishing this goal (Brusca-Vega et al., 2014).

Research questions. The following research questions guided the study:

1. What are the perceptions of middle school science teachers in reference to the barriers faced by students with disabilities in inclusive classrooms?

2. What strategies are used by middle school science teachers who have had

   students with disabilities in the general education science classroom?

3. What are the perceptions of middle school special education teachers serving

   students who are included in the general education science classroom?

4. What key factors provide students with disabilities optimal educational

   experiences in middle school general education science classes?

Research Design

Qualitative research design was utilized within this study, specifically a narrative

qualitative design. Yilmaz (2013) construed qualitative research "is based on

constructivism, draws on naturalistic methods for data collection and analysis, and aims

to provide an in-depth understanding of people's experiences and the meanings attached

to them" (p. 323). According to Creswell (2013), narrative qualitative research design

"begins with the experiences as expressed in lived and told stories of individuals" (p. 70).

Utilizing this design, data can be collected through multiple means, one being interviews

(Creswell, 2013). This study was designed to allow for analysis of implementation

strategies and elicitation of the perceptions of rural Missouri middle school science and

special education teachers striving to include students in general education science

classrooms.

A qualitative approach was applied for this study rather than a quantitative

approach. Qualitative approaches involve "purposeful sampling, collection of open-

ended data, analysis of text or pictures, representation of information in figures or tables,

and personal interpretation of the findings" (Creswell, 2014, p. xxiv). In a qualitative

study, the variables can be categorized by certain characteristics; in contrast, quantitative

variables involve numerical value and can be put in order (Bluman, 2013). Because this study involved categorizing information gleaned from one-on-one interviews, the qualitative approach was the most conducive approach.

Ethical Considerations

Once approval was received from the Lindenwood University Institutional Review Board (see Appendix A), research began. Data amassed through interviews were secured and locked in a cabinet. Information stored electronically on a personal computer was password-protected. All documents will be destroyed three years after the conclusion of the study.

Creswell and Miller (2000) suggested peer reviews and member checking as two ways to control bias. Therefore, interview questions for this study were peer reviewed prior to conducting interviews. According to Creswell and Miller (2000), member checking "consists of taking data and interpretations back to the participants in the study so that they can confirm the credibility of the information and narrative account" (p. 127). So, upon completion of teacher interviews, transcriptions were member checked to ensure accuracy of responses.

To assure anonymity, all information ascertained from participants remained confidential. Data codes were allocated to each participant and school to decrease the probability of identifying participants. Each participant received an informed consent form (see Appendix B), which stated the potential risks of the study and offered the opportunity to opt out of the study.

Population and Sample

The population of this study consisted of middle school science and special education in five southwest Missouri school districts. According to Bluman (2013), "A population consists of all subjects (human and otherwise) that are being studied" (p. 4). Emmel (2013) stated, "Judgments are made about who or what to sample with reference to the purpose of the study, its context, and the specific audience for the research" (p. 34); therefore, the sample was purposive.

This purposive sample consisted of 10 middle school general education science teachers and five special education teachers. The participants selected for interviews had at least one year of teaching experience in a special education or general education science classroom and had practiced inclusion of students with disabilities in general education science classes. The participating school districts included students with disabilities in general education science classrooms using various methods. The class sizes in these districts ranged from 15 to 25 students. These rural southwest Missouri school districts belong to a specific conference affiliation and were selected because they were comparable in size, student demographics, and student population.

Bluman (2013) stated, "If the subjects of a sample are properly selected, most of the time they should possess the same or similar characteristics as the subjects in the population" (p. 4). The participating schools are often used for comparison purposes in respect to athletics (primarily), state assessment data, and free/reduced price meal percentages. Participants were also selected based on willingness of the administrators and educators to participate. A total of 15 participants were interviewed for this study.

Instrumentation

      The instrumentation for this study included one set of 10 semi-structured interview questions for general education science teachers (see Appendix C) and one set of 10 semi-structured interview questions for special education teachers (see Appendix D). According to Brinkmann (2014), interviews are semi-structured when the researcher provides some structure in questioning based on the needs of the study; however, is flexible with the questions and allows for the interviewee's more extemporaneous responses. These open-ended interview questions were created to elicit responses from participants unmasking the perceptions of special education teachers and general education teachers and the key factors that provide students with disabilities optimal educational experiences in middle school general education science classrooms.

      Questions were developed based upon a constructivist framework. According to Creswell and Miller (2000), "Constructivists believe in pluralistic, interpretive, open-ended, and contextualized (e.g., sensitive to place and situation) perspectives toward reality" (pp. 125-126). Questions for this study were developed with the intention of obtaining mixed perspectives of special education and general education teachers concerning the inclusion of students with disabilities in general education science classrooms. Interview questions were also developed utilizing information gained from research reviewed in Chapter Two concerning common barriers teachers face and effective strategies utilized in inclusive classroom settings.

      Dikko (2016) affirmed, "One way to ensure that validity is achieved in any research is to conduct a pilot study of research instruments" (p. 521). Van Wijk and Harrison (2013) contended pilot studies could increase significance and reliability of

research findings and help researchers determine how efficient the instrument will be during the real investigation by revealing possible glitches and questions that may need modifications. Therefore, the interview questions were field-tested with special education teachers and general education science teachers within a public school system not included in the study but from a school district similar to the others in the sample. Questions were revised based upon suggestions from the pilot group.

Each participant received a participation letter (see Appendix E), a letter of informed consent, and an advance copy of the interview questions prior to his or her interview. Data were collected via one-on-one telephone interviews at the convenience of the participants. The interviews were conducted to gain a better understanding of the perceptions of special education teachers and general education teachers and the key factors that provide students with disabilities optimal educational experiences in middle school general education science classrooms.

Yilmaz (2013) indicated validity relies on the use of "systematic data collection procedures, multiple data sources, triangulation, thick and rich description, external reviews or member checking, external audits, and other techniques for producing trustworthy data" (p. 321). To ensure validity for this study, data collected from interviews were compared to the review of literature in Chapter Two. Peer debriefing was also used to ensure validity. Creswell and Miller (2000) stated, "Peer debriefers can provide written feedback to researchers or simply serve as a sounding board for ideas. By seeking the assistance of peer debriefers, researchers add credibility to a study." This study was thoroughly examined by peers who were familiar with the research throughout each step of the process. Both written and verbal feedback was obtained to provide

support, pose challenging questions, and serve as an impetus to the next step procedurally.

Reliability for this study was based on internal consistency. Yilmaz (2013) explained, "Internal consistency reliability indicates whether measuring instruments possess internal consistency or the results of the instrument administered to a group of people on one occasion correlate very positively" (p. 318). To determine if interview questions possessed high internal consistency, the researcher determined the extent to which results stood in tandem with one another. Reliability was further judged based on the consistency between themes emerging from data collected through interviews and research collected in Chapter Two. Wallen and Fraenkel (2001) described this type of reliability as internal consistency method where the instrumentation was administered just one time to each participant and then results obtained were compared to determine a positive correlation.

Data Collection

Prior to contacting the participants, approval was received from the Lindenwood University Institutional Review Board. Upon approval, participants in the study were contacted via email or telephone regarding the study. After receiving confirmation of interest to participate in the study, each participant was provided an informed consent form and a copy of the interview questions. Thereafter, the researcher scheduled a time for the phone interview to occur. A reminder of the date and time of the interview was sent to each participant via electronic communication. If at any time a participant expressed the desire to withdraw from the interview process, it was permitted.

To ensure responses were documented accurately, permission was gained from participants to audio-record the interviews. Upon completion of the interviews, the recordings were transferred to the researcher's password-protected computer. The recordings were then transcribed into a Microsoft Word document.

All electronic data were stored and safeguarded on the password-protected computer. To ensure validity, the researcher used member checking by emailing the transcripts to the participants who were asked to verify the transcripts against the recorded interviews. Participants were identified by codes throughout the study to preserve necessary ethical precaution. Upon completion of the study, data will be retained for three years and then destroyed.

Data Analysis

The data were analyzed upon completion of the interviews. Initially, the coding process began with the researcher organizing data by grouping participant responses to each question so similarities and differences could begin to emerge. Creswell (2013) described this type of analysis as open coding. Yin (2015) explained this leads the researcher to a more complex analysis where relationships between the codes are recognized and categorized. This type of coding is known as axial coding (Creswell, 2013). Patterns that emerged concerning the common barriers teachers face and the effective practices utilized in inclusive classroom settings were categorized. According to Suter (2011), "These categories and their interdependence essentially become tentative answers to your research questions" (p. 355). Therefore, these relationships are used to answer the research questions and are conveyed in Chapter Five.

Summary

In Chapter Three, the qualitative methodology was conveyed. The sample for this study included special education teachers and general education science teachers in southwest Missouri middle schools. To obtain data, phone interviews were conducted. The data were then analyzed through thematic analysis to pinpoint, examine, and record patterns. Throughout this study, ethical considerations were utilized to guarantee research information was protected and all participant identification remained confidential.

In Chapter Four, the results of the collected data are revealed. The data are organized and analyzed to identify themes in perceptions and strategies that lead to successful educational experiences for students with disabilities included in general education science classrooms at the middle school level.

Chapter Four: Analysis of Data

The purpose of this study was to investigate the perceptions of middle school general education science teachers and special education teachers in rural southwest Missouri school districts concerning their experiences with inclusion of students with disabilities in the general education science classroom. Even though discussion and debate have spanned decades, important questions persist regarding best practices guaranteeing meaningful inclusion of students with significant disabilities in general education classrooms (Carter et al., 2016). As Brusca-Vega et al. (2014) informed, students with disabilities graduate from high school ill-equipped to major in science-related fields in college or to enter the workforce in science-related careers. Moreover, students with disabilities frequently lack basic knowledge for everyday living often included in science curricula, which could negatively impact students' independent living, wellness, and employment outcomes (Brusca-Vega et al., 2014).

Interviews

In this study, semi-structured interviews were conducted to gain practical insights from teachers to help other educators and schools fulfill the mission of creating academically productive inclusive environments for all individuals. Two sets of interview questions were created, each consisting of 10 questions. One set was developed to elicit perceptions and experiences from middle school general education science teachers; the other set was designed to gain perceptions and experiences of middle school special education teachers.

All interviews were completed by phone between the researcher and the teacher in a quiet setting at the teacher's convenience and were audio-recorded. Prior to the

interview, the researcher emailed each participant the participation letter and the informed consent. To maintain confidentiality, each of the 15 participants was allocated a data code to decrease the probability of identifying participants. All middle school general education teacher codes began with the letter T and were followed by numbers one through 10. All middle school special education teacher codes began with the letters SP and were followed by the numbers one through five.

Science teacher interview results.

Interview question one. How would you define "inclusion" in respect to students with disabilities?

All 10 interviewees defined inclusion as a means of placing students with disabilities in the general education science classroom and allowing them to be involved in the same learning activities as all other students. Most of the interviewee responses also included a statement which indicated students with disabilities are included in the general education science classroom but are given supports as necessary to ensure learning and success. Interviewee T6 divulged:

> I would say it includes students being able to participate in class activities, even to the point of doing it in a different way if necessary so that they can still complete assignments and learn the material in a way that best suits their needs.

Interviewees T4, T5, and T6 described inclusion in terms of diversifying for all students depending upon their needs, not just those students identified with a disability. For instance, T4 offered, "I would define it as just making sure everyone has opportunities to participate."

Teacher T5 expressed inclusion involves ensuring all students, regardless of a defined disability, get what they need to be successful. For her, inclusion specific to students with disabilities involves "giving them the opportunity to be with their class and the opportunity to have that peer interaction while feeling like they have the tools that they need within the classroom." Participant T6 explained, "For my classroom, inclusion is where I have all students, regardless of their abilities, and I adjust the activities to fit their needs to cover the same skills."

Interview question two. In your science classroom, do you feel students with disabilities are included at a level that allows for the success of all students? Explain why or why not.

Interviewees T1, T2, T4, and T5 all felt as if students with disabilities are included at a level that allows for the success of all students in their classrooms. Teacher T1 affirmed, "Absolutely. I have a class-in-a-class in my science class, so they're able to be included in the normal scheduled lessons, with help of a para and a student worker." Likewise, T2 responded, "Yes, I do. I try to do lots of visuals. I like to differentiate a lot so that everybody can have a chance at success because everybody learns differently." He did offer one caveat. There are no students with the most significant disabilities at his school, implying that he might feel differently if this were the case. Participant T4 agreed, "Yes, I think so. It makes it especially easy in science. You can incorporate lots of different methods of teaching and learning. Cooperative learning is also something that allows it to be a little bit more possible." Specifically, T5 explained she keeps the students with disabilities in close proximity to her to ensure their success while also meeting the needs of all other students in the classroom.

Over half of the interviewees shared concerns they are not able to meet the needs of all students in their science classrooms. Interviewees T3, T6, T6, T8, T9, and T10 all gave responses to indicate students with disabilities are not always included at a level that allows for the success of all students. Teacher T3 worried, "Sometimes it is difficult to not only play to their strengths, but to also keep with the rest of the class, showing where they need to be and what they need to be learning." Participant T6 responded, "For the most part, yes, but every now and then we have some folks who will have meltdowns take a lot of time away from the other students." New teacher T6 worried her lack of experience as a first-year teacher may inhibit her ability to meet the needs of all students; however, she reported she is doing her best and thinks this is an area where she will continue to grow.

Interviewee T8 felt the dynamics of science with labs and other hands-on activities promotes success for students with disabilities; however, she expressed concerns students with disabilities sometimes rely too heavily upon higher-functioning students they are grouped with to do the work. Thus, students with disabilities may not be learning the material as intended. In contrast, she noted whenever a lower-functioning student is paired with a higher-functioning student in her science classroom, it usually "allows for enrichment for the higher-level achieving student and it allows for a tutoring-type thing for the lower-level student." Teacher T9 also gave both a yes and no answer. She stated:

> I can find work for them at their level. Then, I allow them also to work in groups which allows them to be with their peers and gives some of the social aspect versus just the knowledge of that subject or that content for that day.

However, she further explained sometimes students with disabilities are not successful because they are all grouped into one classroom, making that particular science class very large and inhibiting her ability to meet the needs of all students.

Participant T10 also felt as if students with disabilities are not always included at a level that allows for success of all students, referring specifically to students with behavioral or emotional disabilities and those with the most significant processing deficits. He conceded, "I do have some that are very low readers, that are in the pre-primer level, and they're supposed to be able to understand and do the work at the fifth and sixth grade level." He expressed the amount of time he has to focus on students with disabilities often inhibits his ability to meet the needs of all other students in the classroom.

Interview question three. What training/professional development have you received concerning inclusion of students with disabilities? Has this been adequate to prepare you to successfully provide for the needs of students with disabilities in your classroom?

Out of the 10 interviews, only one teacher indicated she had received sufficient training/professional development to successfully meet the needs of students with disabilities in her classroom. Interviewee T6 had participated in several professional development opportunities outside of her district, as well as taken a Master's level class on inclusion and differentiation. She deemed these opportunities as sufficient to prepare her to meet the needs of all students in her classroom.

The remainder of the science teachers indicated either no training or insufficient training to meet the needs of students with disabilities in their classrooms. Most

indicated on-the-job experience and assistance from other teachers within their districts as the most helpful means of preparation. Teacher T1 answered:

> I haven't had any specific training. The only information I have was from my undergraduate degree classes, which I had one class on inclusion. And then also from my master's program for administration, we had a class on special education with administration, which had some information in there. But other than that, I've gotten a lot of my information from my co-teachers… or learned over the years.

In addition, T2 indicated the majority of his knowledge has come from experience and other teachers. He stated, "I've worked here for five years. I've learned a lot there about it, a lot of trial and error and help from the special education department."

> Participants T3, T4, T8, and T9 also indicated they receive significant support from the special education department in their districts. Teacher T3 articulated, "I'm very close with the special education teacher here, and I talk to her quite a bit. Learning as I go, I guess." Interviewee T4 disclosed:

> The special education teacher is the expert. Any time I have a question, I just go to them and see what they have to say. They are always very informative, and I have done a lot of changing in my teaching based on what they have had to say.

Teacher T10 also mentioned some courses from his master's level programming, but added the special education coordinator at his district has provided limited professional development on inclusion. However, he did not feel as if this professional development adequately prepared him for all types of disabilities. He commented, "Not at all types of

disabilities, just the ones that are usually either medical… emotional… or autistic… but as far as the low ones, it doesn't address them at all."

Interview question four. Have you had a special services paraprofessional or co-teacher in your classroom? If so, what did you see as their role and how did they help students with disabilities to experience greater success?

Of the 10 interviewees, there were no teachers who had experience with co-teaching in the science classroom; however, seven teachers admitted having experience with a paraprofessional in their classrooms. Both T1 and T2 reported the paraprofessional often takes students with disabilities to another classroom to work on assignments when extra time or support is needed or when students need an environment more conducive to maintaining focus to complete tasks. Another common theme which emerged was the utilization of paraprofessionals in the classroom to help students with disabilities stay on task, both academically and behaviorally, and to keep pace with the class during instruction or while working on assignments. As T10 explained, his paraprofessional "helps with the one-on-one that is needed for some special education students that I cannot do the whole class time. She helps in keeping the behavioral students in check while I'm lecturing."

Interviewee T8 viewed the role of her paraprofessional in a very similar way, stating:

> The biggest thing is that they would help work with them more one-on-one than what I could. Especially if you have a class of 25 to 30 students, it helps to have somebody else in there that can really give those students the attention that they need in order for them to be successful with learning the content.

Some of the other duties carried out by paraprofessionals in these science teachers' classrooms involved reading materials to students, scribing for them, modifying assignments to meet their needs, and locating alternative lower-level assignments to teach the same content.

One science teacher, T4, indicated her paraprofessional not only works with students with disabilities, but also helps other students in the classroom. She explained, "I had them work with other students in my classroom as well, walking around, asking questions, things like that." On the other hand, T9 indicated her paraprofessional works solely with the individual student to whom she is assigned. Teacher T9 expressed, "That worked out perfectly because the student was at such a much lower level than my other students." One other teacher, T3, reported even though her paraprofessional is assigned to one individual student, he is still willing to help in other ways with the other students with disabilities. She exulted, "He modifies their assignments as I give it to them, so I don't have to specifically do it myself every time. It's been a great help."

Participants T5, T6, and T6 all announced they have not had the opportunity to have a paraprofessional or co-teacher in their classrooms. Interviewee T6 added she has requested a paraprofessional and may have one in the near future in one particular class. She envisioned a paraprofessional could be there to provide follow-up instruction in a manner that will help students with disabilities gain a better understanding of the content. Additionally, she felt the support of a paraprofessional would be beneficial during group work. She stated a paraprofessional could "help guide them along in a way that their peers can't in a typical group work environment."

Interview question five. What are some of the barriers you face in trying to ensure students with disabilities are meaningfully included in your science classroom?

The most apparent themes emerging from this interview question were the barriers of finding the time and resources necessary to differentiate instruction. Teacher T1 replied:

> The biggest thing for me is ensuring that they're getting the instructions they need at their level, while differentiating for the students who are in there that aren't special needs, so everyone's getting what they need at their level at all times.

Likewise, T2 relayed, "When there's only one of me… maintaining not only classroom control but being able to meet my highest student and my lowest student… in a certain amount of time, that's the biggest barrier."

With respect to resources, teachers noted it is often difficult to find materials on a lower level that cover the exact same content. For instance, T9 admitted, "I guess time would be the biggest issue. Finding the time to get things at different levels for the students and then the resources available to me." Teacher T5 mentioned that with the move toward using technology in the classroom, some resources cannot be modified, such as computer programs like Study Island or IXL, which her school relies heavily upon to help students learn required science content. Participant T10 further reiterated the challenge faced with having the time to make the modifications needed for his lower-functioning students.

Another theme emerged regarding students and their abilities. With so many different levels in her science classroom, T3 struggled with understanding her students' capabilities and how to include students when they cannot do what the rest of the class is

doing. In line with this concern, T6 worried about the stigma associated with students with disabilities. She responded, "If I try to give a kid extra attention, another kid blatantly calls attention to it in a rude way." Teacher T6 has also faced the barrier of students internalizing their disabilities. She explained sometimes when students have an IEP, it makes them think they are less capable, leading to a lack of effort. She opined, "Part of dealing with those barriers is just trying to encourage students that no matter what their ability level is, I am here for all of them, and I want all of them to do the best they can."

One teacher, T8, noted class size as another barrier. He highlighted, "I've got a class of 30, and that can hinder progress of some students. It makes it hard to work one-on-one." He went on to explain when a large class includes a high percentage of students with disabilities, the challenge of meeting everyone's needs in a meaningful way is multiplied.

Interview question six. Academically, what specific strategies have you implemented in your classroom to help support students with disabilities? Of these strategies, which have been the most beneficial? Least beneficial? Explain.

The most common response to this question involved variations of grouping students according to ability levels. Interviewees T1, T3, T4, T5, T6, and T10 all made reference to pairing higher-functioning students with lower-functioning students as a strategy they have implemented in their classrooms. Teacher T3 divulged, "Having those students that are really doing well, and maybe get done with their work quicker, help that student that's struggling, has been working really well for me right now." Participant T4 made reference to utilizing the learning strategy known as "cooperative learning" as a

successful way of pairing students which leads to academic success. Another teacher, T6, stated, "On certain labs I do ability grouping where I have some that are higher students mixed in with the special education students." He expounded upon how the higher-functioning students in his class will take students with disabilities "under their wing and help them out when they need it."

On the other hand, two teachers, T5 and T6, proclaimed student pairing as predominately an ineffective strategy in their classrooms. Participant T5 disclosed her experience with the strategy has been for the student with a disability to sit back and allow the more-advanced peers to do the work while merely copying down answers. Therefore, she did not feel as if students with disabilities are really learning the content when paired with peers. Rather, she chose to work either one-on-one or in small groups with her struggling students so she can be sure they are grasping the concepts. Teacher T6 expressed mixed feelings on peer tutoring. She explained it works sometimes, but at other times, it is an ineffective strategy depending upon the type of day the student with a disability is having. Like T5, T6 tried to facilitate small groups or one-on-one instruction, especially when students with disabilities are having a difficult day.

One other theme that emerged from the interviews was the use of differentiated instruction. A couple of teachers, T2 and T4, mentioned the use of hands-on or kinesthetic activities. Others mentioned the importance of visuals, videos, and PowerPoint presentations as effective tools. Both T1 and T9 mentioned the utilization of technology, specifically Chromebooks, to allow students to view and review videos in order to master content. Teacher T1 explained how she records her own instructional videos and then posts them to Google Classrooms so "…students who need to re-watch it

over and over again, or need a reminder of a visual aid can go back and watch that."

Participant T9 explained, "I'll find them a video that also goes along with what I've

taught so that way if they didn't understand everything I said, because sometimes the

verbiage can be really difficult for them, a video sometimes is very helpful for them."

Teacher T2 disclosed, "I just try to and do a little bit of everything since

everybody learns differently." Likewise, T4 recounted, "The biggest thing I've

implemented in learning throughout the years is just incorporating multiple teaching

strategies. Incorporating the reading, the talking, cooperative learning, the kinesthetic,

making sure all of that's incorporated into each lesson."

Interviewees T10, T9, T6, and T8 mentioned the use of modifications as an

effective strategy. Modifications noted by T10 included preferential seating and

adjusting assignments to meet the individual needs of the students. Teacher T9 has found

it beneficial to break information up into smaller parts and to ensure mastery of those

smaller chunks of information before providing more information. Participant T6

endorsed providing copies of her notes and study guides as a strategy she uses in her

classroom. She explained:

> They don't have to go through the steps of reading and processing what's on the
>
> board and writing it down at the same pace as their peers. I've also created study
>
> guides of various types, where if there's an upcoming test or quiz or whatever,
>
> then students can fill in the blanks to have some sort of information in an
>
> organized way that they may not be able to create on their own.

Conversely, T6 noted this strategy can also be disadvantageous at times, explaining how

some students with disabilities do not want to utilize the support because it embarrasses

them. She struggled with finding ways to "make sure the kids that need it can have it without feeling embarrassed that they need it."

Teacher T8 shared the modifications he uses that have proven to be effective in his classroom. He said, "Modifications can be something as small as allowing a student more time, to something as drastic as completely changing, giving them a different assessment altogether." Drilling for mastery, retakes, and helping students track their own progress were noted as additional strategies he has found effective.

As the least beneficial strategy he has tried, T8 listed guided inquiry. While "it started off as a good idea," he quickly discovered students with disabilities often struggle with it. Since guided inquiry is designed to allow for greater freedom in researching, requiring students to use higher-order thinking skills, he noted the lack of structure as the strategy's inefficiency for students with disabilities.

Interview question seven. Socially, do you feel students with disabilities are accepted in your classroom by other students? What specific strategies, if any, have you tried to help ensure this acceptance?

All respondents indicated students with disabilities are socially accepted in their classrooms most of the time. Teacher T1 emphasized, "The students at our school district are so accepting, very helpful with each other, very patient." Likewise, T6 responded, "Actually, our school is phenomenal. Our students with disabilities are not normally picked on or harassed or anything like that."

Three interviewees, T1, T4, and T5, explained a strategy they have used to ensure social acceptance is encouraging all students to accept diversity in the classroom. Participant T1 advocated for respect of individuality and encouraged students to help one

another when they are struggling. Since the students without disabilities tend to be more social in her classroom, she often witnesses them taking the students with disabilities under their wings, compelling them to be more socially involved. Similarly, T5 encouraged social acceptance by promoting diversity. She added, "We always say, 'We all need different tools in life, and different people may need different things to help them excel.'" Teacher T4 also encouraged acceptance of students with disabilities in her classroom by talking about individual differences; however, she did this more so by having one-on-one conversations with students who struggle to treat others with respect.

Several teachers noted social acceptance at their school just comes naturally, and they have not had to incorporate any strategies to make it happen. In these cases, teachers attributed this to students growing up together in a small, close-knit community. Teacher T3 conveyed, "It's just come natural. With the size of this school, I feel like they all know each other and they're all just very close." Interviewee T8 echoed:

> With us being as close-knit a community as it is here, I'd say that they're definitely accepted. You'll see students go out of their way to try to help them… I really haven't had to do anything extra to make sure that those students are included in the classroom because the other students are really great about doing that themselves.

Correspondingly, T5 acknowledged, "They've grown up with these kids their whole life. So if they do notice that one of the students may have a different assignment, they're honestly just super encouraging to that student." Participant T9 also claimed social acceptance to be a naturally occurring aspect of her classroom; however, she explained she models acceptance and respect in the way she interacts with all of her students. She

believed this could be an attributing factor to her classroom environment of acceptance if her students are emulating this behavior based on her example.

Strategically grouping students in class was another theme which emerged from two science teachers. To encourage social acceptance, T4 illuminated she pairs students in such a way that "a very open student" is paired with a student with a disability. In the same way, T10 talked about creating "mixed-ability groups" to help ensure an environment where everyone is socially included and accepted.

The only caveat to this acceptance was when the students with disabilities have significant difficulty managing behaviors. For example, T2 said when a student with a disability exhibits "outlandish" behaviors, the other students are less accepting of that particular student in the classroom. Comparatively, T6 stated, "Now, if they're having a meltdown, that's different. It makes them a little bit nervous." Teacher T10 also blamed behavioral "outbursts" in her class as a source of social contention. She clarified since these behaviors do not fall within the boundaries of social norms and they prevent other students from concentrating and completing their work efficiently, students with disabilities who exhibit significant behavioral difficulties are often not socially accepted by their peers.

Interview question eight. In what ways, both academically and socially, do you feel students with disabilities benefit from being included in your classroom? Explain.

Academically, science teachers perceived students with disabilities benefit from being in their classrooms because it gives the students the opportunity to learn from teachers who are certified to teach science. Since special education teachers are not generally certified to teach middle school science, T2 reasoned, "It's hard to learn stuff

out of a book and from a teacher that might not have a background in the area that's being taught." Likewise T3 expressed it is important to allow students with disabilities the opportunity to participate in her class and listen to her instruction, even if they do not understand all of it.

Science teachers also communicated students with disabilities benefit academically by being immersed in their classrooms, because interaction with grade-level content and higher-functioning students forces students with disabilities to use higher-order thinking skills themselves. Many science teachers who were interviewed use group work regularly in their classrooms. For instance, T1 described his classroom as set up in such a way students work in groups daily. To help a very shy, quiet student with a disability come "out of his shell," T1 paired this student with one of his most boisterous, higher-achieving students. This pairing cultivated a relationship where both the higher-achieving student and the student with a disability learned from one another.

Teacher T10 divulged her students with disabilities benefit academically because she often requires them to problem-solve and think strategically to complete tasks. Participant T6 also believed inclusion of students with disabilities in her classroom benefits them academically, stating, "I think they get to see and hear the higher order thinking… They get to see how other people think and how other people write their answers." Comparably, T8 declared, "Academically, they're pushed maybe a little bit more than they would be if they were outside of a regular education classroom."

Some teachers felt including students in general education science classrooms benefits them academically because many of the concepts taught in a science classroom are relevant to everyday life. For instance, T6 mentioned, "I think in my classroom in

particular, one thing I try to encourage them with is just how relevant science is to their daily life." Interviewee T10 noted the hands-on activities, labs, and discussions concerning real-world applications of science content allow students to grow academically in a way that is relevant to their lives. In his classroom, T2 reiterated, "We do a lot of offering up a topic and we'll just talk about it and how it affects us and so forth. If kids understand how things affect them, I think they get it better."

Socially, teachers overwhelmingly felt students with disabilities benefit from being in the general education science classroom. For one, a couple of teachers worried about the social ramifications of excluding the students from their general education science classroom. Teacher T2 pointed out, "You don't want kids to feel separated… Kids are cruel. They're going to separate them out and treat them differently and that's not what happens when you have them interacting in the classroom." Likewise, T3 replied, "If they're not included in the regular classroom, then they're kind of secluded."

One social benefit mentioned by teachers was related to self-esteem and confidence. As T4 mentioned, "I think it's very much a self-esteem booster just to be included in that situation and feel like they have a sense of accomplishment in learning and being able to do things with the whole group." Teacher T5 explained:

> It's challenging to get them to feel comfortable and feel confident with answering questions, even if it's wrong. But I think it's good for them to get comfortable with talking with our students about work and what's going on in the classroom.

Similarly, T9 said, "I feel like it gives them the confidence because they are with all of their peers in the same class… It helps them feel accepted."

The most significant social benefit that emerged from the interviews was the fact students are learning valuable social skills by being included in general education science classrooms. All 10 science teachers noted a positive social benefit of including students with disabilities in their general education classrooms. For example, T8 proposed:

As far as socially, they're able to make connections and know how to relate to people out there in the real world, and I see that as being really important, especially for our severely disabled students. It allows them to develop those social skills that they would need outside of the school system.

Teachers T6 and T5 both mentioned the importance of including students with disabilities in their general education science classrooms as it allows time to talk, make friends, and learn social skills from non-disabled peers.

Interview question nine. Do you collaborate with the special education teacher regularly concerning your shared students? Explain.

While all teachers stated they do collaborate with special education teachers, only one of the 10 science teachers reported there is regular face-to-face collaboration each week. Participant T8 remarked, "We usually meet at least three times a week, face-to-face. We discuss anything from what we can do to help the student learn the material, doing retakes outside of my classroom, things like that." In addition to the face-to-face collaboration, T8 explained he uses Google drive to communicate with the special education teacher "every single day, especially with students and what we're doing in my class, so this way she knows what she can help them with in her class."

The remainder of the science teachers shared various responses indicating they collaborate with special education teachers on an as-needed basis. Teacher T1 related,

"Shortly before or after school, and we might have a five-minute conversation on what we're doing the next day or that day, and changing and tweaking plans as we go." Likewise, T3 replied:

A lot of the times we're just running in and out of each other's rooms and conversing as we need it. I talk to her quite a bit just on ways to differentiate for the special education kids, just what they need, what would work best for them.

Participant T4 said, "Anytime I've had a problem, I've definitely gone to the special education teacher and discussed different methods we could try or things we could do, things I needed to change." Similarly, T6 stated, "I talk to at least one of the special education teachers or paraprofessionals that we have on staff at least weekly, but often multiple times a week regarding specific students." Teacher T9 confessed she tries to handle things herself, but if there is a major concern, she will talk to the special education teachers to get their advice. Likewise, T10 acknowledged seeking advice from the special education teacher when he needs suggestions on modifications or accommodations that might help students with disabilities experience greater success in his classroom.

Interview question 10. If you could change anything about how students with disabilities are included in your classroom, what would it be? What would help you to be more successful in meeting their needs?

Three teachers, T1, T5, and T9, reported more resources would help them better meet the needs of students with disabilities. Teacher T1 reasoned, "If we had the ability to bring in a resource that is from fourth or fifth grade, I could level them into sixth grade for those kids who are lower, and get them up to grade level." Interviewee T6 related he

has limited resources because he teaches at such a small school. He reiterated, "I think just having more resources to pull from for them, having more things that I can supplement for them."

If T2, T4, T6, and T8 could change something about how students with disabilities are included in their classrooms, they would have a co-teacher or paraprofessional to help meet the needs of students with disabilities. Teacher T4 clarified having a paraprofessional would not only help her meet the needs of the students with disabilities during class, but it would also give her someone to talk to and bounce ideas off in developing ways to meet their needs. Participant T6 responded, "I would probably ask to have a paraprofessional so that if somebody was getting over-sensitized, then they could have a brief break and come back and not miss so much of class." Teacher T8 conveyed having a paraprofessional in large classes with a high percentage of students with disabilities would be beneficial.

Three science teachers mentioned additional training, professional development, or knowledge would help them be more successful in meeting the needs of students with disabilities. Participant T2 recounted having never received any professional development on successful inclusion practices and anticipated this might help him to better meet the needs of his students with disabilities. Likewise, T5 would appreciate more knowledge concerning inclusion. He replied, "I myself having more knowledge of how to include them and what to look for and just knowing how to address their needs more aside from what I already know." Teacher T6 would appreciate more knowledge on how to assess the progress of some students with disabilities. She explained she

struggles with knowing how to judge progress when students have significant difficulty with oral or written expression.

Three teachers mentioned class sizes. Teacher T8 revealed having some really large classes with a high percentage of students with disabilities. If he could change anything, he would make sure the students with disabilities were placed in smaller classes so he could better meet their individual needs. Interviewee T9 would appreciate smaller class sizes as well. She explained because she has so many students with disabilities in a very large class, she feels as if she is neglecting the non-disabled students in her efforts to meet the need of the students with disabilities. Participant T10 also mentioned class size; however, he would like to have a class containing only students with disabilities where he could more effectively focus on their individual needs. He admitted while there are paraprofessionals in his classroom to help take care of the students' needs, he would like to be more hands-on providing individual supports for the students with disabilities. Given the class size, though, he did not feel he could do this and meet the needs of all of his other students as well.

Special education teacher interview results.

Interview question one. How would you define "inclusion" in respect to students with disabilities?

All five special education teachers responded with an answer to indicate inclusion is defined as including students in the general education classroom with their non-disabled peers. Teacher SP1 articulated, "I define inclusion as students being involved in courses with peers of all abilities with accommodations and modifications, paras or co-teachers who help make sure they have equal access to free education." Special educator

SP4 replied, "Inclusion for my special education students is being in the regular classroom with peers, working on the same grade-level information with modifications made to make them successful. Sometimes with an aide in the classroom and sometimes without."

Interview question two. Do you feel your students with disabilities are included in the general education science classrooms at a level that allows for the success of all students? Explain why or why not.

Four out of five special education teachers declared feeling as if their students with disabilities are included in general education science classrooms at a level that allows for the success of all students. Teacher SP4 boasted both science teachers she works with modify assignments and successfully include the students in everything they do in the classroom. Interviewee SP5 asserted she works closely with the science teacher to ensure the teacher understands the students' needs before they ever enter the science classroom. She also offered help with ideas or with making modifications as necessary so when her students go to the general education classroom for science, the teacher is better-prepared to meet the needs of all students without having to focus undue attention solely on the students with disabilities.

One teacher, SP1, was the only special education teacher who advised, "It depends on the educator." She explained she has had the privilege of working with teachers who retaught concepts, allowed students to redo tests or assignments, allowed students to provide oral answers, and seamlessly worked with students of all abilities. She then vacillated:

However, I have also worked with science teachers… who worked at the pace of their students with the highest ability levels. They do/did not reteach or allot time for repeated drill and study that students require. Some make sure all study guides are filled out with correct answers three days in advance, others expect students to have listened in class.

In summation, she clarified it hinges upon the willingness of the general education teacher to do what is necessary to ensure all students are successful.

Interview question three. What supports/services do you provide for general education science teachers to help ensure students with disabilities are successfully included in the general education science classroom?

Four of the five special education teachers affirmed supporting science teachers by providing supplemental instruction and assignment completion support for students with disabilities when needed. Both SP1 and SP3 declared they work with their students during a study hall hour in order to provide these supports. Teacher SP2 mentioned she supports teachers by "re-teaching" when students struggle to grasp concepts taught in the general education science classroom. Participant SP4 avowed, "We also have an aide that goes into the classroom with the special education students that can help them with whatever questions they have so that the teacher is able to help other students as well."

Another common support special education teachers reported providing for general education science teachers involved making accommodations and modifications to tests and assignments. Educator SP1 stated, "I modify assignments and I get all the tests beforehand and I modify those." Likewise, SP5 explained tests are modified, "which just cuts down some of the language and vocabulary that can be a little bit more

difficult when taking science tests." Teacher SP1 helps to adapt the layout of science exams, but explained she also reads exams aloud for students who struggle with reading science tests on their own. She expressed this support allows the science teacher to assess what the student with a disability really understands without the student being held back by his or her disability.

There were a few other supports cited by special education teachers. Teacher SP5 mentioned supporting teachers by providing students with "notes that can go along and help with giving them more of a visual when they are taking notes instead of just allowing them to take notes during regular lecture." Participant SP1 also explained she helps "with kinesthetic seating and fidgets" and provides teachers with support by listening to their concerns and attempting to provide solutions. For example, she clarified, "I mostly listen and work with teachers on how to take responses when they cannot read the student's handwriting, offer moral support to students and instructors, and provide ideas for differentiation when necessary."

Interview question four. What are some of the barriers you face in trying to ensure students with disabilities are meaningfully included the general education science classroom?

Just as she answered a previous question, SP1 claimed the barriers she faces in trying to ensure students with disabilities are meaningfully included in the general education science classroom rely heavily upon the general education science teachers' willingness to do what it takes to ensure successful inclusion. The barriers included in her response all revolved around teachers refusing to follow the accommodations and modifications as listed in the students' IEPs. The refusals she listed included "refusal of

instructor to reteach," "refusal to read aloud to students if no special education staff is available," "refusal to begin experiments due to behaviors the instructor does not believe is their job to manage," "refusal to accept a computer for typing answers or oral responses," and "refusal to change the layout of the test to accommodate a student with a short attention span." She has worked with science teachers who have told students to "study harder and just retake the quizzes as many times as it takes, but only before or after school." Teacher SP1 added these refusals do not come from every science teacher she has worked with; many teachers have provided these accommodations and modifications, plus much more in the same school and in the same subject.

Two special education teachers exposed a barrier they face revolves around time. Special educator SP2 affirmed she does not feel as if she has enough time to perform the duties necessary to ensure students are meaningfully included. Barriers she noted included "having the time to reteach and the time to stay up on all their assignments… and having that time to collaborate with teachers is tough." The second teacher who mentioned time in her response, SP1, did so for a different reason. She asserted students with disabilities generally need more time to master one concept before moving on to the next one; however, this is not the way it works in the general education science setting where concepts build upon one another and teachers move through the content at a faster pace than students with disabilities are able to comprehend.

Special education teacher SP4 conceded the only barrier she has faced revolves around students not completing and/or not turning in their assignments from the general education science classes. The final teacher, SP3, affirmed she faces no barriers in trying to ensure students with disabilities are meaningfully included the general education

science classroom. She announced her science teachers work diligently to meet the needs of students with disabilities.

Interview question five. Academically, what specific strategies help support students with disabilities in the general education classroom? What strategies have proven to be unsuccessful? Explain.

All five teachers reported some similar strategies which help support students with disabilities in the general education classroom. One strategy involved modifying tests and/or assignments. A tactic declared by SP1 was "adapting tests to have groupings of five questions and word banks with corresponding set of questions." Teacher SP2 stressed "narrowing down choices and reading to them" is a common strategy which helps support her students. Similarly, SP3 mentioned it helps her students when teachers limit the number of answer choice options on tests or provide students with page numbers from the textbook where they can locate the answers to specific questions on assignments. Participant SP4 stated it helps her students when worksheets are modified to include the most important information, which allows students to complete assignments for mastery and avoid repetition.

Two teachers, SP2 and SP1, mentioned allowing students to take tests in an alternative setting, generally the special education classroom, so accommodations can be provided in accordance with the students' IEPs. Teacher SP4 answered, "They have tests taken down in the resource room with it being read to them and choices taken down to two instead of four." Participant SP1 has discovered it helps when this is planned ahead of time and students go directly to the special education classroom at the beginning of the hour to take tests rather than first reporting to the general education classroom and then

being removed after class begins. She advocated it upsets some students to leave mid-class to receive support as this draws attention to the fact they have a disability.

One teacher, SP1, mentioned several specific successful strategies utilized in her school to support students with disabilities in general education science classrooms. These strategies included providing texts and assignments with larger print, using computers, using "video or oral responses," reading "aloud to whole class or quietly to small group within the general education classroom instead of sending them out mid-assignment," providing alternate seating or an area to allow the students with disabilities to progress at a slower pace, providing students "notes with cloze method instructions," providing students with fidgets (and instruction on how to appropriately use them in class), and allowing "breaks to move, drink, or change seating" as needed. She also mentioned the use of an A+ tutor (student tutor from high school) to provide assignment support in the general education classroom.

Two special education teachers mentioned the use of group work as a common strategy. Group work is only successful, SP1 explained, when "heterogeneous grouping" is incorporated rather than "homogeneous grouping." She further explained if science teachers allow groups to consist of only students with disabilities rather than students of varying abilities, group work is not a successful strategy. Comparably, SP1 related she has found peer group work to be "distracting and not as beneficial" for students with disabilities unless there is adult support to facilitate activities within the group.

"Being proactive" was the most important strategy articulated by SP2 for promoting academic success for students with disabilities in general education classes. She further explained, "I just read the other day that if you can have a success early in the

morning that you will be successful all day." Her premise was if teachers can ensure

students have positive experiences early in the school day, the likelihood of them

performing well academically in school that day increases greatly. Besides all the basic

accommodations and modifications teachers provide, she assured, "It's catching these

kids proactively."

Teacher SP3 mentioned it is "important to make sure that they (students with

disabilities) learn independence but also to not frustrate them by overwhelming them."

She explained her science teachers are effective with ensuring the students' needs are met

so they can experience success. However, she further confirmed general education

science teachers strive to challenge students with disabilities to become increasingly

more independent with their assignments and learning without overly frustrating them.

Interview question six. Socially, do you feel students with disabilities are

accepted in the general education science classroom by other students? Have you tried

any specific strategies to help ensure this acceptance?

All five special education teachers affirmed students are generally socially

accepted in general education science classes; however, once again, SP1 advised this

social acceptance depends greatly upon the teacher's attitude. She has worked with

teachers who consider students with disabilities as solely the responsibility of special

education teachers. She relayed, "In those courses, students have mirrored teacher

attitude with 'Why can't the stupid kids be in a separate class?'" To combat these

attitudes, she asserted:

Strategies I have employed include reminders that each student has the right to be

in this room. I also teach my students of all abilities that the class is a team, a

family. We highlight each other's strengths. I do not allow ostracizing, and if a

general education instructor does so even by accident, I speak with them.

Special educator SP1 reiterated her preference of "heterogeneous groupings where

strengths of each student are useful." She further explained a specific example of this

type of group might be one consisting of a student with a writing disability who is

capable of following along with coursework and memorizing step-by-step directions

paired with a student proficient in writing but who struggles to stay focused and typically

rushes through assignments, often skipping fine details. She added, "We also celebrate

our differences. I highlight how different I am from my fellow co-teachers, how their

strengths build me up where I am weak… how I work to build them up."

Interestingly, one teacher, SP2, explained students at her school have grown up

together for the most part. It is a small, close-knit community consisting of students who

are predominately of the same socioeconomic status which she felt promotes social

acceptance. However, she conceded, "When we have kids that move in, one of the

biggest things that I do is socially help them, and I go sometimes as far as assigning a

friend. I make sure, they have a friend. It's huge."

Neither SP3 nor SP4 declared any specific strategies they have incorporated to

ensure social acceptance. Participant SP4 answered, "They (students with disabilities)

are very accepted by their peers in the general education science classroom… I have not

had to try any strategies." Teacher SP3 affirmed even though it is apparent to general

education students that special education students are receiving supports, it has not

caused any obvious social discrimination. She declared the students are very accepting

and understanding that some students have different needs.

Interviewee SP5 boasted students are generally socially accepted in general education science classrooms, but she noted this is partially due to proactive efforts in place to ensure it happens. She declared, "I work closely with their counselor, and we do social skills throughout the day with either one-on-one or small groups… We do a lot of role play and what that would look like when you get into that classroom, and prepare them before they even enter the room."

Interview question seven. Do you feel students with disabilities enjoy and benefit from being included in the general education science classroom? Explain.

Unanimously, teachers agreed students with disabilities enjoy and benefit from being included in the general education science classroom. The most significant theme which emerged from this interview question was the benefit peer interactions provide students. Teacher SP2 replied, "The number one thing that everybody wants is to be accepted. They want to be with their peers. Being successful with their peers, finding that success, and doing the same thing." Participant SP4 coincided, "They are getting their peer interaction and are learning social skills from others along with science curriculum."

Special education teacher SP1 not only described the social benefit for special education students, but for students without disabilities as well. She insisted:

Further, students without disabilities learn a lot, too. They learn that people with disabilities are people. Those people have strengths that often outshine their weaknesses. Students without disabilities learn to be patient, work with others who have questions, how not to take over for others, how to give people a chance,

and how to negotiate or at least learn more about being democratic with co-

workers.

She added that all students gain valuable social skills by working with others of varied

abilities, which will follow them into the workforce. She culminated by saying,

"Students and teachers alike can use practice working on adaptability and changing

course in a safe environment."

One special education teacher, SP1, made a statement which conveyed her belief

that students with disabilities enjoy and benefit from being included in the general

education science classroom perhaps more than any other course. She insisted:

Often, the hands-on experiments at their age level with peers impacts them far

more than reading Shakespeare, for example. Science brings with it so many real-

world applications that students with disabilities may even be better at than those

without. From safety to experiments to research to labs, students get to be a part

of the world through science. Such skills can be applied in other courses to which

they may be less inclined.

Special education teacher SP4 agreed her students benefit from and are capable of doing

the same work as their non-disabled peers in the general education classroom.

Participant SP3 concurred her students benefit from being included as long as they are

provided with the accommodations and modifications necessary to experience success.

Interviewee SP1 asserted students with disabilities gain a sense of pride by experiencing

success in the general education science classroom; it shows when they "come back to

me and tell me what they've been doing or show me a test that they did really well on or

project that they put a lot of time into."

Interview question eight. Do you collaborate with the general education science teachers regularly concerning your shared students? Explain.

One of the five special education teachers interviewed, SP3, acknowledged she does not collaborate with general education teachers on a regular basis concerning shared students. Conversely, the remainder of special education teachers acknowledged ongoing, regular collaboration with general education science teachers regarding shared students. Teacher SP1 maintained:

> I do collaborate with general education science teachers many times a week… I usually know what every science class is doing at any given time because students ask for help, or want to tell me what they are doing. I work with instructors on strategies to make experiments/labs safe, to help them understand student responses, to help them differentiate, when needed.

Participant SP1 further reported she not only supports teachers with understanding the academic needs of shared students, but collaborates concerning challenging behaviors and ways to address those in the general education science classroom as well.

Both SP4 and SP5 reported daily collaboration with general education science teachers. Teacher SP4 noted, "We communicate daily on our shared students on what they are doing, what needs to be modified and if we need to fix something." Specifically, SP5 explained this collaboration is sometimes face-to-face, but more often they communicate via a Google document or through email. She proclaimed, "Right now I probably have an email thread of 50 emails going back and forth about which individual students need to do what and work on what." Special education teacher SP2 alleged ongoing collaboration, but contrary to the other special education teachers' responses,

described her collaborative relationship with general education science teachers in a negative light. She rendered, "I'm on everybody… It's a nightmare really. They can't escape me. I'm on these poor regular education teachers, I mean they know, here I come. They try to avoid me, but they can't."

Interview question nine. If you could change anything about how students with disabilities are included in the general education science classroom, what would it be?

When asked what they would change about how students with disabilities are included in general education science classrooms, two respondents made reference to general education teachers' attitudes toward and knowledge of students with disabilities. Teacher SP1 argued some general education teachers view students with disabilities as "less than capable" before giving the students a chance to prove otherwise. She proposed:

> I'd like to see such instructors… work with the students who have disabilities, one-on-one, before judging their capabilities. Students with physical disabilities are capable of more than people often accept. Students with autism require a different approach, especially when their view of the world is being challenged – as science is bound to do. Students with ADHD and behaviors that can challenge a teacher are often acting out because looking lazy or defiant is easier on the ego than looking stupid. Students with difficulty in literacy or written expression often understand verbal instructions and can give oral responses that prove they understand what's going on.

Similarly, SP5 would like for general education teachers to gain a better understanding of disabilities and how each student with a disability has unique needs. She complained

general education teachers sometimes think students with the same disability will function and respond the same way to interventions; however, she would like general education science teachers to understand interventions may look different for students, even if they have the same disability. Each student "can be different from project to project or assignment to assignment."

Two special education teachers cited the inclusion of support staff as something they would change about how students with disabilities are included in the general education classroom. The first teacher, SP2 attested, "I would put a co-teacher in every single class. I would put a certified, not an aide, or a paraprofessional, or a coach, I would put a certified teacher, a co-teacher in the class." She revealed one year she was able to serve as a co-teacher in a general education science classroom on a half-time basis which allowed her to build a relationship with the teacher, become familiar with the curriculum, and better address the needs of her students because she knew what they were doing in the class. Along the same lines, SP3 would have paraprofessional support in each general education science classroom to help meet the needs of the students with disabilities. She admitted science teachers she works with have requested this support, but at this time, it is not a possibility.

Interview question 10. Do you feel the general education science teachers have a positive attitude toward inclusion of students with disabilities in the general education classroom?

Teacher SP1 admitted not all general education teachers she has worked with have had a positive attitude toward inclusion of students with disabilities. She vacillated:

I've known really down-to-Earth, kind-hearted, understanding science teachers
who make their classroom exciting and fun for each student. I also know some
who expect all students with disabilities, no matter what the disability or severity,
just be taken out of their room and dealt with by someone else. It really is up to
how the instructor feels about a child's right to the same education as everyone
else.

Interestingly, SP1 told a story about a general education science teacher she began
working with seven years ago who was initially very resistant to having students with
disabilities and behavior problems in her classroom. Over the years, SP1 has continued
to provide this teacher with support and evidence that inclusion is the best way to afford
students of all abilities the best possible education. This same teacher now works as a co-
teacher and has a new perspective concerning students with disabilities included in the
general education classroom. Teacher SP1 relayed this story as evidence that continuing
to provide teachers with information and support can be an effective method to encourage
a change in teacher attitude concerning the inclusion of students with disabilities in their
classrooms.

Participant SP2 was leery about responding positively to this question. She
conceded, "I'd love to 100 percent say every single teacher wants every single kid in their
classroom, but you know, you've got some hard ones." She alleged some teachers she
has worked with want the special education teacher to provide all interventions a student
with a disability needs to be successful in the general education science classroom.
However, SP2 argued good teachers differentiate instruction for every student based on
their individual needs regardless of whether or not they have been identified as a student

with a disability. She admitted it can be very difficult for some teachers to learn the craft of differentiation, but with the right attitude, over time, it is attainable.

Participants SP3, SP4, and SP5 all confirmed currently working with general education science teachers who have positive attitudes toward inclusion of students with disabilities in their classrooms. Special educator SP5 praised, "I think that they just enjoy working with all students, especially the teachers that I've worked with, and they have done a wonderful job." However, SP4 added, in her experience, the positive attitude of a general education teacher toward inclusion of students with disabilities can be swayed negatively if given a large class size containing a high percentage of students with disabilities.

Summary

This qualitative study was designed to obtain general education science teacher and special education teacher perceptions of inclusive practices in middle school general education science classrooms. A total of 15 teachers, 10 general education science teachers and five special education teachers, participated in the study. Chapter Four consisted of a summary of interviews, beginning with the general education science teacher interviews, followed by the special education teacher interviews.

Chapter Five includes an overview of the study elements, findings, and conclusions. It begins with a review of the findings of the study followed by implications for practice. Finally, conclusions are presented and recommendations for future research are conveyed.

Chapter Five: Summary and Conclusions

Inclusive classrooms in public education are certainly not a new notion. The premise has roots in Lev Vygotsky's (1978) social constructivism theory from the early 20th century. Furthermore, in the United States, Antosh and Imparato (2014) imparted the move toward a more inclusive educational system started to become an expectation in the mid-20th century. Although over six decades have passed since the move toward inclusive education in the United States, the practice continues to be inconsistently implemented, misunderstood, and a very real challenge for teachers today (Buli-Holmberg & Jeyaprathaban, 2016; Gehrke et al., 2014).

The purpose of this qualitative study was to gain perceptions of middle school science teachers and middle school special education teachers regarding inclusion of students with disabilities in general education science classrooms. To gain these perceptions, qualitative data were collected through semi-structured interviews with a purposive sample of middle school science and special education teachers. Interview questions were designed to investigate teachers' perceptions of inclusion, the barriers they face, and strategies implemented to ensure success of included students with disabilities in their classrooms. The findings of the study are provided within this chapter. This chapter also includes conclusions, implications for practice, and recommendations for future research on inclusion.

Findings

This qualitative methods study was designed to answer four guiding research questions by exploring the perceptions of teachers concerning inclusion of students with disabilities in general education science settings. Data from middle school science and

special education teachers were gathered through interviews and transcribed to gain

insight on the practice. Data were then analyzed to provide insight on inclusion as

implemented by 10 general education teachers and five special education teachers in five

southwest Missouri school districts. In the following section, the findings are

summarized. These findings are conveyed in relation to the corresponding research

questions and paralleled with supporting literature from Chapter Two to expose

additional associations.

Research question one. What are the perceptions of middle school science

teachers in reference to the barriers faced by students with disabilities in inclusive

classrooms?

The findings of this study indicated middle school science teachers often

experience feelings of inadequacy in meeting the needs of students with disabilities.

They noted a lack of time, resources, training, and understanding of individual students'

needs as barriers to an inclusive classroom environment. For example, T5 reported she

would welcome additional resources and knowledge about how to address the needs of

her students with disabilities. This aligns with Gajewski's (2014) study as noted in

Chapter Two, who found teachers often face the dilemma of feeling unsure about their

ability to meet the needs of students with disabilities.

As mentioned, participants revealed time as a barrier to successful inclusion in

their science classrooms. First, with only one plan time per day, teachers find it very

difficult to make the necessary modifications to lesson plans and assignments to ensure

success for students with disabilities. Second, teachers find it very difficult to

differentiate instruction to meet the needs of all students given the time constraints of a

class period each day. For instance, T9 reported needing more time to plan and locate resources, but also to meet the learning needs of such a diverse group of students given the time constraints of a class period. As documented in Chapter Two, Montgomery and Mirenda (2014) noted urgency for teachers to find innovative ways to gain additional planning time to ensure success of students with disabilities who require extra support.

In this study, science teachers further noted a lack of time to collaborate with special education teachers. While most disclosed positive collaborative relationships with their cooperating special education teachers, only one reported having a specific time each week for collaboration. The remainder insisted the collaboration happened on an as-needed basis and was often in passing. For example, T1 stated, "Shortly before or after school, and we might have a five-minute conversation on what we're doing the next day or that day, and changing and tweaking plans as we go." Leader-Janssen et al. (2012) expressed the importance of ensuring a collaborative team is in place with a common plan time to ensure effective inclusion of students with disabilities in general education settings.

The findings of this study further indicated feelings of inadequacy stem from a lack of training on successful inclusive practices. In line with Gajewski's (2014) work, the teachers in this study laid partial blame on lack of professional development as a barrier to inclusion of students with disabilities. Only one out of 10 science teachers maintained receiving adequate training through professional development opportunities.

Three of the 10 cited a Master's level class that was somewhat helpful. Teachers reported taking a required undergraduate course that was inadequate in preparing them for the challenges of meeting the needs of students with disabilities in their general

education classrooms. This falls in line with a study by Dev and Haynes (2015), who discovered pre-service teacher training is important in ensuring successful inclusion, but according to the teachers in their study, it was inadequate to prepare them to meet the demands of an inclusive classroom environment. Bentley-Williams and Morgan (2013) ascertained teacher attitudes toward inclusion had a direct correlation to the amount of training they had received; those with more training had more positive attitudes concerning inclusion.

Three of the 10 science teachers mentioned socially unacceptable behaviors or emotional outbursts from students with disabilities as a barrier to successful inclusion. Supporting this claim, Dev and Haynes (2015) reported, "About two-thirds of the teachers in our study stated lack of or inadequate social skills among students with disabilities as the biggest hurdle to their integration, especially in secondary schools" (p. 59). The findings of this current study showed, besides creating a dysfunctional classroom environment making it difficult for all students to focus and learn, when students with disabilities exhibit socially unacceptable behaviors, it can cause other students to reject them, creating an exclusive, rather than inclusive, environment.

Addis et al. (2013), Wright (2016), and Braunsteiner and Mariano-Lapidus (2014) discovered teachers often struggle to locate resources to meet the demands of diverse inclusive classrooms. Similarly, the findings of this study revealed teachers struggle to find or create resources for students with disabilities who function on a significantly lower academic ability level than that of their non-disabled peers. When asked what they would change about how students are included in their classrooms, teachers T1, T5, and

T9 in this study voiced the need for additional resources to meet the needs of students with disabilities in their classrooms.

Three science teachers in this study, T8, T9, and T10, asserted large class sizes with high populations of students with disabilities can inhibit successful inclusion. For example, T8 explained that sometimes students with disabilities need one-on-one instruction, but when those students are in classes with a large number of students, it can be very difficult to meet their individual needs. This aligns with studies by Addis (2013) and Wright (2016) as noted in Chapter Two who discovered large class size as a barrier to successful inclusion.

Research question two. What strategies are used by middle school science teachers who have had students with disabilities in the general education science classroom?

In this study, seven of 10 science teachers validated having a paraprofessional or co-teacher in their classrooms. As noted in Chapter Two, Olson et al. (2016) revealed collaboration among general education teachers, peers, and paraprofessionals is an alternative that allows for students with disabilities to access the general education curriculum. Findings of this study indicated science teachers are able to incorporate several strategies which help students with disabilities experience greater success through paraprofessional support in their classrooms. While in class, the paraprofessional ensures students stay on task and keep pace with the remainder of the class. Additionally, teachers declared paraprofessionals make modifications to assignments and locate alternative resources as needed.

Furthermore, students can be taken to an alternative location when they need extra help on assignments, need supplemental instruction, need a place where they can focus on their work, or simply need to calm down when experiencing emotional or behavioral difficulties. Two teachers disclosed utilizing the support of the paraprofessional not only to assist students with disabilities, but to help other students in the classroom as well. Utilizing paraprofessional support in this manner aligns with a study by Olson et al. (2016), who found paraprofessionals can be helpful in assisting students with and without disabilities in the same general education classroom.

Findings of this study indicated six of 10 science teachers utilize peer-mediated supports to promote successful inclusion. For example, T3 paired more advanced students with students who are struggling. Likewise, T4 used cooperative learning as a successful way of pairing students according to ability, which leads to academic success. As the review in Chapter Two revealed, Carter et al. (2016) determined when schools include peer support arrangements, there are undeniable advantages over sole dependence upon assistance from individually assigned paraprofessionals. Therefore, it is significant that peer-mediated supports surfaced as a successful strategy incorporated by science teachers participating in this study.

This strategy is also referred to as peer tutoring or ability grouping and aligns with Vygotsky's theory of the more knowledgeable other (McLeod, 2014). According to Begg (2015), Vygotsky believed interaction with an adult or more capable peer is crucial for growth and requires cooperation from all participants. His theories support collaborative learning when students are grouped according to ability levels so more-

advanced students can support less-advanced students in learning endeavors (McLeod, 2014).

Conversely, two teachers in this study disclosed ability grouping or peer-mediated supports to be an ineffective practice in their classrooms. Instead, these teachers confirmed the use of small group or one-on-one instruction to be more successful in their inclusive classrooms. For one, this allows the teacher to ensure the concepts are being mastered by students with disabilities. As one teacher explained, in his experience, the more-advanced students end up doing most of the work while the student with the disability is either left behind or merely copying information rather than truly learning the information.

This aligns with research from Brock and Carter (2016), who confirmed peer-mediated groups are only effective when all students are actively engaged. Simply seating students with disabilities in close proximity to students without disabilities does not meet the necessary requirements for successful peer mediation (Brock & Carter, 2016). Since students often do not know how to relate to one another, intervention from the teacher as a social mediator is often needed for inclusion to thrive (Cook & Odom, 2013).

Another strategy which emerged in this study is differentiated instruction. Teachers stressed the incorporation of multiple modalities into their everyday lessons and activities. As cited in Chapter Two, Stefanich (2001) asserted science classes are an ideal content area to integrate students with disabilities and argued a strong foundation of research upholding the benefits of "hands-on multi-modality instruction as a superior form of instructional delivery" (p. 107). For example, teachers in this study mentioned

hands-on activities such as scientific experiments, and visual supports such as instructional videos, technology resources, and PowerPoints, to supplement instruction.

Some other common strategies utilized by teachers in this study fall into the category of modifications or accommodations. These included the following: preferential seating, adjusting assignments, chunking assignments into smaller parts, teacher-provided notes, extended time to complete assignments, repeated review and drill, and allowing retakes. The use of modifications was mentioned by researchers Dev and Haynes (2015) when they defined inclusion to include modifications and accommodations necessary to ensure students are meaningfully included in general education contexts.

In addition to strategies to support academic success, teachers in this study were asked to share strategies they incorporate to ensure social acceptance as well. While teachers in the study overwhelmingly disclosed social acceptance as naturally occurring in their classrooms, they did reveal the importance of modeling acceptance and respect for student diversity and encouraging all students to do the same. This aligns with Kurth et al. (2014), who declared inclusive classroom settings are not only socially beneficial for students with disabilities, but also for non-disabled peers, as it teaches them to accept diversity and to treat everyone with respect. Correspondingly, a study conducted by Monsen et al. (2014) brought to light students' testimonies of teachers with positive attitudes toward inclusion maintaining classrooms with more acceptance of individual differences and greater cooperation than in classrooms where the teacher exhibits a less positive attitude.

Research question three. What are the perceptions of middle school special education teachers serving students who are included in the general education science classroom?

Several perceptions emerged from interviews with special education teachers which correlate closely with responses given by general education science teachers. One similarity revolved around the aspect of time. For students with disabilities to be successful in general education science classrooms, the special education teachers assist by helping students organize and complete assignments, making modifications, providing accommodations, and providing supplementary instruction, which takes a significant amount of time. Dev and Haynes (2015) explained as education has moved further away from self-contained environments, the special education teacher has evolved to become a partner with general education teachers to provide supports necessary for students with disabilities to experience success in inclusive classroom settings.

The second finding concerning time revolved around the need for additional time to grasp concepts. Curriculum demands require the general education science teacher to move at a steady pace in order to teach all required content during the course of a school year; therefore, because students with disabilities generally need extra time to process and retain information, time becomes an issue. This notion was supported by Kurth's (2013) research, who conveyed the difficulty Ms. Lawson faced in trying to keep students with disabilities in inclusive settings as content became increasingly more rigorous and moved at an ever-intensifying and brisk pace.

In comparison to general education teacher responses, special education teachers affirmed similar perceptions concerning specific strategies for successful inclusion. As

far as academic strategies are concerned, special education teachers advocated using technology, teacher-provided notes, seating changes, allowing students take tests or complete assignments in an alternative location, and hands-on activities. SP2 stated, "I modify assignments, I get all the tests beforehand and I modify those." Additionally, special education teachers in this study recommended using larger-print resources, allowing oral responses, providing students with fidgets, allowing frequent breaks, reading tests/assignments to students, and bringing in student tutors. One adaptation mentioned by SP5 in this study involved modifying tests for students with disabilities, "which just cuts down some of the language and vocabulary that can be a little bit more difficult when taking science tests." Research documented in Chapter Two by Kurth and Keegan (2014) noted similar strategies and adaptations used by teachers in their study.

Like general education teachers, the use of paraprofessional or co-teaching support was mentioned by special education teachers as a strategy to promote successful inclusion. For example, SP4 stated, "We also have an aide that goes into the classroom with the special education students that can help them with whatever questions they have so that the teacher is able to help other students as well." This finding fell in line with Dev and Haynes' (2015) study who also discovered paraprofessional support can promote successful inclusion.

Ability grouping was also mentioned as a successful strategy by special education teachers; however, similar to some general education teacher responses concerning ability grouping, one special education teacher declared ability grouping can lead to a lack of effort on the part of special education students if not properly facilitated. Such as Carter et al. (2016) found in his study, this special education teacher discovered

paraprofessional or adult support can facilitate the success of such groups. Likewise, Brock and Carter (2016) established paraprofessionals were able to facilitate positive interactions in ability groups after receiving minimal training by a special education teacher.

With respect to social acceptance, special education teachers again gave very similar responses concerning strategies utilized to promote positive results in inclusive classroom settings. Overwhelmingly, they concurred social acceptance is a naturally occurring phenomenon in their schools. While this is not surprising, because special education and general education teachers were chosen from the same school districts in southwest Missouri, it is significant to find congruent perceptions from both groups.

Corresponding to the responses given by general education teachers, special education teachers felt students with disabilities benefit socially from inclusive classroom settings. Special education teachers in this study believe inclusion teaches valuable social skills and gives students a sense of pride and accomplishment. Additionally, they reported inclusion teaches all students to accept diversity, to be patient, and to show compassion for others. This is supported by Ryndak et al. (2013), who found both students with and without disabilities benefit socially and academically from effective inclusion. From a social constructionist view, Begg (2015) maintained a Vygotskian perspective of the learning environment where social climate affects the actions of learners, and knowledge is created through a social setting.

One other perception of special education teachers in this study concerned general education teachers' willingness to gain knowledge and a better understanding of disabilities. One special education teacher reported general education teachers

sometimes think all students with the same disability will operate and respond similarly to mediations; however, this is not the case. Therefore, she argued, general education science teachers need to understand strategies may appear differently for individual students from day to day and from activity to activity, even if students have been identified under the same disability category.

It comes as no surprise special education teachers deemed additional knowledge a necessity. Research reviewed in Chapter Two revealed a lack of training and knowledge as a culprit for unsuccessful inclusive practices. In their study, Dev and Haynes (2015) discovered about two-thirds of participants had only received pre-service teacher training insufficient to meet the actual demands of inclusive classroom settings. Correspondingly, three general education science teachers in this study claimed additional knowledge concerning disabilities and inclusive strategies would be beneficial in their endeavors to meet the needs of students with disabilities.

Three of five special education teachers admitted working at some point in their careers with general education science teachers who were openly resistant to inclusion of students with disabilities. For example, SP1 worked with a teacher who openly refused to provide the accommodations as indicated in students' IEPs. This falls in line with participants in Gajewski's (2014) study, who pointed to experiences involving general education teachers who treated students with disabilities unfairly and were not willing to make accommodations and modifications to promote success.

While three special education teachers in this study described experiencing negative attitudes from teachers in their careers, they all also mentioned working with these teachers to provide support in an effort to improve attitudes toward and experiences

with inclusion. This type of intervention is in direct contrast to Gajewski (2014), who discovered teachers were reluctant to confront fellow teachers when attitudes and behaviors hindered successful inclusion. In his study, teachers more readily opted out of advocating for students in an effort to elude conflict. Ainscow et al. (2013) reasoned this type of avoidance was unfortunate since positive outcomes for students with disabilities depend upon positive adult attitudes and conduct.

Special education teachers in this study, as well as researchers noted in Chapter Two, reported positive outcomes when support is provided for general education teachers who are resistant to inclusion in their classrooms. For example, SP1 relayed a story of a general education science teacher who was initially very resistant to inclusion of students with disabilities when they began working together seven years ago. Over the years, SP1 continued to provide this teacher with positive support and guidance. Today, this same educator is thriving as a co-teacher of an inclusive general education science classroom. Monsen et al. (2014) also found with increased competency and support, teacher experiences with and attitudes toward inclusion improve.

Research question four. What key factors provide students with disabilities optimal educational experiences in middle school general education science classes?

Findings confirmed both special education and general education teachers perceive a key factor to providing students with disabilities optimal educational experiences in middle school general education classrooms is social acceptance and interactions. Vygotsky held social interactions with non-disabled peers are vital for students with disabilities; without such, a secondary social disability could be created (Rodina, 2006). Shogren et al. (2015) conducted a study which revealed students with

disabilities gained a feeling of belonging and felt a sense of pride when part of a classroom where reciprocal learning was routine. Science teacher T2 warned segregating students can create social rejection; however, this can be stifled when students with disabilities are integrated and work together in an inclusive classroom setting with their non-disabled peers. Similarly, T3 opined, "If they're not included in the regular classroom, then they're kind of secluded."

Both special education and general education teachers advocated leading by example and teaching respect for diversity. They also conveyed a close-knit community of students who have grown up together as a factor. One special education teacher mentioned when a new student moves to the district, she ensures the student feels accepted and welcomed, even going as far as assigning a friend if necessary to promote social integration and acceptance. Teacher SP5 described her proactive approach to ensuring social success of her students which involves specialized instruction in social skills where she facilitates discussions and students role-play social scenarios they may face when included in the general education science classroom.

Another factor emerging from this study and supported by research in Chapter Two for the provision of optimal educational experiences in middle school general education science classes revolves around teacher self-efficacy and attitudes. Monsen et al.'s (2014) findings confirmed with increased perception of competency and support, teacher experiences with and attitudes toward inclusion improve. MacFarlane and Woolfson (2013) also discovered a positive relationship between teachers who willingly incorporate inclusive practices and those with positive attitudes and superior self-efficacy.

Participant SP1 reported social acceptance depends greatly upon the teacher's attitude toward having students with disabilities in the general education classroom. She recounted working with teachers who consider students with disabilities as solely the responsibility of special education teachers; thus, because students tend to mirror the behavior of teachers, successful inclusion is jeopardized. As conveyed in Chapter Two, Carter et al. (2016) reasoned effective implementation of interventions must be paired with unrelenting commitment from general education teachers to see all students as their responsibility, including those with disabilities.

Multiple researchers mentioned in Chapter Two pointed to the importance of collaboration as a key factor influencing the outcome of inclusive classroom settings. Gann et al. (2014) illuminated students in inclusive classrooms experience greater success when collaboration between the general education and special education teacher is incorporated. Another group of researchers, Olson et al. (2016), also realized nurturing a school environment of collaboration promotes effective inclusion.

Teachers on both sides of this study cited similar perceptions concerning collaboration. However, the vast majority of collaboration among teachers in this study happens on an as-needed basis rather than during regularly scheduled times as studies noted in Chapter Two found optimal. Both general education science teachers and special education teachers confirmed collaborating via face-to-face interactions or electronic means. Science teachers in this study collaborated with special education teachers more for the purpose of gaining support concerning inclusive practices to lead to success for students with disabilities. In contrast, special education teachers collaborated

with general education science teachers concerning classroom activities and expectations so they could provide shared students with supports to help ensure their success.

A barrier noted in Chapter Two by Addis (2013) and Wright (2016) was large class size. Likewise, both general education science teachers and special education teachers in this study relayed large class sizes as an inhibiting factor for inclusive general education classrooms. Special education teacher SP4 emphasized, "The positive attitude of a general education teacher toward inclusion of students with disabilities can be swayed negatively if given a large class size containing a high percentage of students with disabilities." Science teacher T8 argued large class sizes make it very difficult to meet the needs of students with disabilities in his class and to ensure meaningful learning experiences for all students.

Conclusions

Conclusions were drawn from an analysis of participants' responses to specific interview questions aligned with research questions guiding the study. After a detailed examination of participants' transcribed interviews, themes emerged which are presented in this section. These identified themes allow for advancement of successful inclusion practices for educators.

Collaboration between special education teachers and general education science teachers concerning their shared students is imperative. Fenty et al. (2012) stressed effective collaboration increases content acquisition and ensures success of students with disabilities included in general education classrooms. In this study, all special education teachers and all but one general education teacher reported regular, ongoing collaboration concerning shared students in inclusive general education

classrooms. According to research in Chapter Two, collaboration is a key element for successful inclusion. Dieker et al. (2013) contended teaching students with disabilities requires the cooperation of both special education and general education teachers who focus on each other's strengths and consider the abilities of their shared students.

While this study and research from Chapter Two support the importance of collaboration, the two part ways in reference to how this collaboration should take place. Research from Chapter Two suggested careful planning and regularly scheduled collaboration. For example, Leader-Janssen et al. (2012) argued teachers need common plan time to carefully plot a course of action and make adjustments as necessary to ensure successful inclusion. Montgomery and Mirenda (2014) specified collaboration consisting of regular meetings and goal setting is key; however, only one teacher in this study revealed collaboration anywhere near this level. Instead, teachers in this study reported successful inclusion through electronic means or through face-to-face collaboration in small increments, generally on a daily basis or as needed.

Students benefit academically from inclusion in general education science classrooms. Teachers in this study agreed inclusion in general education science classes benefits students with disabilities on an academic level because it allows opportunities to access higher-order thinking and problem-solving skills while participating in hands-on, real-world lessons and activities under the direction of highly qualified science teachers. They also reported utilizing ability grouping to promote academic growth for students with disabilities as well as their non-disabled peers. As researcher Deason (2014) surmised, inclusive classroom settings provide opportunities for students of various academic abilities to gain knowledge from and cooperate with one another. In line with

the social constructivist viewpoint, Vygotsky's theories support collaborative learning where more-advanced students can support less-advanced students in knowledge acquisition (McLeod, 2014). Moreover, inclusion supports Vygotsky's (1978) concept of the zone of proximal development, defined as the gap between actual development based on independent problem-solving capabilities and potential development determined through problem-solving abilities with support from a more advanced peer or a teacher.

Students benefit socially from inclusion in general education science classrooms. Researchers Olson et al. (2016) recognized mere presence in inclusive general education classrooms allows students with disabilities more social and academic opportunities than self-contained classrooms can afford. In agreement with Olson et al. (2016), teachers in this study reported not only academic benefits of inclusion, but social benefits as well. Social benefits perceived by teachers included increased confidence and self-esteem in students with disabilities, a safe environment where social skills can develop, and a place where all students can learn to accept and value diversity. Kurth et al. (2014) concurred inclusive environments provide non-disabled students opportunities to interact with students with disabilities so they learn about such things as diversity, fairness, tolerance, and kindness.

Teacher self-efficacy and attitude play a significant role in the success of inclusive general education science classrooms. Three special education teachers in this study reported teachers with positive attitudes toward inclusion provide positive inclusive environments for their students. As indicated by Montgomery and Mirenda (2014), "Both teachers' self-efficacy and teachers' attitudes, among other variables, have been identified as key factors that influence the success of inclusion" (p. 27). While

teachers in this study attested to student populations who are generally accepting of students with disabilities, teachers also claimed exemplifying the behaviors they expect from their students and encouraging acceptance of diversity. Students participating in Monsen et al.'s (2014) study declared teacher attitudes play a significant role in promoting positive classroom environments. Shogren et al. (2015) also discovered students identify teachers as the most important element in creating a safe and supportive learning environment. Gajewski (2014) concluded successful inclusion is contingent upon teacher support.

General education science teachers' self-efficacy has a direct correlation to successful inclusion in general education classrooms (Monsen, 2014; McFarlane & Woolfson, 2013). Monsen et al. (2014) discovered with increased perception of competency and support, teacher experiences with and attitudes toward inclusion improved (2014). MacFarlane and Woolfson (2013) also found a positive correlation between teachers who are willing to entertain inclusive practices and those with positive beliefs and higher self-efficacy. In this study, SP2 admitted it can be very difficult for some science teachers to learn successful inclusive practices; however, given the right attitude and time to learn, it is attainable.

Bentley-Williams and Morgan (2013) supported the notion that experience and training improve teachers' attitudes toward inclusion. Monsen et al. (2014) also discerned with increased perception of competency and support, teacher experiences with and attitudes toward inclusion improve. When general education science teachers in this study were asked what would help them be more successful in meeting the needs of students with disabilities, a common response included more knowledge of disabilities

and successful inclusive practices. For instance, T2 announced never receiving

professional development on successful inclusion practices and felt as if this might help

him to better meet the needs of his students with disabilities. Furthermore, all but one

teacher disclosed insufficient training to meet the demands of an inclusive classroom.

Paraprofessional support can contribute to the success of students with

disabilities included in general education classrooms. While research in Chapter Two

provided mixed viewpoints on incorporation of paraprofessional support in inclusive

classrooms, teachers in this study overwhelmingly agreed this support is beneficial in

helping to meet the needs of students with disabilities. Seven of 10 general education

teachers reported having a paraprofessional. Those teachers without a paraprofessional

divulged a desire to have one. Teachers in this study utilized their paraprofessional for

such things as providing individual and small group instructional or assignment support,

helping ensure students maintain appropriate behaviors and keep pace with the class, and

making accommodations and modifications in accordance with IEPs. Special education

teachers in the Dev and Haynes (2015) study testified paraprofessional support was one

aspect that helped ensure success in their general education classrooms.

In contrast to teachers in this study, Carter et al. (2016) expressed concerns with

general education classrooms relying on paraprofessionals as one-on-one supports for

fear it will exclude students rather than include them in peer interactions. However,

Carter et al. (2016) agreed paraprofessional support can be beneficial as long as it is used

in conjunction with instruction from the teacher and peer interactions. Similarly,

researchers Brock and Carter (2016) agreed it is not best practice for students with

disabilities to receive the majority of instruction from paraprofessionals when their peers are being instructed predominately by the general education teacher.

Implications for Practice

The 10 general education science teachers and five special education teachers interviewed for this study provided a vast array of experiences and perceptions concerning inclusion of students with disabilities in the content of science. Although varying experiences and perceptions were revealed through interviews, overall findings indicated inclusion of students with disabilities in the content area of science results in positive outcomes for students. A plethora of literature reviewed in Chapter Two of this study supports this conclusion as well.

One finding from this study is that teachers lack sufficient training needed to meet the demands of an inclusive general education science classroom. Relatedly, the review of literature in Chapter Two cited insufficient training as a common dilemma. While laws such as the Individuals with Disabilities Education Act (2004) have mandated inclusion of students with disabilities as much as possible in the same educational opportunities as their peers without disabilities, teachers have not received sufficient support in how to ensure students with disabilities are meaningfully included. As Gajewski (2014) explained, simply placing students with disabilities in general education settings is not inclusion. While placement is a component, it is not sufficient in creating an inclusive learning environment for students (Lawrence-Brown & Sapon-Shevin, 2014).

Purposeful planning to meet the needs of individual students is necessary to create an inclusive classroom environment (Spaulding & Flannagan, 2012). Lawrence-

Brown and Sapon-Shevin (2014) contended many schools maintain segregated inclusive classrooms due to a lack of supports for students and teachers. Based on corresponding information obtained in this study and in the review of literature concerning the need for teacher training, school districts should ensure professional development opportunities for teachers in an effort to guarantee students with disabilities are meaningfully included in general education classrooms. This could be conducted within school districts through book studies, by allowing time for general education and special education teachers to collaborate and learn from one another, through media supports, or via other in-district means. Attending Individual Education Plan meetings for their students with disabilities would also provide general education teachers with opportunities to broaden their knowledge concerning specific students and disabilities. Furthermore, administrators could allow general and special education teachers to take advantage of outside professional development seminars or conferences focused on successful inclusion practices.

Another finding endorsed students and teachers benefit from the presence of paraprofessional support in inclusive general education science classrooms. This revelation is also supported by research reviewed in Chapter Two. For example, Olson et al. (2016) found when paraprofessional support is properly incorporated in general education classrooms, not only does the teacher benefit, both students with and without disabilities benefit as well. Therefore, administrators should consider hiring paraprofessional support when possible to support teachers and students in inclusive general education classrooms.

In line with Addis et al. (2013), Wright (2016), and Braunsteiner and Mariano-Lapidus (2014), teachers in this study listed a lack of resources as a challenge as well. Three of 10 science teacher participants noted a struggle with locating or creating resources to cover curricular content on a level which allows students with disabilities to learn and feel successful. Consequently, teachers would benefit from assistance in securing supplementary resources to be utilized in their inclusive general education classrooms when students with disabilities are not capable of completing work at the same level as their non-disabled peers.

In keeping with Addis (2013) and Wright (2016), teachers in this study perceived class size as an inhibiting factor to successful inclusion. As mentioned by three science teachers in this study, when they receive a large class containing a high population of students with disabilities, the challenge of meeting the needs of all students is multiplied. To combat this dilemma, administrators could strategically plan class sizes around the population of students with disabilities when possible in order to increase the likelihood of successful inclusion.

Recommendations for Future Research

This qualitative study was designed to explore experiences and perceptions of middle school general education science and special education teachers concerning inclusion in the content area of science. Through the research and investigation process, gaps were identified that warrant further investigation. This section addresses these gaps with suggestions for future research which could promote educator growth and facilitate advancements in inclusion practices.

The sample for this study consisted of 10 middle school general education science teachers and five middle school special education teachers from five similar school districts in southwest Missouri. As this sample was very limited in scope, a similar study with a larger sample of teachers and school districts would increase the validity of results. For the purpose of this study, information concerning years of teaching experience was not considered in data analysis. Future research could include this information in order to ascertain if a correlation exists between years of teaching experience and teacher perceptions concerning inclusion in general education science classrooms.

Furthermore, because the schools in this study were comparable in size, student demographics, and student population, future research could compare teachers' perceptions and experiences concerning inclusion in school districts of varying size, student demographics, and populations to determine if these factors impact perceptions and experiences with inclusion. Finally, this study's sample was limited to middle school general education science and special education teachers in grades five through eight. Future research could expand to other grade levels or content areas to ascertain if teachers' perceptions and experiences with inclusion differ relative to grade level and/or content area taught.

Data for this study were purely qualitative, consisting of responses to semi-structured interviews. A mixed-methods study, resulting in both quantitative and qualitative data, could provide stronger results in determining successful inclusive practices. The quantitative data could consist of grades or test scores, such as state or national norm-referenced assessment results. A mixed study of this design could assist in determining if a relationship exists between teachers' attitudes or self-efficacy toward

inclusion and academic achievement. For the purpose of this study, only teachers'

perceptions and experiences were obtained; however, quantitative data could be gained

through surveys created to elicit perceptions of parents, administrators, and/or students

concerning inclusion as well.

Summary

Tremendous progress has been made over the past 42 years since the passage of

the Individuals with Disabilities Education Act; however, the challenge of ensuring all

students' individual needs are met is an ever-enduring endeavor in education (U.S.

Department of Education, 2015). Inclusion has been at the forefront of educational

progress since the Individuals with Disabilities Education Act (2004) mandated children

with disabilities be educated alongside their peers as much as possible with the use of

accommodations and modifications. The purpose of this study was to investigate middle

school general education and special education teachers' perceptions and experiences

concerning inclusion in general education science classrooms.

Science content includes real-world concepts which students need in their

knowledge base as functional citizens of society; therefore, science was selected for this

study because it creates an environment conducive to inclusion of students with

disabilities (Marshall, 2015). In this study, a qualitative methods design involving semi-

structured interviews with a purposive sample was utilized to gain the perceptions and

experiences of 10 middle school general education science teachers and five special

education teachers. Interviews with teachers were recorded, transcribed, and analyzed to

gain a better understanding of successful inclusion practices in the content area of

science.

Research was reviewed in Chapter Two through the theoretical framework of Lev Vygotsky's (1978) Social Constructivism theory. Literature reviewed focused on clearly defining inclusion, effective inclusive practices, advantages of inclusion, barriers to inclusion, and experiences of special education and general education teachers with inclusion of students with disabilities. The research indicated when barriers are dismantled and teachers are provided with necessary supports, inclusive classrooms yield positive results for students with and without disabilities.

Chapter Three included the methodology of the study. The problem and purpose were conveyed, research questions defined, and research design outlined. The sample consisted of 10 middle school general education science teachers and five middle school special education teachers from five school districts in southwest Missouri. This purposive sample of teachers agreed to participate in semi-structured interviews designed to elicit their experiences and perceptions concerning inclusion in general education science classes. Data from interviews were analyzed to unearth common themes between teachers' perceptions and literature reviewed in Chapter Two.

Chapter Four included analysis of data obtained through interviews. While results corroborated some common barriers in comparison to literature reviewed in Chapter Two, overall teacher responses to interview questions revealed positive perceptions concerning inclusion of students with disabilities in general education science classrooms.

From this study, several conclusions were surmised by the researcher. One, collaboration between special education teachers and general education science teachers concerning their shared students is key to successful inclusion. Additionally, it was

established that students, including those with and without disabilities, benefit both

academically and socially from inclusion in general education science classrooms. It was

further concluded teacher self-efficacy and attitude play a significant role in the success

of inclusive general education science classrooms. One final conclusion was that

paraprofessional support can contribute to the success of students with disabilities

included in general education classrooms.

Appendix A

DATE: June 13, 2017

TO: Michelle Phelan

FROM: Lindenwood University Institutional Review Board

STUDY TITLE: [1065211-1] General Education Science and Special
                    Education Teachers Experiences with Inclusive Middle
                    School Science Classrooms

IRB REFERENCE #:

SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT STATUS

DECISION DATE: June 13, 2017

REVIEW CATEGORY: Exemption category # *1*

Thank you for your submission of New Project materials for this research study.
Lindenwood University Institutional Review Board has determined this project is
EXEMPT FROM IRB REVIEW according to federal regulations.

We will put a copy of this correspondence on file in our office.

If you have any questions, please send them to IRB@lindenwood.edu. Please include
your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Lindenwood
University Institutional Review Board's records.

Appendix B

<u>INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES</u>

General Education Science and Special Education Teachers Experiences with Inclusive Middle School Science Classrooms

Principal Investigator: <u>Michelle Phelan</u> Telephone: ▮▮▮▮▮▮ E-mail: ▮▮▮▮▮▮▮▮▮▮▮▮▮▮

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Participant_____ Contact info _____

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1. You are invited to participate in a research study conducted by Michelle Phelan under the guidance of Dr. Shelly Fransen. The purpose of this research is to investigate how inclusion in the content area of science is implemented and perceived by exploring middle school science and special education teachers' experiences in rural school districts in Southwest Missouri.

2. a) Your participation will involve:

    ➢ Participating in an interview of open-ended questions regarding the inclusion of students with special needs in general education science classrooms.

    b) The amount of time involved in your participation will be approximately 30 minutes.

    c) The interviews will be audio recorded and conducted by phone. Approximately 18-21 public school teachers will be involved in this research.

3. There are no anticipated risks associated with this research.

4. There are no direct benefits for you participating in this study. However, your participation will contribute to the knowledge about strategies that contribute to the success of students with special needs in inclusive classroom settings.

4. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. You may choose not to answer any questions that you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.

5. We will do everything we can to protect your privacy. As part of this effort, your identity or personal details will not be revealed in any publication or presentation that may result from this study, and the information collected will remain in the possession of the investigator in a safe location. The investigator will protect your

identity by coding each individual response. All hard copies of materials including audiotapes, notes, informed consent forms, and transcripts will remain in a locked filing cabinet for three years after the conclusion of this study when all records will be destroyed. The electronic copies of data pertinent to this study will be saved and stored to a secure server located on the on the PI's personal password protected network and encrypted network. These files will also be deleted at the conclusion of three years.

6. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Michelle Phelan, ▮▮▮▮▮▮▮▮ or the Supervising Faculty, Dr. Shelly Fransen, ▮▮▮▮▮▮▮. You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Marilyn Abbott, Provost, at mabbott@lindenwood.edu or 636-949-4912.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

_____   _____
Participant's Signature   Date   Participant's Printed Name

_____   _____
Signature of Principal Investigator   Date   Investigator Printed Name

Appendix C

Interview Questions for Science Teacher

Science Teacher

1. How would you define "inclusion" in respect to students with disabilities?

2. In your science classroom, do you feel students with disabilities are included at a level that allows for the success of all students? Explain why or why not.

3. What training/professional development have you received concerning inclusion of students with disabilities? Has this been adequate to prepare you to successfully provide for the needs of students with disabilities in your classroom?

4. Do you have a special services paraprofessional or co-teacher in your classroom? If so, what do you see as his or her role?

5. What are some of the barriers you face in trying to ensure students with disabilities are meaningfully included in your science classroom?

6. Academically, what specific strategies have you implemented in your classroom to help support students with disabilities? Of these strategies, which have been the most beneficial? Least beneficial? Explain.

7. Socially, do you feel students with disabilities are accepted in your classroom by other students? Have you tried any specific strategies to help ensure this acceptance?

8. Do you feel students with disabilities enjoy and benefit from being included in your classroom? Explain.

9. Do you collaborate with the special education teacher regularly concerning your shared students? Explain.

10. If you could change anything about how students with disabilities are included in your classroom, what would it be? What would help you to be more successful in meeting their needs?

Appendix D

Interview Questions for Special Education Teacher

Special Education Teacher

1. How would you define "inclusion" in respect to students with disabilities?

2. Do you feel students with disabilities are included in general education science classrooms at a level that allows for the success of all students? Explain why or why not.

3. What supports/services do you provide for general education science teachers to help ensure students with disabilities are successfully included in the general education science classroom?

4. What are some of the barriers you face in trying to ensure students with disabilities are meaningfully included the general education science classroom?

5. Academically, what specific strategies help support students with disabilities in the general education classroom? What strategies have proven to be unsuccessful? Explain.

6. Socially, do you feel students with disabilities are accepted in the general education science classroom by other students? Have you tried any specific strategies to help ensure this acceptance?

7. Do you feel students with disabilities enjoy and benefit from being included in the general education science classroom? Explain.

8. Do you collaborate with general education science teachers regularly concerning your shared students? Explain.

9. If you could change anything about how students with disabilities are included in the general education science classroom, what would it be?

10. Do you feel general education science teachers have a positive attitude toward inclusion of students with disabilities in the general education classroom?

Appendix E

Participation Letter

As a doctoral candidate at Lindenwood University, I am extending an invitation to you to participate in a study.

I am conducting a research study titled, *General Education Science and Special Education Teachers' Experiences with Inclusive Middle School Science Classrooms,* to fulfill part of the requirement for a doctoral degree in Educational Administration at Lindenwood University. The research should provide insight on effective inclusion strategies by investigating the experiences and perspectives of middle school general education science and special education teachers.

This qualitative study will consist of interviews to determine key factors which provide students with disabilities optimal educational experiences in middle school general education science classes. Participation in this study is voluntary. The interview will consist of 10 semi-structured questions, one set for special education teachers and one set for general education science teachers. No cost will be incurred other than the time the interview will take, approximately 15-30 minutes. The interview will be arranged at your convenience. Participants may withdraw their consent at any time without penalty. The identity of the school district and participants will remain confidential and anonymous in the dissertation or any future publication of this study.

I have obtained permission from the superintendent at your school to utilize your district for this study. If you are interested in participating in this study, please see the attached informed consent. You can email (mphelan@forsythr3.k12.mo.us) or fax this informed consent to me at (417)546-2782. Please do not hesitate to contact me with any questions or concerns about participating in the research. I can be reached at ███████████. You may also contact the dissertation advisor for this research study, Dr. Shelly Fransen (████████████████████████). A copy of this letter should be retained for future reference.

Michelle Phelan
Doctoral Candidate

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Vita

Michelle Phelan obtained a Bachelors of Arts in Secondary Education and English from the University of Huston-Victoria in 1995. She then obtained a Master's in Education from Southwest Missouri State University in 2007. In 2015, she graduated with an Education Specialist in School Administration from Lindenwood University.

Michelle has served in public education for 21 years. She has a total of 19 years of teaching experience involving one year as a middle school general education language arts teacher and 18 years as a middle school special education teacher. She is currently in her second year as Special Education Director for the Forsyth School District in Forsyth, Missouri.