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Determining the Influence of Kids Building for Kids Workshops on Attitudes and Beliefs of General Education Middle School Teachers Toward Students with Disabilities

Jennifer Tucker
University of Central Florida

DETERMINING THE INFLUENCE OF KIDS BUILDING FOR KIDS WORKSHOPS ON ATTITUDES AND BELIEFS OF GENERAL EDUCATION TEACHERS TOWARD STUDENTS WITH DISABILITIES

by

JENNIFER TUCKER, PT, DPT
Bachelor of Science, University of Alabama 1992
Master of Science, University of Indianapolis, 1995
Doctor of Physical Therapy, University of South Alabama, 2009

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ABSTRACT

Children with disabilities experience barriers to meaningful engagement in science, technology, mathematics, and engineering (STEM) learning activities and course options. While inclusion is widely professed, general education teachers report being uncomfortable in adapting coursework or including children with disabilities. However, informal professional development opportunities could potentially impact general education teachers' attitudes and dispositions towards including children with disabilities. The UCF Go Baby Go Kids Building for Kids workshops offers a one-time informal professional development experience that incorporates STEM content along with concepts of disability awareness and social justice. Little to no research exists on the impact of this type of informal program on the attitudes and disposition of general education teachers on children with disabilities. The researcher employed a mixed methods design to examine the attitudes and dispositions of eight general education middle school teachers before and after a UCF Go Baby Go Kids Building for Kids Workshop. Quantitative instruments included the Educator Attitudes Towards Disability Scale (EADS) and the Teacher Attitudes Toward Inclusion Scale (TATIS), and qualitative methods included semi-structured interviews and the researcher's informal observations of the procedures, process, and outcomes. Results of this study did not produce statistically significant differences in pre and post workshop scores on the EADS and TATIS. However, the qualitative data and informal observations offered additional insights into teachers' perspectives on this informal and novel professional development opportunity. Triangulation of the data from this study shows positive trends on the attitudes and dispositions of teachers towards students with disabilities and inclusion.

I dedicate this work to my daughter, Katherine Noelle, who has taught me so much more than I could have ever imagined and filled my life with joy. I also dedicate this work to my ever constant, loving, and supportive family. In addition, I dedicate this dissertation to the many children with complex needs that I have had the privilege to treat over the course of my career. These children are my touchstone for ensuring that the work I do is meaningful and impactful. I will continue to advocate and research play, participation, and access for children with complex disabilities in the hopes of affording them the childhood they so deserve.

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LIST OF ACRONYMS

EADS – Educators' Attitudes Toward Disability Scale

GBG – Go Baby Go

IDEA – Individuals with Disabilities Education Act

KBK – Kids Building for Kids

PD – Professional development

TATIS – Teachers' Attitudes Toward Inclusion Scale

UCF – University of Central Florida

CHAPTER ONE: INTRODUCTION

Statement of the Problem

The Individuals with Disabilities Education Act (2004), or Public Law 101-476, provided legislation ensuring all children with a disability receive an education to meet their unique needs. The landscape of disabilities varies, including children with emotional, intellectual, and motor impairments. Identifying effective strategies for creating an environment inclusive of children with all abilities has been a focus of educational research (Amor et al. 2019)

In 2018-2019, the National Education Center for Statistics reported 7.1 million students, approximately 14%, of students in public schools, received special education in the United States, with approximately 95% in traditional public-school settings (National Education for Statistics). Within these settings, inclusive education practices built social-emotional learning and academic skills for students with and without disabilities (Blazer, 2017; Finkelstein et al., 2021). Despite these practices, research reveals students with disabilities often have diminished social experiences (de Boer & Pijl, 2016), and they receive limited exposure to science, technology, engineering, and mathematics (STEM) content (Fisher, 2019; Mutch-Jones et al., 2012) in the general education setting. The limited number of students with disabilities who receive exposure to STEM content often experience barriers such as lack of differentiation and physical access to the learning environment.

Many factors pose challenges to the meaningful inclusion of students with physical disabilities, such as the accessibility of the environment, lack of technology, as well as teachers' attitudes and perceptions (Jordan et al., 2009; Kwon et al., 2015; Peebles & Mendaglio, 2014; Savolainen et al., 2012;). The barriers to participation and learning in school persist for children

with Cerebral Palsy and other physical disabilities throughout their education (Jeannis et al., 2020; Maciver et al., 2019; Piskur et al., 2016). These barriers result in a discrepancy in the exposure to meaningful STEM learning experiences representing the inequities that persist for students with disabilities in public education (Clements et al., 2021; Griffiths et al., 2020).

Inclusion

Kirby (2017) offers the following statement on inclusion for students with disabilities. "The question is not how can we fix a disability, but how can we make our classroom environments a place where all students can learn, regardless of their need" (p. 179). Sharing space alone is not an effective strategy for inclusive education and is not in alignment with the intent of IDEA. Kart and Kart (2021) examined the literature on the academic and social effects of inclusion on students without disabilities. The literature on the impact of inclusion on the academic performance of students without disabilities is somewhat mixed. Studies from primary schools revealed no negative effects of inclusion on the academic performance of students without disabilities, which differed from later grades where neutral or negative influences were observed. A reduction in fear, hostility, prejudice, and discrimination resulted from inclusive educational experiences for students of all ages. Despite known benefits of inclusive education, students with disabilities continue to experience challenges in accessing and participating in STEM learning experiences (Brusca-Vega, et al., 2014). These challenges can be found in the learning environment, task execution, and the built environment. Because of these challenges, children with disabilities often do not participate in meaningful ways but are merely observers of the learning activity (Jeannis et al., 2018).

Providing intentional and differentiated learning activities as opposed to merely shared space, promotes collaborative learning and peer relationships between students with and without disabilities (Blazer, 2017; Finkelstein et al., 2021). When students without disabilities are provided opportunities for "non-superficial contacts in joint activities" (Chae et al., 2019, p. 164) they display an improved attitude towards children with disabilities. Chae et al. (2019) support "direct, contact-based and longer programs" (p. 357) as they result in positive attitudes towards students with disabilities. This review of the literature revealed inclusive education settings with these types of programs promoting meaningful interactions between students with and without disabilities. Developing intentional and meaningful learning experiences for students of all abilities with increased contact promotes positive attitudes and fosters collaborative learning (Chae et al., 2019).

Attitudes of General Education Teachers

Understanding the dispositions, attitudes, and beliefs of general education teachers towards students with disabilities provides critical insights when examining effective interventions to promote inclusive learning experiences. While best practices have been established for inclusion, teachers often do not feel adequately prepared to employ them in the classroom. Marin (2014) conducted survey research examining teachers' confidence about their ability to instruct students with disabilities which revealed only 8% (n=213) of teachers reported feeling extremely confident. Singh (2007) examined confidence and competence of general education teachers as it relates to students with physical disabilities. Sixty one percent of general

education teachers (n=115) revealed that they did not feel adequately prepared or confident in their ability to include students with physical disabilities into an inclusive classroom.

Teacher attitudes and beliefs about inclusion and their ability to effectively engage students with disabilities impact the overall success of inclusive education. Ewing and colleagues (2018) state "teachers' attitudes towards inclusive education affect its' successful implementation within mainstream schools" (p. 150). Hwang and Evans (2011) explored the attitudes of 33 general education teachers through a survey and interviews. The results found that "41.37% of general education teachers had positive attitudes towards inclusion programs, while 55.16% were unwilling to actually participate" (p. 2). In this study, teachers acknowledged the social benefits of inclusion; however, only a small percentage (24.7%) noted academic benefits for students with disabilities in inclusionary settings. Further, over 70% of the teachers believed special education settings best served students with disabilities. The lack of training may have impacted these beliefs most teachers (89.4%) felt they needed to support children with disabilities in a general education classroom.

Pit-ten Cate et al. (2018) explored the relationship between attitudes, both implicit and explicit, and competence of general education teachers towards inclusion in a narrative review of the literature. They suggest "explicit attitudes towards inclusive education might vary as a function of general teaching experience or experience with inclusive practices" (p. 54). The researcher suggested PD on strategies for implementation of inclusive learning plays a key role in competence, confidence, and attitudes of general education teachers towards the inclusions of students with disabilities in their classrooms.

Researchers conducting PD opportunities with teachers regarding inclusion of students with disabilities into their classrooms need to examine characteristics influencing attitudes of teachers towards students with disabilities. Empathy is one of the characteristics that can influence both disposition and attitudes of teachers towards students with disabilities (Parchomiuk, 2018). Parchomiuk (2018) in a descriptive study explored empathy in 300 special education teachers and 280 general education teachers using two instruments Węgliński's Empathic Understanding of Other People Questionnaire and the Sękowski's Scale of Attitudes towards Individuals with Disabilities. Results highlight the complex and non-static nature of empathy. Parchomiuk states that "empathic teachers are not concentrated on the curriculum, but on an individual and their personal choices and preferences, regardless of their health or physical fitness" (p. 66). Strengthening empathy in real world situations and in a specific context could impact a teacher's attitude towards persons with disabilities.

Professional Development

Often, teachers are provided with PD that may affect attitudes, dispositions, and beliefs toward a given topic or construct within education. Professional development affords teachers an opportunity to gain experience, reflect, and employ strategies for effective teaching. Woodcock and Hardy (2017) offer powerful insights on the impact of PD on inclusive practices in their study of 120 general education teachers. A survey was conducted following PD on inclusion incorporating closed and open-ended questions. The researchers reported on the qualitative analysis of the free text responses to the open-ended questions. For the purposes of this study formal PD was defined as workshops and training outside of normal classroom activities, which

involved the awarding of certificates or credentials. Informal PD was defined as on the job training occurring in the classroom setting through coaching, mentoring, or other means. In examining the mode of delivery, formal PD was often inconsistent in promoting inclusive practices. In contrast, informal PD not only impacted teachers' attitudes and dispositions but also promoted positive beliefs about inclusion. An informal PD model, such as coaching, offers an effective practice promoting inclusion (Kirkpatrick et al, 2019; Kraft et al. 2018). Kirkpatrick et al. (2019) documented powerful benefits of coaching and collaborative teaching in a study of responses of 13 special education teachers and 12 general education teachers on questionnaires on their experiences. These benefits included "increased support for students, increased learning for students, learning of different approaches for both classroom teachers and resource teachers" (p. 24). When examining the research on beliefs and empathy or disposition, in general education teachers, PD should provide engagement in meaningful real-world experiences when targeting attitudes towards individuals with disabilities (Parchomiuk, 2018).

For PD to be both meaningful and impactful, the field needs to have a better understanding of the impact on the attitudes, disposition, and competency of teachers (Pit-ten Cate et al., 2018). Pit-ten Cate et al. state that while the belief is that teachers' attitudes and competence towards students with disabilities impacts their teaching, the research on this topic is limited. Klieme et al. (2008) provides insight and expanded the concept of teacher competence beyond skills and knowledge to include beliefs and motivation in their text on educational competence. They state that the interplay of these characteristics is critical to success of flexibility and proficiency in the classroom. These concepts are founded on the work of Bandura (1990) who states that competence extends beyond didactic and psychomotor skills and

incorporates an individual's ability to use those successfully in varied settings but perhaps more importantly in circumstances that are unpredictable and stressful. The self-efficacy and beliefs of teachers regarding their abilities is linked to student achievement (Tschannen-Moran et al., 1998). These linkages directly impact the learning and achievement of students with disabilities as the research has shown general education teachers report feeling less competent and capable of supporting students with disabilities than those in special education (Singh, 2007); therefore, competence and efficacy are critical to successful inclusion.

Influencing Teacher Attitudes and Disposition

The research on interventions designed to impact teacher attitudes and dispositions towards children with disabilities and inclusion is quite limited. Damianidou and Phtiaka (2017) conducted a large study on teachers' attitudes towards children with disabilities and inclusive practices. The study includes a survey of 536 teachers and follow up interviews with 21 teachers to further explore the responses received. Damianidou and Phtiaka (2017) concluded the following:

> "It seems important to design inspiring teacher training programs that focus on combating segregating ideologies, labelling, and marginalizing stereotypes, particularly regarding children with cognitive disabilities. In this way, teachers may become able to see the person, not the disability and appreciate diversity" (p. 1092).

Novel approaches to PD of teachers, such as Maker Space and service-learning activities, embedded with best practices may offer a more meaningful and impactful learning experience for teachers.

An experience being adapted for informal teacher PD is Go Baby Go (GBG). GBG is a national, community-based research, design, and outreach program that provides accessible, inexpensive, and common-sense solutions for children and adults with limited mobility. The program was founded by Galloway (2012) and explored innovative approaches to mobility for young children. Using an approach to combine high tech and low tech – or "go tech" – Galloway designs assistive devices to restore physical independence for individuals with disabilities. The UCF GBG program began in the Doctor of Physical Therapy (DPT) Program in 2015 under the direction of the author of this dissertation study, Dr. Tucker, a board-certified specialist in pediatric physical therapy and DPT faculty member. The mission of UCF GBG is to provide innovative, accessible, and practical options to improve the lives of individuals with limited mobility. The UCF GBG program is dedicated to interdisciplinary research, community outreach, and advocacy for children and adults with motor impairments. The goal is to provide meaningful mobility, participation, and play opportunities for individuals of all abilities.

The UCF Kids Building for Kids (KBK) Workshops, a derivative of the GBG program focused on middle school students and teachers, is an innovative and affordable intervention to engage students in STEM and social- emotional activities while influencing the dispositions and attitudes of general education middle school teachers. A UCF GBG KBK Workshop is a two-hour workshop experience for teachers and students. The workshop opens with a facilitated discussion about the history of disability rights and social justice. Students are presented with examples of individuals both historical and current day with disabilities. During the discussion, students are prompted to think about how they might use their skill set to make a difference in the lives of others. All participants are then introduced to the GBG curriculum which is the

process of modifying a commercially available ride on car that allows the car to be activated with a push button on the steering wheel. Students are then presented with information on a young child with a disability who will receive the car. Following a period of questions and answers, the students are challenged to identify additional structural adaptations needed. Once a plan has been determined, students work together to build a supportive structure using PVC pipe, pool noodles, Velcro, kickboards, and other readily available items. Students also learn skills such as stripping and connecting wires, using power tools, and architectural concepts. Upon the family's arrival at the workshop, teachers and students meet with the child to learn about their strengths and challenges and their personal favorites (characters, colors). The team works with the family to personalize the car to meet the unique needs and personality of the child with a disability. At the end of the event, teachers and students witness the child with a disability independently operating the modified ride on car.

Limited research exists on the impact of KBK Workshops on teachers. Therefore, the researcher in this study examines the impact of KBK workshops on the disposition and attitudes of general education middle school teachers towards students with disabilities.

Theoretical Framework

The theory of change employed in this study targets general education middle school teachers. In this theoretical framework "the goal of this process is to work toward understanding 'under what conditions does something work and for whom" (Reinholz & Andrews, 2020). This study seeks to understand how participating in the KBK Workshop experience impacts teachers' attitudes and beliefs towards students with disabilities.

This framework allows for the context, outcomes, indicators, and assumptions surrounding the intervention, UCF GBG KBK Workshops, to be examined and the impact on teachers documented through quantitative and qualitative measures. Key features of this intervention include a novel approach to inclusive STEM learning experience exposing teachers and students to a young child with a disability and their family. The program was built upon the demonstrated success of adapted robotics programs for students with disabilities (Lindsay, 2020; Lindsay & Hounsell, 2017). The KBK Workshop is an innovative approach as GBG has not previously employed the experience of cooperatively modifying a ride on car for young child with a disability as a learning experience for students with and without disabilities targeting STEM, disability awareness, and social justice. Measurable outcomes in this study include: (1) attitudes of teachers toward students with disabilities as measured by the EADS scale; (2) attitudes of teachers toward students with disabilities as measured by the TATIS scale; and (3) disposition of teachers toward students with disabilities and inclusive classrooms as explored through semi-structured interviews. Insights on this experience will be gathered through teacher interviews and through informal observations and journaling by the researcher reflecting on process, procedures, and outcomes on teachers' attitudes and dispositions. Understanding the impact of participation in a KBK Workshop on teachers' attitudes and beliefs about disability is critical to build a foundation for larger scale research designed to influence social change.

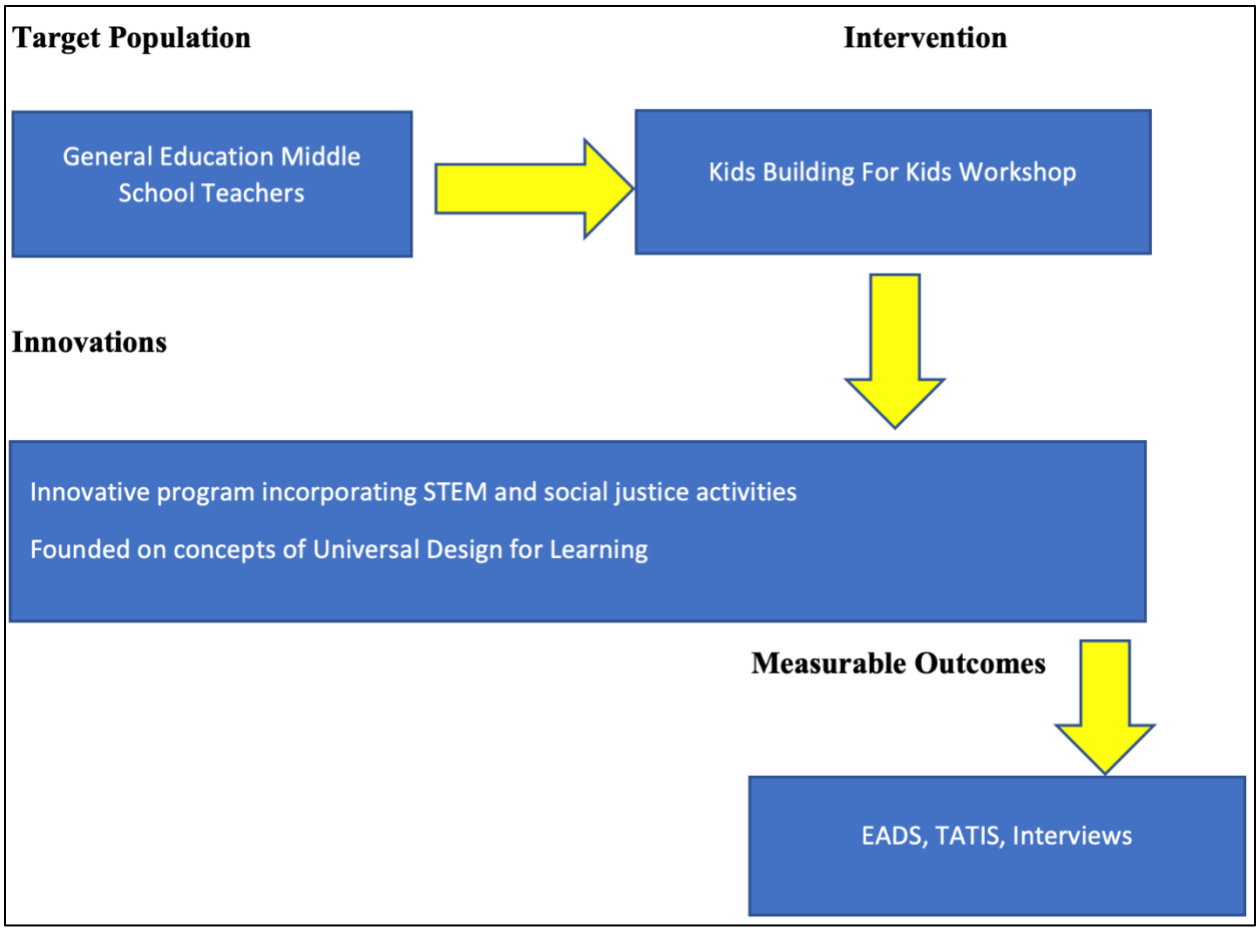

Figure 1: Theoretical Framework

Purpose of the Study

The purpose of this study is to examine the impact of the KBK workshop on the attitudes, dispositions, and perceptions of a sample of middle school general education teachers toward students with disabilities.

Research Questions

Research question 1:

Is there an impact on the attitudes of a purposive sample of general education middle school teachers toward students with physical disabilities as measured by the Educators Attitudes Toward Disability Scale after participating in the KBK Workshop?

Hypothesis

Participation in a KBK Workshop will positively impact attitudes toward students with disabilities in purposive sample of general education middle school teachers as measured quantitatively by the Educators Attitudes Toward Disability Scale.

Research Question 2

Is there an impact on attitudes of a purposive sample general education middle school teachers toward students with physical disabilities as measured by the Scale of Teachers Attitudes Toward an Inclusive Classroom after participating in the KBK Workshop impact?

Hypothesis:

Participating in a KBK Workshop will positively impact a purposive sample of middle school general education teachers' attitudes toward inclusion of students with physical disabilities as measured quantitatively by the Teachers Attitudes Toward Inclusion Scale.

Research Question 3:

How does participating in the KBK Workshop impact a purposive sample of general education middle school teachers' dispositions and perceptions toward students with

physical disabilities as documented through semi-structured interviews and researcher observations?

Hypothesis:

Participating in the KBK Workshop will positively impact a purposive sample of middle school general education teachers' dispositions and perceptions toward students with physical disabilities as documented through semi-structured interviews and researcher observations.

Operational Definitions

UCF Go Baby Go – A program housed within the UCF DPT program which promotes access, participation, and play for children with motor impairments resulting from conditions such as prematurity,

Kids Building for Kids Workshops – One day experiences that engage children in social justice, disability awareness, and STEM learning activities which culminate in the presentation of a modified ride on car to a young child with disabilities.

Disability –" a lasting physical or mental impairment that significantly interferes with an individual's ability to function in one or more central life activities, such as self-care, ambulation, communication, social interaction, sexual expression, or employment" (*APA Dictionary of Psychology, 2nd Edition*, 2015, p. 317).

Attitudes – The American Psychological Association (APA) defines attitudes as "an individual's favorable or unfavorable beliefs, feelings, or actions toward an object, idea, or person" (*APA Dictionary of Psychology, 2nd Edition*, 2015, p.21).

Empathy - "the ability to identify with or vicariously experience the thoughts, feelings, or attitudes of another" (*APA Dictionary of Psychology, 2nd Edition,* 2015, p.365).

Disposition – "a relatively stable personality characteristic or pattern of behavior that reflects a tendency to respond to situations in a particular way" (*APA Dictionary of Psychology, 2nd Edition,* 2015, p. 323-324).

Inclusive Education – "Inclusive education is a term that describes the placement of students with disabilities in the general education classroom setting to the maximum extent possible while still meeting their individual needs" (Council for Exceptional Children, 2017, para 6).

Formal Professional Development – Formal workshops, trainings, and continuing education offerings held outside of school hours. Formal professional development is often associated with the awarding of a certificate or credentialing (Woodcock & Hardy, 2017).

Informal Professional Development – Informal training that occurs as a part of the school day in the classroom (Woodcock & Hardy, 2017).

CHAPTER TWO: LITERATURE REVIEW

A review of the literature was conducted to examine the types and efficacy of professional development (PD) for middle school teachers on addressing students with disabilities and inclusive practices. The search terms “Physical disabilities AND middle school AND teacher or educators or school staff AND profession development and professional training” were used in the following databases: Psych Info, ERIC, and Google Scholar. These terms produced no relevant articles; therefore, the terms were modified to “Disabilities AND middle school AND teacher or educators or school staff AND PD and professional training” using the same databases. This search produced 174 articles which were then reviewed for relevance using inclusion criteria of students with physical or complex disabilities, K-12 teachers, and PD on inclusive practices. Articles exclusively on Autism or learning disabilities were excluded. This process yielded 7 articles providing insight on current practices for promoting inclusion of students with disabilities through PD opportunities offered to middle school teachers. Insights drawn from this research provide evidence-based guidelines for future PD programming and research on its effectiveness.

Table 1

PICO Chart

Authors	Subjects	Research Design	Problem	Intervention	Comparison	Outcome
Bargerhuff et al., 2010	Twenty teachers – middle and high school science	Quasi-experimental Pretest-Posttest	Need for equitable opportunities for science students with disabilities	PD –Lessons on adaptations for student success	No comparison groups.	Post-testing revealed PD had a positive impact on knowledge, skills, and attitudes for students with physical and specific learning disabilities.
Van Garderen et al., 2012	Thirty teachers and six preservice teachers	Qualitative	Need to improve skills of science teachers for diverse K-6 learners	Collaborative practices (Quest model) between general education teachers and special education teachers	No comparison group	Anecdotal or narrative reports said the collective experience allowed for improved instructional design to serve diverse learners
Royster et al., (2014)	Nineteen teachers middle school	Quasi-experimental Pretesting and post-testing	Lack of effective professional development on inclusion for middle school teachers	Formalized professional development curriculum "Building Inclusive Schools: Tools and Strategies."	No comparison group	Increases in knowledge of inclusive classrooms, teachers' perceptions, and attitudes toward inclusive classrooms

Authors	Subjects	Research Design	Problem	Intervention	Comparison	Outcome
Brusca-Vega et al., 2014	Fifty-eight teachers Grades 4-8 Science and special ed	Quasi-experimental Pretesting and post-testing	Need for effective joint professional development opportunities for science and special educators	Intense yearlong professional development with a focus on promoting direct science for students with disabilities.	No comparison group	Improvement in classroom culture, content, and instruction evident in all teachers
Vaugh & Henderson, 2016	Three hundred teachers K-8	Quasi-experimental Pretesting and post-testing	Lack of teacher proficiency in the inclusion of children with Down syndrome	Teacher Training Initiative – inter-organizational collaboration between community organization, local public school, and university professor	No comparison group	Increases in teacher confidence, gains in curriculum modification, behavioral strategies and understanding of the diagnosis
Chrysotomou & Symeonidou, 2017	Seventeen teachers – Primary school in Cyprus	Qualitative	Helping to address teachers' difficulties when working with students on disability related issues.	PD for disability equity through disabled people's life stories	Interviews. Lesson plans Handouts Teacher Diaries	Promising results promoting teachers understanding of disability as a social not medical issue, increased confidence, and curriculum enrichment
Carew et al., 2019	130 in service teachers in Kenya	Quasi experimental design Pretesting and post-testing	Decreased teacher preparedness for inclusive teaching	Leonard Cheshire Disability Curriculum	No comparison intervention	Increase in self-efficacy increased positive ratings about inclusive education

Systems Based Initiatives

Researchers have examined different strategies for PD to promote best practices for the inclusion of students with disabilities. One approach is to employ a system or school-wide initiative. Royster et al. (2014) examined one such program, specifically examining the impact of a PD program focused on best practices for teaching inclusive classes to general education middle school teachers. The Inclusion PD Model (IPDM) was built on the foundation of a formalized training curriculum, Building Inclusive Schools: Tools and Strategies, by Halvorsen and Neary in 2009. Areas targeted by the IPDM included: (1) inclusion, (2) planning for student needs in an inclusive classroom, (3) systematic instruction in an inclusive classroom, (4) peer relationships and support, (5) collaboration for the delivery of inclusive learning experiences, and (6) evaluation. The researcher conducted a quantitative study employing a single pre-test and post-test research design. The study included nineteen regular middle education schoolteachers representing all content areas. The IPDM was administered over nine weeks and included six modules. Teachers participated twice a week after school for an hour and a half. The researcher conducted pre- and post-test assessments using the Inclusion Knowledge Test and the Teachers Attitudes Towards Inclusion Scale. Results revealed a statistically significant difference (p value = .000) in the pre-test and post-test scores on the Inclusion Knowledge Test. Statistically significant gains also were found on the Teachers Attitudes Towards Inclusion Scale (p value =.000), representing a strong effect size (d = .951). The findings of this study reflect the positive impact of the IPDM on both the knowledge and attitudes of general education middle school teachers towards inclusion and creating inclusive classrooms.

Rather than employ an existing PD program, school systems may choose to develop and fund their own inclusive education training programs. Carew et al. (2017) examined the impact

of one such inclusive education program on the teachers who serve children with disabilities in Kenya. Cheshire developed the inclusive education program as a part of a broader inclusive education program funded by the Girls Education Challenge. This subcomponent of the larger program focused on training to promote inclusive teaching practices and foster skills needed to educate students with disabilities. The goals of this program focused on increasing teaching self-efficacy, improving teachers' attitudes and beliefs about inclusive teaching practices, and reducing concerns about inclusion. The researchers sought to explore the impact of this intervention on teachers and their teaching practices. A two-wave quasi-experimental research design was employed with pre-testing and post-testing. One hundred and thirty teachers from 50 schools were selected to participate in this intervention study. Instruments included a Likert scale survey on inclusive education and the inclusion of students with disabilities in their classrooms. This survey explored perceived teacher self-efficacy, teacher beliefs and feelings, intentions, self-focused concerns, and other-focused concerns. Data analyses included two-way mixed ANOVAs to examine the relationship between dependent variables. Results demonstrated that the intervention increased teacher self-efficacy. In addition, the intervention successfully promoted positive beliefs in teachers about inclusive education. Additionally, data were analyzed using a series of regression models to explore if any of the items were predictive of other variables. While the researchers suggest, this tool might be an effective tool in improving teachers' inclusive beliefs and attitudes, the authors conclude that a critical gap remains in the current PD program.

Comprehensive programs and initiatives also may emerge from relationships with community stakeholders such as parent association groups. Research on specific populations can provide insights into the larger community of students with disabilities. Vaughan and Henderson

(2016) explored a collaborative partnership between teachers and community stakeholders but focusing exclusively on the inclusion of students with Down syndrome. Down syndrome, the most common of the chromosomal trisomy's, presents with physical and intellectual disabilities. Teachers were identified as having a gap in knowledge related to inclusive practices, specifically when serving students with Down syndrome. These researchers explored the impact of a teacher PD program on general education teachers to better understand how to fully include students with Down syndrome. The researcher designed the PD to assist general educators in understanding the physical and emotional needs of students with Down syndrome, creating a modified curriculum based on individual learning needs, and recognizing barriers experienced in school settings.

The program was the product of an inter-organization collaboration between a community organization, university faculty, and a local school district. A quasi-experimental pre- and post-test research design was employed to investigate the impact of this PD program on general education teachers. Over 300 teachers participated in the PD, representing general education teachers, special education teachers, and paraprofessionals, all of whom served fully included students with Down syndrome. The training consisted of one-to-two-day workshops which were grant-funded. School districts covered the expense of substitutes, and participants were awarded continuing education credits. Survey data were analyzed and revealed a 20% increase in the teachers' confidence levels in working with students with Down syndrome. The greatest gains were seen in knowledge about the diagnosis of Down syndrome and its implications for learning and functioning in a school setting. Not only did teachers report an increased self-efficacy and knowledge, but over 60% of elementary and secondary education teachers reported using the information from the PD on a frequent or daily basis. All teachers perceived this PD as a

valuable learning experience with implications for teaching effectiveness. The collaboration was beneficial as it assisted the school in providing PD for teachers while also absorbing the associated costs. It is important to note that the community-teacher relationships built during the PD programs extended beyond the intervention offering of ongoing support and resources.

Professional Development on Inclusion

Examining the effectiveness of PD on inclusion is valuable; however, embedding those strategies into specific content areas must also be examined. For example, understanding the knowledge and skills for inclusion in the areas of science and STEM could assist in addressing barriers to these content areas experienced by students with disabilities Bargerhuff et al. (2010) identified a need for PD for sciences teachers addressing knowledge and skills to provide equitable learning experiences. The Creating Laboratory Access for Science Students (CLASS) project afforded teachers access, instruction, and practice using assistive technologies and inclusive practices to engage students with disabilities. More specifically, CLASS focused on the teacher's knowledge, skills, and dispositions toward engaging students with physical and sensory disabilities in science activities. Twenty teachers representing 11 states participated in the study. Participants included middle and high school teachers representing content areas of science and special education who accommodated or taught students with physical disabilities. This study used a quasi-experimental pre-posttest research design. Instruments included the Teaching Science for Students with Disabilities survey, collected quantitative data, and open-ended questions about the experience. Descriptive statistics were employed to examine the survey data except for the section exploring attitudes which were analyzed using the Bonferroni method of determining significance for multiple tests. The researcher coded the qualitative data and

identified themes. One of the most notable findings was that 90% of the teachers reported having little to no preparation for teaching science to students with disabilities.

The preparation teachers had received focused on characteristics of specific learning disabilities and attention deficit disorders with no content on accommodations or learning strategies for students with more significant disabilities. Following participation in the CLASS workshop series, teachers reported feeling better prepared to engage students with moderate to severe disabilities in their classrooms. The survey results supported this finding, with teachers reporting a one-to-two-point gain on a five-point Likert scale probing feelings of teacher preparedness. A two-point gain was also reported in classroom management for teaching students with disabilities. Smaller one-point gains were noted in best practices for teaching students with disabilities and addressing students' needs with different disabilities. Qualitative data revealed improvements in teachers' self-efficacy related to teaching practices for students with disabilities. The themes that emerged included acknowledging the student with disabilities as a valued learner, knowledge of self, changing personal practices, and collaboration and advocacy. All these areas demonstrated a positive change. Teachers not only reported positive changes, but six also conveyed a desire to share this new knowledge with peers, while three others committed to advocacy for students with disabilities. Follow-up reports, not included in the formal data collection, revealed that many participants became "change agents for equitable access at their home schools" (p. 134). The authors concluded that the CLASS professional workshops positively impacted teacher participants' knowledge, skills, and dispositions towards teaching science to students with disabilities.

In 2012, Van Garderen et al. explored the impact of a collaborative PD program to meet the needs of learners with varying abilities in kindergarten through sixth-grade science. The

program engaged science and special education teachers with a focus on supporting teacher implementation of inquiry-based instruction, assessment, and the use of universal design for learning strategies for students in kindergarten through sixth grades. Missouri Department of Higher Education employed the Quality Elementary Science Teaching (QUEST Program) to promote meaningful learning in science for all students. The program was one-year long, beginning with a two-week intensive summer institute. Content focused on both science content and instructional strategies. Thirty teachers and six preservice teachers attended this program annually. Following the summer institute, teachers attended full-day workshops and received individualized support throughout the year. The program's impact was examined through qualitative data, including narrative reports and teacher feedback. Teachers shared "being able to learn the subject through firsthand activities was very meaningful and worth every minute of my time" (p. 434). Insights were gained from teachers encountering their own challenges and the need to problem-solve for solutions independently. These challenges afforded teachers an opportunity to empathize with students with disabilities. Once content was covered, the teachers moved on to implementation. Teachers were challenged to implement what they learned in the first week with students in the second week. Implementation was critical to the teacher's learning, as reflected by one teacher's statement, "the most valuable part of the professional development experience was implementing the strategies that we learned about during the first week with the children the second week" (p. 437). Teachers reported feeling so positive about this experience that they requested to participate in successive years. This study found that the QUEST collaborative program effectively addressed content knowledge and teaching practices for students with varying learning styles. The authors stated that the program's strength comes from the collective experience of teachers and the opportunities afforded within the program.

Brusca-Vega et al. (2014) examined the impact of joint PD for science and special educators on their teaching practices. The PD program was an intense yearlong initiative that provided firsthand, inquiry-based learning experiences for fourth through eighth-grade teachers representing science and special education. This mixed method case study research design followed 58 teachers from kindergarten through eighth grade schools. Over one year, teachers engaged in a PD course, action research projects, classroom consults, and in school team meetings. Both university faculty and staff taught content. The PD course focused on science content and best practices for inclusive teaching. Teaching practices covered included inquiry-based instruction, differentiated instruction, science topics, and adaptation strategies. Data collected included classroom observations using the Reformed Teaching Observations Protocol (RTOP), in-school meeting summaries, interviews, and staff progress reports. Analysis of the RTOP data demonstrated a statistically significant improvement in their ability to teach in reformed ways on all variables except for "connected lesson to prior experience" (p. 45). Interviews revealed teachers reflected on improving their current practices and strategies. One teacher's statement reflects this change, "I learned that I did not have to work at a slow pace and that I needed to change my methods during science" (p. 47). The end of project reports also reflected increased teachers' ability to make instructional adjustments as needed for students with disabilities. Collaborations between science and special education teachers were fostered as a component of the PD program but continued beyond its conclusion. Overall, this multi-dimensional yearlong project positively influenced science and special education teachers and their ability to instruct students with disabilities.

Using Narratives of Individuals with Disabilities as Professional Development

Chrysostomou and Symeonidou (2017) took a different approach and explored the impact of a novel intervention on teacher knowledge and attitudes toward students with disabilities. This action research project was designed and implemented within a public primary school in Cyprus. The school director initiated the collaboration as the school was seeking support to improve teachers' attitudes toward diversity. Seventeen teachers participated in this study, along with three volunteer teachers. The program lasted for eight months. Qualitative data were recorded throughout the process, including teacher lesson plans, notes in teacher diaries, and semi-structured interviews. Researchers sought to understand how teachers' attitudes, beliefs, and knowledge were shaped when provided an opportunity to gain experience from the narratives and life stories of individuals with disabilities. The program consisted of an introduction and discussion on inclusive education. Discussions revealed that teachers had positive attitudes towards individuals with varying abilities but did not feel they knew how best to provide inclusive learning experiences. A work group was then formed to plan and teach lessons including digital portfolios of individuals with disabilities. Narratives of individuals with disabilities were made available to teachers without additional support materials such as lesson plans or activities. Teachers were asked to develop their classroom activities based on the provided profiles while being given the freedom to develop their content. The researchers used the constant comparative method for data analysis which compared data from lesson plans to field notes from discussions with teachers and lessons observed. Semi-structured interviews held at the conclusion of the program revealed that this experience influenced the lens by which teachers viewed disability shifting from a medical model to more of a social issue. In addition, teachers reported feeling increased self-confidence in discussing disabilities and embedding related content into the curriculum. These findings suggest that the teachers benefited from being

engaged in all aspects of the project. The impact of these narratives on individuals with disabilities led to the development of more relevant teaching practices and increased collaboration. Lastly, the authors concluded that the collaboration between the school administration, researchers, and teachers positively impacted the programs' overall effectiveness.

Conclusion

The literature examining the types and efficacy of PD for middle school teachers in addressing students with disabilities and inclusive practices is sparse. The evidence provides insight into the impact of collaborative and hands-on PD programs holding promise for positively impacting teacher attitudes, beliefs, and knowledge of inclusive practices. Additional research is warranted to explore effective PD programs for general education teachers' attitudes and perceptions toward students with disabilities.

CHAPTER THREE: METHODS

This exploratory study employed a mixed methods research design. The intent of this exploratory study was to gather insights from quantitative instruments, semi-structured interviews, and informal observations on the influence of the UCF Go Baby Go (GBG) Kids Building for Kids (KBK) workshops on the attitudes, perceptions, and dispositions of general education middle school teachers toward students with disabilities and inclusion. The researcher conducted pre- and post-testing (including assessments) to examine attitudes, dispositions, and perceptions of general education middle school teachers toward students with disabilities using the EADS and the TATIS sales. The quantitative component of the study analyzed the scores of the EADS and TATIS scales. In contrast, the qualitative component of the study offered insights into the attitudes and beliefs of general education middle school teachers that might not have been captured through standardized instruments. Informal observations occurred during each of the KBK Workshops taking note of the behaviors and interactions of teachers, students, as well as the young children with disabilities and their families.

This research design was appropriate due to the exploratory nature of the study with the aim to understand the experience of general education middle school teachers participating in a KBK Workshop. A comprehensive understanding can only be achieved by capturing quantitative and qualitative data followed by triangulation of that data as seen in Figure 2. A summary of the research questions, variables, measures, and analyses can be found in Table 2.

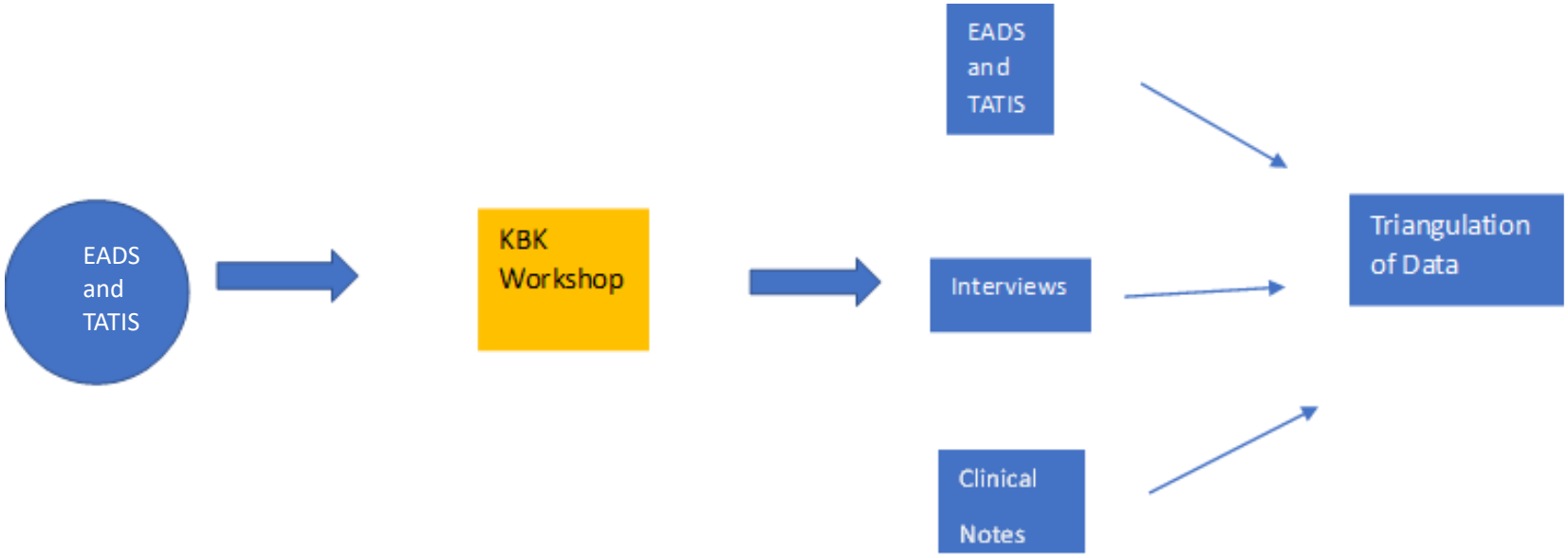

Figure 2: Mixed Methods Triangulation of Data

Table 2

Research Blueprint

Research Question	Constructs	Instrument	Level of Measurement	Role (IV, DV, coV, mod)	Collection Method	Sample	Analyses
Is there an impact on the attitudes of a purposive sample of middle school general education teachers toward students with physical disabilities as measured by the Educators Attitudes Toward Disability Scale after participating in the Kids Building for Kids Workshop?	Attitudes toward individuals with disabilities	Educators Attitudes Toward Disability Scale	EADS – Interval	IV – Time workshop – 2 levels before and after Kids Building for Kids DV -EADS score	Pre- and post-testing using Qualtrics software	General education Middle School teachers	Descriptive Statistics
Is there an impact on attitudes of a purposive middle school general education teachers toward students with physical disabilities as measured by the Scale of Teachers Attitudes Toward an Inclusive Classroom after participating in the Kids Building for Kids Workshop impact?	Attitudes toward individuals with disabilities and inclusion	Teachers Attitudes Toward Inclusion	Teachers Attitudes Toward Inclusion Scale (TAIS) -Interval	IV – Time workshop – 2 levels before and after Kids Building for Kids DV- Score on Scale of Teachers Attitudes Toward an Inclusive Classroom	Pre- and post-testing using Qualtrics software	General education Middle School teachers	Descriptive Statistics

Research Question	Constructs	Instrument	Level of Measurement	Role (IV, DV, coV, mod)	Collection Method	Sample	Analyses
How does participating in the Kids Building for Kids Workshop impact a purposive sample of middle school general education teachers' dispositions and perceptions toward students with physical disabilities as documented through semi-structured interviews and researcher observations?	Attitudes toward individuals with disabilities	Semi-structured interviews	Qualitative data	IV – Time workshop – 2 levels before and after Kids Building for Kids DV – Attitudes, dispositions, and perceptions as explored through semi-structured interview	General education middle school teachers Post intervention interviews	General education Middle School teachers	Thematic content analysis and analysis using NVIVO software

Sample, Recruitment, and Setting

Sampling Methods

Due to the exploratory nature of this research study, the researcher employed a small sample size (Creswell, 2013). G Power was used to determine sample size which resulted in a calculated sample of 34 teachers. While that sample size and power would drive quantitative decisions about survey data and overall generalizability a sample of 34 teachers participating in KBK workshops was not feasible at this time. Therefore, for this exploratory stage of research, a purposive sampling of eight teachers participated in this study with the researcher examining these teachers from a mixed methods research analysis. The researchers' purposive sampling procedures required participants to: (1) be a general education middle school teacher, defined as a teacher who is providing general education curriculum to middle school students and who does not have any special education training or certificates; (2) have at least one full year of teaching experience in a general education middle school; (3) English speaking; (4) have not previously participated in a KBK Workshop. Exclusion criteria were: (1) any teacher outside of middle school general education, (2) less than one year of teaching experience, (3) non-English speaking, and (4) previous participation in KBK Workshop. All eight teachers in this study taught at faith-based private schools. The schools are all participants in a state funded scholarship program for students with unique abilities.

Recruitment

Flyers, emails, in-person announcements, and school visits were employed as recruitment strategies. Recruitment focused on private schools who accepted state funded scholarships for

students with disabilities. Incentives, twenty-five-dollar gift cards, were provided at the end of the study to the teachers who completed both surveys and the interview.

Setting

The researcher collected all data via password-protected software platforms: Qualtrics and Zoom. Teachers selected the time and location to complete the surveys and participate in semi-structured interviews. In a written log, the researcher noted informal observations at the time of the workshop and upon reflection twenty-four hours after the event.

Instruments or Data Collection

Instruments were compiled into one Qualtrics form for data collection. In addition to the formal instruments, demographic information was collected which included gender (male, female, non-binary, choose not to identify); age (years); years of experience; grade taught this current school year; subject taught for the current school year. Educators Attitudes Toward Disability Scale (EADS).

The Educators Attitudes Toward Disability Scale (EADS) is a new scale in education; however, it was revised from the existing Social Workers Attitudes toward Disability Scale. The researcher completed a pilot study which demonstrated good internal reliability with a Cronbach's alpha of zero. 89 (Freer, 2018). The limitation of the scale is that it measures only one dimension of attitudes. Concurrent validity was examined by comparing the EADS to the Attitudes Toward Disabled Persons. The two measures were moderately correlated with r =0.49 suggesting they are measuring the same construct (Freer, 2018). The scale consists of 21 statements that educators rank on a scale of 1 to 4 (1 – I disagree very much, 2 – I pretty much

disagree, 3 – I disagree a little, 4 – I agree a little, 5 – I pretty much agree, 6 – I agree very much). While this is a new scale, it is appropriate for use as it is an educator-specific scale as opposed to the more widely used scales such as the Attitudes Toward Disabled Persons and Scale of Attitudes Toward Disabled Persons which are non-specific regarding the profession. The researcher averaged scores to create a global attitude toward disabilities' score with a high score representing more positive attitudes.

The Teacher Attitudes Toward Inclusion Scale (TATIS)

The Teacher Attitudes Toward Inclusion Scale was developed as a reliable and valid measure for detecting a change in teacher attitudes and beliefs toward children with disabilities (Gregory & Noto, 2012). Ewing et al. (2018) also found the TATIS appropriate for use and incorporated up-to-date terminology. The authors of the TATIS only embarked on its development after a review of existing measures revealed technical flaws. After developing the TATIS the authors examined its psychometric properties which revealed good reliability with an ICC of 0.821 (Gregory & Noto, 2012). The TATIS consists of 14 items rated on a scale of 1 to 7 (1=-Agree very strongly, 2 – Strongly agree, 3 – Agree, 4 – Neither Agree nor Disagree, 5 – Disagree, 6 – Strongly Disagree, 7 – Disagree very strongly). Scores are totaled and can be compared to a percentile ranking. Higher percentages are more reflective of a positive attitude, and lower percentages a less positive attitude.

Interviews

With a smaller sample of subjects, the researcher conducted individual semi-structured interviews. Four subjects participated in a one-time interview with maximum variation. Subjects

represented varied genders, grades taught, and years of experience. Interviews were conducted using a password-protected Zoom platform. Interview questions addressed disposition, attitudes, and beliefs based on themes and insights gained from the literature review. In addition, the interviewer explored the teachers' experiences with individuals with disabilities, and their experiences teaching in an inclusive classroom. The researcher developed a question guide, after a review of the literature, on teachers' attitudes toward students with disabilities and their experiences (see APPENDIX B).

Informal Observations

The researcher recorded informal observations during the teacher orientation and the KBK workshop. The observations included conversations, gestures, expressions, and interactions between teachers, students, and the young child with a disability and their family who received the final car. Within a week of the KBK workshop, the researcher reflected on the event, reviewed the notes, and added additional comments about the experience. This reflective journal allowed for triangulation of the notes with the quantitative data and semi-structured interviews to provide a rich, thick description aligned with the research question of how the components of the KBK workshop impacted teachers' perceptions of students with disabilities and inclusion.

See Study Procedures

Human Subjects Research Protocol

This study was approved by the Institutional Review Board (IRB) at the University of Central Florida on August 31, 2023 (see APPENDIX A). This study poses minimal risks to

participants. All subjects received an email of consent prior to the scheduled KBK workshop for their review. The researcher provided them with ample time to review the consent and contact them with any questions. Parents of children receiving modified ride-on cars from the KBK Workshops signed release of liability forms and media release forms developed by the UCF attorney that is standard for all UCF GBG activities. Consent from parents of students was not required as the teachers are the focus of this research. Research procedures were described and maintained as approved by the Internal Review Board of the UCF Office of Research.

Recruitment

The researcher conducted the study using purposive sampling with the criteria for inclusion listed above. The researcher sought approval from both local public and private school administrators before participant recruitment. Approval was granted by local private schools who accept state scholarships for students with disabilities. All administrators received a copy of the IRB approval document and study information for review. Teachers were recruited from these schools' using flyers, emails, and social media posting within their organization. Participants received incentives to participate after the study, provided they had completed all surveys and the semi-structured interview.

Pre – testing

The researcher contacted all teachers by email with a Qualtrics link to complete the demographic information, as well as the EADS, and TATIS. Teachers received the link for the pre-test survey approximately one week before the workshop and a second reminder email with the link 24 hours prior to the workshop. Each survey remained open for one week allowing

teachers to complete them at a time and location of their choosing. All surveys were collected using the Qualtrics software platform which is password protected and employs firewalls to ensure the safety of data. All UCF platforms required multifactorial authentication.

Intervention: UCF KBK Workshop

The GBG program incorporates Maker space concepts, STEM learning activities, and service learning. A community-based service and research program housed within a Doctor of Physical Therapy program provides modified ride-on cars for children with disabilities. The modified ride-on cars are adaptive, promoting independent mobility and play in young children with disabilities. The new model of workshops offered by UCF GBG is KBK workshops. These workshops provide teams of elementary, middle, and high school-age students the opportunity to build a modified ride-on car for a young child with a disability. Families of young children with disabilities and the team work together to tailor the car to the child's individual needs and preferences. An outline of the KBK workshop and surrounding events can be found in Table 3. At the end of the workshop, teams present the child with disabilities with the cars (see Figure 3 for a child with their modified car).

Figure 3: Child in Modified Ride on Car

This study focused exclusively on KBK workshops held in collaboration with general education middle school teachers and students. Of the eight teachers, the majority (six) were science and STEM teachers. The KBK workshops incorporated social justice, math, science, engineering, design, and art concepts. No research exists on the impact of these experiences; however, anecdotal reports suggest that KBK workshops positively impact students academically and socially.

An overview of KBK Workshop activities can be found in Table 3. In this study, teachers met with the researcher on the phone or over zoom to receive an orientation to UCF GBG and the KBK Workshops. At that time, the investigator provided information about the overall workshop, space requirements, specific site needs, student learning activities, and information on the modified ride-on car recipients. Teachers then scheduled a date with the researcher to hold the KBK workshop at their school. The science classrooms were selected as the KBK workshop

location by all the participating teachers in this study. Prior to the workshop, the researcher identified young children with disabilities who would benefit from a modified ride-on car and screened to determine specific modifications and postural supports needed. Families of young children with disabilities were introduced to the concept of a KBK Workshop. If the family agreed to participate in the KBK Workshop, the researcher provided specific information on date, time, and location. Every attempt was made to match young children with a disability from the community in which the KBK Workshop was being held.

On the day of the event, the researcher and volunteers arrived at the school with all necessary supplies. The researcher welcomed the students and provided an overview of activities. A discussion of disabilities was facilitated with students highlighting the achievements of individuals with disabilities including athletes, actors, musicians, and scientists. This discussion also incorporated concepts of social justice and a strength-based approach focused on what individuals can do and not what they cannot do. Concepts of user centered design and low-tech solutions were introduced again focusing on how to leverage an individual's strengths to achieve the greatest level of independence. The commercially available car was introduced along with the profile of the young child who would receive the car. Students were challenged to brainstorm about modifications needed. Individual teams then received their young child's profile, a pre-wired car, supplies, and tools needed to create postural modifications. After postural modifications were made, the team decorated the car with stickers personalized to the child's interest. The researcher reviewed liability waivers with the families and obtained signatures. In addition, parents received training on proper use of the modified ride-on car. Following workshop activities, the students observed the young children playing in the modified

ride-on cars. At the conclusion of the event, students assisted the families in getting the modified ride-on car to their vehicles.

The workshop engaged students with and without disabilities in the KBK Workshop, lasting approximately two hours. Student information was not compromised as the teachers confirmed that students represented varying abilities, including learning disabilities, mental health diagnoses, and other disabilities—however, none of the participating students presented with a physical disability. One hundred and sixteen students participated in the KBK Workshops and six young children with disabilities received modified ride on cars as a part of this research study. The researcher was present at each KBK workshop to ensure fidelity to processes and procedures.

Figure 4: Photos from GBG KBK Workshops

Table 3

Outline of KBK Workshop

Prior to KBK Workshop	Day of KBK Workshop	After KBK Workshop
Teacher orientation via zoom and date of event scheduled.	Director of UCF GBG welcomes students and teachers	Students present the cars to the child with a disability and their family.
Teacher secures classroom or other space for event.	Students receive content on disabilities, social justice, and low-tech solutions from Director of UCF GBG.	Students observe the children playing in the car and have an opportunity to ask questions of the family.
Teachers establish student teams for workshop events.	Each student team is assigned to a child. In addition, they receive a pre-wired ride on car and a box of supplies.	Director of GBG ensures all liability forms have been signed.
Director of GBG screens children prior to workshop to determine appropriateness and modifications needed.	Student teams assemble postural supports and secure them to the car. Director of GBG checks postural supports for safety.	Director of GBG trains family in use of the car
Director of GBG provides family for information on the workshop.	Cars are decorated with colors and characters requested by the child.	Students help families get the modified ride on car to their vehicles

Post-testing

Teachers received a secure Qualtrics link with a survey gathering demographic information, EADS, and TATIS 48-72 hours after the KBK. If subjects did not complete the Qualtrics form within one week, a reminder email with the link was sent. A second reminder was sent two days later, followed by a third email reminder two days later.

Interviews

A small subset of the larger sample was recruited to participate in one-time interviews. The subset included a representation of different genders and varying levels of experience. The researcher contacted each subject to schedule the interview. The interview questions were developed based on a review of the literature (see APPENDIX C). Questions focused on teaching experiences, subjective experiences with individuals with disabilities, dispositions, attitudes toward students with disabilities, and beliefs about students with disabilities. Individual interviews were conducted after the KBK Workshop, at a convenient time for the teacher using the Zoom platform. Interviews took approximately 45 minutes and were recorded for transcription, review, and data analyses. In addition, the researcher took notes throughout the interview. The researcher securely stored recordings on a password-protected device (computer). All notes were stored securely in a locked cabinet in the researcher's lab. Member checking was employed to ensure accuracy. Subjects were provided with an interview summary with identified themes for their review.

Data Analysis Overview

Quantitative Analysis

Prior to running data statistical analyses, survey data were exported from the Qualtrics software platform into the Statistical Package for the Social Sciences (SPSS) software version 29. All data were cleaned, and incomplete survey data were removed prior to analyses. Eight pre- and post-test surveys were completed and included in these analyses.

Descriptive statistics were calculated to provide demographic data such as the mean age of teachers and the mean number of years of teaching experience.

Educator Attitudes Toward Disability Scale

Each EADS was scored by the researcher prior to analyses per the instructions provided. Items were rated on a scale of one "I disagree very much" to six "I agree very much." Seven of the 21 were marked as reversals. Reversals indicated that scoring was reversed for those items for example a six was reversed to become one. Individual scores were calculated and entered in the SPSS version 29, and descriptive statistics were calculated for pre- and post-the KBK Workshops. Each participant's score was calculated as the number of points out of a total score of 126. The average score reflected a global attitude toward disability score with a higher score representing more positive attitudes toward disability (Freer, 2018). A paired-samples t-test was conducted to identify differences in the mean scores on the EADS before and after the KBK Workshops. As indicated by the distributional shape of the paired differences, the normality assumption was evaluated and met.

Teachers Attitudes Toward Inclusion Scale

Data analysis from the TATIS was used to answer the research question. Each TATIS was scored prior to analyses per the instructions provided. Scores included factor scores representing attitudes toward students with disabilities, beliefs about inclusion, and beliefs about professional roles and responsibilities. An equation was provided to calculate individual' scores. Once scored, the factor and total scores were compared to published normative standards to obtain t-scores and percentile ranks. High scores on the TATIS are reflective of positive attitudes

toward inclusion (Cullen, Gregory, & Noto, 2010). Once individual scores were calculated and entered into the SPSS version 29 data set descriptive statistics were conducted on both pre- and post-workshop scores. A paired-samples t-test was conducted to identify differences in the mean scores on the TATIS before and after the KBK Workshops. As indicated by the distributional shape of the paired differences, the normality assumption was assessed and met.

Qualitative Analysis

Four participants were interviewed by the researcher using the Zoom platform. The software platform transcribed all Zoom interviews. Thematic analysis was used to derive emergent themes on the teachers' experience of the UCF GBG KBK Workshop and their attitudes and dispositions toward students with disabilities and inclusion. Data were coded using a constant comparative method. Steps for data analysis included: (1) transcript preparation (2) development of codebook (3) identification of themes and (4) credibility check. A non-participating teacher -reviewed all codes and themes to ensure the reliability and credibility of the data. Themes were sent to participating teachers to ensure the accuracy of interpretation.

The four interviews were transcribed, resulting in 418 lines, 329 lines, 359 lines, and 359 lines, respectively. Transcripts were generated by the researcher from the Zoom software and reviewed by the researcher for accuracy. Inaccuracies in transcriptions were corrected after listening to the original recording to ensure accuracy.

Transcriptions were analyzed using NVivo software for word frequencies and coding of transcripts. The researcher and a research assistant identified salient content and developed codes from all four interviews. Codes were reviewed and discussed to address any differences or

discrepancies. Once consensus was reached, the final codebook was compiled from this process. See Figure 5 for the first phase of data analysis.

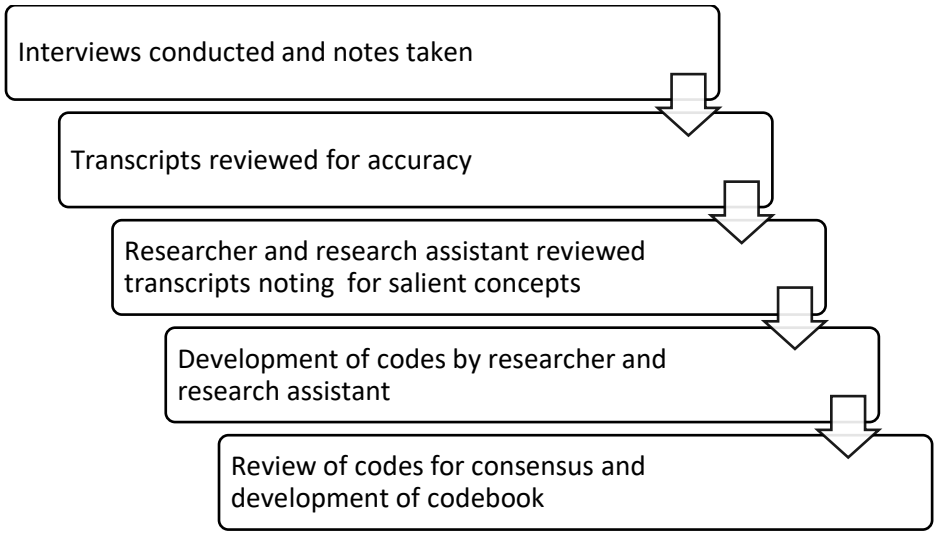

Figure 5: First Phase of Qualitative Data Analysis

The researcher used a codebook to code the interview and further analyzed transcripts to identify key phrases and segments of text corresponding to a given code. The researcher then went through a process of extracting phrases for all codes. After reviewing the sorted text, the researcher identified basic themes. Following the identification of basic themes, the researcher clustered ideas and issues discussed by teachers to create larger, organizing themes (Creswell, 2018; p. 187).

The credibility of themes was conducted using member checking and peer review to ensure trustworthiness (Creswell, 2018). The four teachers who participated in the interview process were asked to review the basic themes and larger organizing themes to provide feedback on the accuracy of the themes. In addition, they were asked to comment on whether these themes were an accurate representation of their attitudes and dispositions toward individuals with

disabilities and inclusion. No concerns were noted by the participating teachers after review. The process for the second phase of qualitative analysis is found in Figure 6.

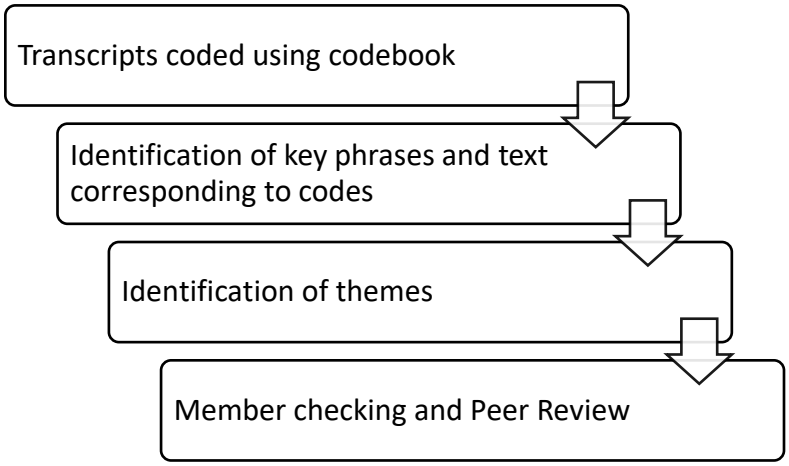

Figure 6: Phase Two of Qualitative Data Analysis

Positionality

The researcher recognizes her values and experiences influence the qualitative data (Arzubiaga et al., 2008). As a single parent of a daughter with dyslexia and a doctoral candidate in an Exceptional Education program at a large southeastern university, I understand that these experiences have created a lens through which I asked questions and interpreted responses to interview questions. My daughter is enrolled in a faith-based private school, which may also unknowingly influence the data collection and analysis process.

As a researcher, it is essential to acknowledge that one's implicit biases are embedded throughout the research process. Lastly, as the Director of UCF GBG, the researcher acknowledges that this also presented a potential data collection and analysis bias.

Audit Trail: Triangulation

The researcher used an audit trail throughout the decision-making processes to ensure objectivity and correct procedures were followed in quantitative and qualitative data collection (Carcary, 2009). Auditing specifically ensured the trustworthiness of the qualitative procedures and the decisions made throughout the study (Koch, 1994) to ensure the objectivity of the researcher. The audit also included a journal of informal observations containing reflections by the researcher from a personal lens (Lincoln & Guba, 1985). This reflective journal was important for a person with a personal stake in the success of KBK workshops and was used to triangulate the findings from research questions.

The researcher triangulated the data from multiple data sources, including quantitative data, qualitative data, and informal observations, to corroborate evidence (Creswell, 2018) and provide a comprehensive perspective on the impact of the KBK workshops. This process also adds to the overall validity of the research study.

CHAPTER FOUR: RESULTS

Professional development (PD) affords teachers opportunities to build on their skills, reflect, and employ new strategies for effective instruction. Woodcock and Hardy (2017) found that formal PD was less impactful than informal in promoting inclusion among general education teachers. Damianidou and Phtiaka (2017) reinforced these findings when encouraging the development of novel and inspiring PD-promoting teachers to see "the person, not the disability, and appreciate diversity" (p. 1092).

The researcher provided this type of informal PD called Go Baby Go (GBG) Kids Building for Kids (KBK) Workshop in this study. This informal PD allowed middle school students and their general education teachers to focus on disability awareness by empowering teachers and students to make a difference in the life of a child with a disability. Results of this study were analyzed based on the individual research question using survey instruments and semi-structured interviews. The following research questions drove the data analysis.

Research Question 1:

Is there an impact on the attitudes of a purposive sample of middle school general education teachers toward students with physical disabilities as measured by the Educators Attitudes Toward Disability Scale (EADS) after participating in the KBK Workshop?

Research Question 2:

Is there an impact on the attitudes of a purposive sample of middle school general education teachers toward students with physical disabilities as measured by the Teachers Attitudes Toward Inclusion Scale (TATIS) after participating in the KBK Workshop?

Research Question 3:

How does participating in the KBK Workshop impact a purposive sample of middle school general education teachers' dispositions and perceptions toward students with physical disabilities as documented through semi-structured interviews and researcher observation?

Demographic information was gathered to capture the individual characteristics of the teachers. Scores on the EADS and the TATIS measured teachers' attitudes, All data were captured using the Qualtrics platform. The researcher in this mixed methodology study sought to examine how the qualitative findings enhanced the information gathered from the quantitative instruments (the EADS and the TAIS), and triangulated the data gathered to answer the final research question.

Demographic Results

Of the eight teachers, three identified as male (37.5%) and five as women (62.5%). Descriptive statistics were used to analyze teacher experience as measured by the number of years and months. Teaching experience ranged from 39 months (3 years, 3 months) to 402 months (33 years and 6 months) with the majority being quite experienced (M=207.78, SD =

120.93). The average number of years teaching for the sample was 17.3 years or 208 months (SD = 10).

Educator Attitudes Towards Disability Scale

To answer research question 1 each participant's score was calculated as the number of points out of a total score of 126. The average score reflected a global attitude towards disability score with a higher score representing more positive attitudes towards disability (Freer, 2018). Individual scores were calculated and entered in the SPSS version 29, and descriptive statistics were calculated for pre and post the KBW Workshop.

Quantitative Data

A paired samples t-test was conducted to identify any potential differences in the mean scores on the EADS before and after the KBK Workshops to answer the first research question, sub question one. The assumption of normality was evaluated and met. As indicated by the distributional shape of the paired differences Review of the Shapiro-Wilkes test for normality (SW = .862, df = 8, p = .127) and skewness (-.199) and kurtosis (-1.877) suggested that the normality of the paired differences was reasonable. The boxplot supported normality as no outliers were present. The sample was not random; therefore, the assumption of independence could not be met which may have increased the likelihood of a Type I or Type II error. Effect size also was calculated as the mean difference divided by the standard deviation of difference as 17.78. Using Cohen's (1988) guidelines this is interpreted as a large effect. (Lomax & Haas-Vaughn, 2012). The paired samples t-test did not reveal a statistically different score on the EADS between the pre and post workshop surveys (t = 0.80, df = 8, p = .959)

Teachers Attitudes Towards Inclusion Scale

Data analysis from the pre and post workshop TATIS scores was used to answer research question two. Each TATIS was scored prior to analyses per the instructions provided. Scores included factor scores representing attitudes towards students with disabilities, beliefs about inclusion, and beliefs about professional roles and responsibilities. An equation was provided to calculate individuals scores. Once scored, the factor and total scores were compared to published normative standards to obtain t-scores and percentile rank. High scores on the TATIS are reflective of positive attitudes towards inclusion (Cullen et al., 2010). Once individual scores were calculated and entered in the SPSS version 29 data set, descriptive statistics were conducted on both pre and post workshop scores. Pre workshop TATIS raw scores represented the 79% rank (M = 42.25, SD = 12.20) and post workshop scores represented approached the 99% (M = 35.1, SD = 9.35). These scores offered insight on teacher attitudes' suggesting they have positive attitudes towards inclusive teaching practices.

A paired samples t-test was conducted to examine if there were differences in the mean scores on the TATIS before and after the KBK Workshops. The assumption of normality was evaluated and met. As indicated by the distributional shape of the paired differences Review of the Shapiro-Wilkes test for normality (SW = .956, df = 8, p = .773) and skewness (.587) and kurtosis (1.075) suggested that the normality of the paired differences was reasonable. The boxplot supported normality as no outliers were present. The sample was not random; therefore, the assumption of independence could not be met which may have increased the likelihood of a Type I or Type II error. Effect size also was calculated as the mean difference divided by the standard deviation of difference as 13.10. This is interpreted as a large effect using Cohen's

(1988) guidelines (Lomax & Haas-Vaughn, 2012). The paired samples t-test did not reveal a statistically different score on the TATIS between the pre and post workshop surveys ($t = 1.537$, $df = 7$, $p = .168$).

Qualitative Analysis

Research question three was answered through data analysis of the qualitative data. Four of the eight teachers were interviewed by the researcher using the Zoom platform. All Zoom interviews were transcribed by software platform. Thematic analyses were analyzed to derive emergent themes on the teachers' experience with UCF GBG KBK Workshop as well as their attitudes and dispositions towards students with disabilities and inclusion.

Teacher Characteristics

Four teachers consented to the semi-structed interview. Of the four teachers, one was a male and the remaining three were female. Teacher years of experience varied from 3 years 3 months to 33 years 6 months. The majority (75%) taught science and STEM with the remaining teacher responsible for religion courses. Teacher characteristics can be found in Table 4.

Table 4

Teacher Characteristics

Gender	Teaching Experience	Grades Taught	Content Area
Male	24 years	6,7,8	STEM
Female	3 ½ years	6,7,8	Science
Female	33 ½ years	6.7,8	Religion
Female	25 ½ years	6.7.8	Science

Data were coded using a constant comparative method. Steps for data analysis included: (1) transcript preparation, (2) development of codebook, (3) identification of themes, and (4) credibility check. To ensure credibility of data, all codes and themes were peer reviewed by a non-participating teacher to ensure reliability. Themes were sent to participating teachers to ensure accuracy of interpretation.

Transcripts were prepared by the Zoom software and reviewed by the researcher for accuracy. Inaccuracies in transcriptions were corrected after listening to the original recording to ensure accuracy. The four interviews were transcribed resulting in 418 lines, 329 lines, 359 lines, and 359 lines, respectively.

Using the methods for data analysis described in Chapter three, four themes emerged from the coded transcripts. The identified themes can be found in Table 5.

Table 5

Identified Themes

Codes	**Theme**
Teaching experience Positive teaching experiences Negative teaching experiences	Teaching experience
Experience with disabilities Experience with students with disabilities Physical disabilities	Perspectives on disabilities
Inclusion Positives of inclusion Barriers to inclusion Physical disabilities in science and STEM	Perspectives on inclusion
KBK Workshop Hands on Experience KBK – Interaction with recipients Post workshop insights Sustainability	Insights from KBK Workshop

Themes

Teaching Experience

These four teachers represented diverse perspectives, from the least amount of teaching experience (39 months) to the most experience (402 months). The experience was varied, including public and private schools as well as different grades prior to current positions in middle school. Each journey was different, with three of the four teachers have spent time in the public school system prior to transitioning to private school settings. Teacher Two described her transition as reinvigorating, "I coached middle school, but I'd never taught middle school. And then I had this job opportunity in Florida, and it seemed like, yeah, why not? And for me, I've been teaching for like 17 years. So, for me, it was a whole renewing, like, wow, this is something new."

All four teachers were positive about teaching sharing numerous positive experiences with a common thread of student success. Each of the teachers focused on success in their given content area with success measured differently from expressions of student enjoyment, student validation of learning, success in state science fairs, or knowledge of content. Teacher Three provided the most comprehensive description of student success, which spoke not only to academic growth but also social-emotional growth. Teacher Three stated,

> My first few years teaching would for some reason, they put the kids that failed science back in with me. So, you know, having them pass science, that was a big deal. Yeah, some of them just took a little more work and then, a lot of it was the social, emotional aspect of it. You know. Kind of nurturing them. Socially and emotionally then then just academically.

Experiences both positive and negative shape attitudes and dispositions of teachers towards all students including those with disabilities. Negative teaching experiences shared by three of the teachers' involved parents and parental expectations with the remaining reporting student behavior and discipline. As described by Teacher Three,

> first hear me say the parents are there, their biggest advocate for their students or for their children. So, I'm all about that. But parents can be a challenge sometimes too. Like they don't understand, or they don't see the whole vision where you're trying to head with something.

This perspective on parents provided important insight as Teacher Four later revealed that some of these negative parental interactions involved inclusive teaching practices in her classroom.

Perspectives on Disabilities

When asked about experiences with individuals with disabilities outside of teaching, all four teachers shared that one of their extended family members has a disability. The disabilities varied in nature and complexity including developmental disabilities as well as medically complex neurological conditions. Each one spoke about how these early experiences impacted them positively. Teacher Four described her family as having individuals with a variety of diagnoses stating,

> We had Duchenne's syndrome in a couple of cousins, Cochrane syndrome and a nephew with a disability as well, if disabilities include learning disabilities. We also had ADHD with friends and family members, and autism with some family members.

She expanded to include the positive experiences of witnessing their progress and sharing in their successes. Teacher Three had a niece with Down syndrome whom she was close to and whom she described as a "joy."

When Teacher Two spoke about her experiences working with students with significant disabilities as a middle schooler in the public school system, she described this experience as both rewarding but also scary, stating,

> So, when I was in middle school they had a PMH [Profoundly Mentally Handicapped] program. They would have student helpers in with the PMH teachers. So, I volunteered to help in that and that was eye opening…. it was scary as a kid. Sure, watching you know, these kids because they were bigger. They were middle school and high school age, so. You know, these kids were in diapers and would have these crazy reactions. Yeah, it was scary as a kid. Sure, watching you know, these kids because they were bigger. They would have these crazy reactions.

While she went on to describe positive moments in this experience as a middle schooler herself. This early experience in life she noted shaped her attitudes and beliefs about individuals with significant disabilities.

Perspectives on Inclusion

Philosophically, the teachers were supportive of inclusion, although, the individual interpretations of inclusion in practice differed. Teacher Two answered from the lens of not only a teacher, but also as a parent stating, she could appreciate both the pros and cons of inclusion. Teacher Four stated,

> Well, as a parent of a child that was in an ESE program for a while, I think it's important that they learn skills, appropriate skills and whatever to accommodate whatever disability they're dealing with. But then to be with everybody else because they're part of our family, part of our society and, and I think it's important that we all learn how to work with each other regardless.

It is interesting to note that none of the teachers referred to concepts of universal design for learning; the only instructional strategies discussed were differentiated instruction and collaborative learning by Teacher Two and Teacher Four. Teacher Two described her teaching strategies as follows,

> So, have you heard of differentiated instruction? Yeah, That's a big one. And? You know. The old school, the old way of thinking is, you know, you group the kids who are alike and the kids you know have but you know we've been challenged to you know, put a high achieving kid with a low achieving kid, a kid who struggles with reading with a kid who doesn't. You know what I mean? And this can go from personality types to disabilities to you know, like, so yeah, it's been interesting with this flexible grouping to kind of mix it up and let everybody interact with everybody, else and it actually helps the kids grow like you can see it.

Benefits of Inclusion

When probed further about the implementation of inclusive teaching practices, teachers spoke with a shared consensus of this approach positively impacting the social emotional learning of all students. Two teachers expanded to include positive learning experiences that

occurred in their inclusive learning environments. Teacher One shared his observations of the students in an inclusive learning environment as,

> having a protective vibe with them like they would, you know, help them out. They would do all stuff, you know, it wasn't like, Oh my gosh, why are they in our class? It was more like, hey, how can we help you do that? It was a good group of kids that we had those couple of years. And so, I guess my positive aspect was, obviously the kids get to be in a normal classroom with what I would call normal kids. Well, at the same time, the kids that were in that classroom also got to experience what it's like for a student to be with needs.

Teacher Three described the social-emotional learning benefits such as the development of empathy and compassion in students. Teacher Three stated,

> I think socially it's important for people that kind of feel isolated because of a disability, let's say. I think socialization is important and when it comes down to it, maybe that's a good reason to have inclusion in socialization. And I still think it gives compassion for other people, for that population.

Barriers to Inclusion

In response to questions regarding barriers to inclusion, teachers took a few minutes to reflect prior to answering. All four teachers expressed concerns for student learning; however, the level of concern varied from significant to minimal. Three teachers noted that students with disabilities may present a distraction to other students and when present require additional strategies for classroom management. Teacher Three spoke about the challenges of parental

expectations and revealed she has experienced a small number of parents who complained about their neurotypical child being in an inclusive learning environment. She stated,

> And unfortunately, I've had maybe 3 occasions, 4 that I can think of in the 20 years I've been here where I've had parents express that they were not pleased, that their child was paired with someone that had a disability. That was making the work more of a challenge. When parents are paying tuition, it can change the dynamic and their expectations.

Inclusion in Science and STEM

Teacher responses were most diverse when asked about inclusion of students with disabilities in science and STEM learning experiences. The variations resulted from the lens by which the teacher responded. For example, Teachers One and Four spoke to the unique perspectives of students with disabilities and how those might add to a science or STEM learning experience. In contrast, Teachers Two and Three spoke to inclusion of students with more significant needs and their responses were quite different. Teacher Two stated she could not see students with significant needs being successful in a science classroom. Expanding further with the statement, “I wouldn't have PMH kids in there. No.” In comparison, Teacher One spoke of the strategies used to promote access to learning for students with more significant needs.

> They may have a totally different perspective of how I would use this in my daily life if I needed to use that need. So, I think the perspective would be a little bit different, maybe a little bit depending on what the disability is. I mean, they may have a physical thing to where they couldn't be tactile. I guess it just depends on what it is. You're learning the

> learning-disabled type of terminology, I guess it may not be as big of a change, but I think if you had to have a physical person in the hands-on STEM class, it may be a little different for them.

Teacher One expanded further stating,

> If you're talking about one-on-one lab. If you're talking about a group lab, they've I think they would be just fine because they could easily pass on what their thoughts are and have other people conducting the experiment with them just giving their analysis. They couldn't physically do it, but I know that there are a lot of things out there that are accommodating to them too.

Teacher Four had experience with students with physical disabilities in science and was able to share his experiences in the classroom.

> He's very independent and just making the physical arrangement whereas we have the lab tables. Luckily, he is in a wheelchair that elevates, raises, and lowers. It’s awesome, so we can just pull a chair out and he can fit into the lab table as well. And I try to give him things. I mean he can do the labs, but as far as gathering materials and things, I try to make sure that he's also included in doing that because he can. I'm getting used to that because it's the first time in a long time I had a child in a wheelchair that was a permanent situation right.

Insights from Kids Building for Kids Workshops

Teachers reflected on various aspects of the KBK workshops, hands on learning, interaction with the recipients of the cars and sustainability. Hands on learning and problem

solving are key components to the KBK Workshops. All four teachers noted they enjoyed these characteristics of the PD. All four teachers found the KBK Workshop to be an enjoyable hands-on experience. In addition, they each commented on student engagement, as well as the student's ability to self-select the task they felt they could contribute to meaningfully. Lastly, two teachers commented on the impact of completing the project in one session allowing the students to see it through to completion. Teacher one described that "kids probably enjoyed something different because they're able to physically make something, yeah. There's an opportunity for students of varied interest to engage where they feel best suited. That's most exciting for them." He also shared that,

> I liked that the middle schoolers got so involved and I really liked that that they, you know, it was it was for me it was neat. Just the whole thing was a good experience because they got to see it from the beginning to the end.

Teacher Three recalled that "Well, what I noticed when I while I was there, I noticed they really did like the problem-solving part the kinesthetic part of it."

Another key component of the KBK Workshop is having the build team meet the recipient and learn about their individual needs, preferences, and interests. The teachers found this interaction to be meaningful for students as it brought the concept of helping others to life. The interaction with the recipient gave the middle school students a sense of purpose and provided a broader context for the workshop. Teacher Two stated,

> Like, you know, oh and then, you know, when the kiddos showed up and they're like, holy cow, this is like real, you know, like yeah. A project, you know, like that I have to do, this is like for somebody's life. So that was eye opening and for a lot of them. A

> couple of my boys said that you know what they like. A lot of times the service hours don't have meaning, and this had meaning to them.

Lastly, the fourth teacher spoke about the novelty of a multi-generational event and its impact on student learning.

Following the workshop, the teachers' focus shifted to accessibility of their space for learning and activities like the KBK Workshop. Two had not thought about the physical limitations presented by fixed tables in a science lab. All four teachers commented that the event was more impactful than they realized. Perhaps the most powerful insight came from Teacher Four who stated, "that inclusion is important and sometimes I forget to take that into account." All four teachers ended the interview with requests for future events and additional learning opportunities for themselves and their students.

Credibility of themes was conducted using member checking and peer review to ensure trustworthiness (Creswell, 2018). A research assistant participated in transcript analysis and coding which offered a counterbalance to the potential for positionality and bias of the researcher. Reliability of coding was obtained between the two coders and any areas that lacked consensus were discussed until consensus was obtained. To ensure validity of the interviews, the four teachers who participated in the interview process were asked to review the basic themes and larger organizing themes to provide feedback on the accuracy of the themes. In addition, they were asked to comment on whether these themes were an accurate representation of their attitudes and dispositions towards individuals with disabilities and inclusion. No concerns were noted by the participating teachers after review. Triangulation of all data occurred to ensure validity and reliability of the findings.

Triangulation of Data

The exploratory mixed methods design was employed to examine research question three. Triangulation of data provided additional insights into the impact of KBK Workshops on the attitudes and dispositions of a purposive sample of general education middle school teachers toward students with disabilities. A visual presentation of the study and triangulation of data can be seen in Figure 2. The quantitative data were analyzed, and no statistical significance emerged between the pre, and post workshop mean scores on the EADS and the TATIS. However, when these results were merged with the qualitative data, and the reflective journal it allowed the researcher to draw inferences from the data for greater insight into impact of KBK workshops. Table 6 provides data that was merged for triangulation.

Table 6

Analysis of Merged Data

Quantitative Data	Qualitative Data	Reflective Journal
EADS Pre- workshop Average 106.75/ 126 EADS Post-workshop 106.25/126 Higher scores reflect a more positive attitude.	All four teachers demonstrated positive attitudes towards individuals with disabilities	Teachers adapted the physical environment. Positive interactions between teachers and young children with disabilities and their families
Pre-workshop TATIS raw scores represented the 79% rank (M = 42.25, SD = 12.20) Post workshop scores represented approached the 99% (M = 35.1, SD = 9.35). These scores offered insight on teacher attitudes suggesting they have positive attitudes towards inclusive teaching practices.	Interviews revealed varying levels of experience with inclusive teaching practices and two teachers stated concerns about inclusive practices.	Students' engagement increased due to Universal Design for Learning nature of KBK.

Following the KBK Workshop the EADS scores were determined not statistically different between the pre and post workshop. While the TATIS scores improved, the data analysis revealed no statistically significant difference between pre and post workshop assessment. Qualitative data from the semi-structured interviews conducted with four of the eight teachers revealed positive responses to the event; requests for ongoing collaborations and future KBK Workshops; and statements about the impact of the workshop on students with and without disabilities. Review of the reflective journal noted teachers adapting the physical space in which KBK workshops were held, positive interactions between teachers and the young children with disabilities and their families, and increased student. As seen in Figure 7, the triangulation of this data suggests a positive response in a purposive sample of general education middle school teachers towards the KBK Workshops.

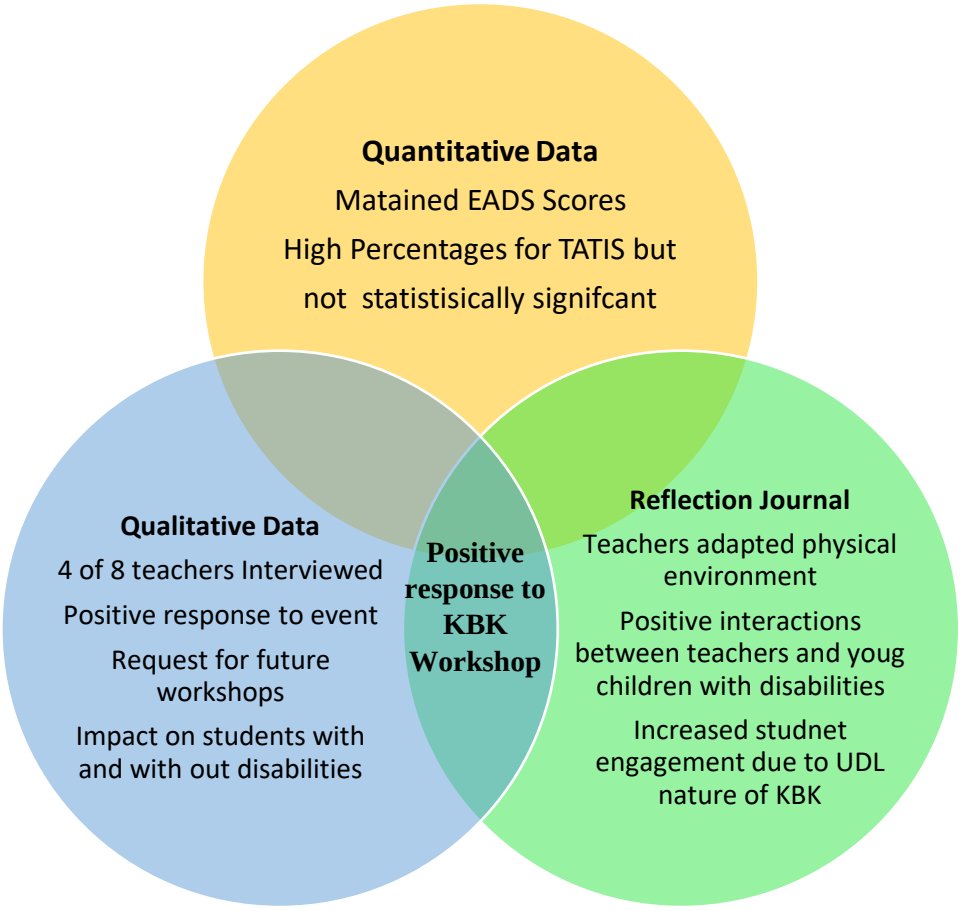

Figure 7: Triangulation of Data

CHAPTER FIVE: DISCUSSION

Research on attitudes and dispositions of middle school teachers toward inclusion of students with disabilities, including students with physical disabilities (Schwab & Gelfman, 2017), suggests that teachers' beliefs and attitudes play a crucial role in the implementation of inclusive education practices (Friedrich et al., 2020). Teachers' empathy, positive attitudes toward students with physical disabilities, and willingness to accommodate their needs are crucial dispositions for successful inclusion (Schwab & Gelfman, 2017). Research supports that teachers who display these dispositions are more likely to provide necessary individualized support, collaborate with other professionals, and foster both a positive and supportive classroom environment (McCleskey et al., 2017). Fleming and Banerjee (2018) found that teachers who have positive attitudes toward inclusion of students with physical disabilities often believed that inclusion could improve social skills, academic achievement, and promote overall positive outcomes for all students. In contrast, Schwab and Gelfman (2017) found that teachers who have negative attitudes toward inclusion often expressed concerns about the impact on their teaching workload, the need for additional resources, and potential disruptions to classroom routines.

Experience teaching students with disabilities also impacts attitudes toward inclusion. Teachers who had more experience teaching students with diverse types of disabilities often had more positive attitudes toward inclusion than those without experience (An, 2016; Kozleski et al., 2012). Teachers with experience teaching students with disabilities tended to display more empathy and a willingness to accommodate students' needs and self-efficacy in their ability to create an inclusive learning environment. As such, positive experiences with students with

physical disabilities are critical to increase teacher self-efficacy and attitudes toward inclusion. As children with disabilities are being served in an ever more diverse educational system, it is critical that researchers explore effective PD offerings that promote improved attitudes toward disabilities and inclusive teaching practices in all school systems including public and private(Wang et al., 2019).

Impact of UCF GO Baby Go Kids Building for Kids Workshop

The researcher in this study examined the impact of the UCF Go Baby Go (GBG) Kids Building for Kids (KBK) Workshop on the attitudes and disposition of general education middle school teachers toward students with disabilities and inclusion following an informal PD activity. Novel approaches to PD such as exploring concepts of disability, personal reflections, and the sharing of lived experiences positively influence teachers. The UCF GBG KBK Workshop incorporates many of these concepts and was positively received by teachers. In this chapter, the researcher discusses the findings of the study in the context of existing literature along with limitations future directions.

Results of this study support the positive influence of the KBK Workshop on teachers' attitudes toward students with physical disabilities. This positive influence was best captured by the mixed methods study design. While there were not statistically significant differences between the pre and post workshop EADS scores; it should be noted the mean scores from the EADS provide insight on the attitudes of the teachers towards individuals with disabilities. Mean scores on the EADS from both before and after the workshop (EADS). Pre- workshop. 106.75/ 126 and the EADS Post-workshop 106.25/126) were representative of more positive attitudes

toward disabilities with only a small insignificant difference of 0.05 between scores. Higher scores reflect a more positive attitude toward disabilities. While there were not statistically significant differences between the pre- and post-workshop assessments, these positive attitudes were also documented in the qualitative data. All teachers interviewed reported that they had at least one family member with a disability. Statements such as "my niece has Down syndrome, she is a joy" and It's always great to see someone that has a physical disability when they're able to not overcome it, but to compensate it if that makes any sense and to still enjoy a high quality of life" document the positive perspectives of these teachers toward individuals with physical disabilities. The lack of statistically significant findings on the EADS may be evidence of a sampling bias. Teachers with more positive attitudes toward disabilities may have been more inclined to sign up to participate in this study.

The Teachers Attitudes Toward Inclusion Scale (TATIS) was developed as an instrument for detecting change in teacher attitudes and beliefs toward children with disabilities (Gregory & Noto, 2012). Raw scores once converted to T scores can be converted to a percentile rank of normative data. Mean scores of the TATIS did not demonstrate statistically significant differences between the pre- and post-workshop surveys, Pre-workshop TATIS raw scores represented the 79% rank (M = 42.25, SD = 12.20). Post-workshop scores approached 99% (M = 35.1, SD = 9.35). However, while not statistically significant these scores increased, and the means scores are suggestive of positive attitudes toward inclusive teaching practices. The teacher scores on the TATIS may have been influenced by a desire to respond to the TATIS with what they believed were the socially appropriate responses. In addition, it is important to note that the

TATIS examined attitudes towards inclusion and this study did not include any quantitative data of actual teacher practices or strategies for inclusive learning activities.

Qualitative data did, however, reveal that while teachers may have indicated support of inclusive teaching and students with disabilities this may not translate to implementation within the classroom. Teacher Three stated, “I think it's important for everyone that they're as included as it pertains to them. Include everyone as much as possible where it's not to the detriment of any learning. That is important.” Teacher One stated that inclusion “was not a five day a week thing” and described learning activities as

> a lot of like workbooks and paperwork and things that we would send home with the kids as opposed to more of the hands-on type of thing. So, I can see where the students with disabilities we're having a little bit of an issue because it was just a lot of paperwork and those type of things where it wasn't something that was engaging to those students.

When Teacher Two was probed about including students with physical disabilities her response was “I wouldn't have PMH kids in there.” This contrasted with comments from Teacher Four who currently teaches science to students with physical disabilities. She described doing “a lot of collaborative things together. We do a lot of like think, pair, share kind of activities, and I let them usually work always with a lab partner. And they vary with students with varying abilities. Sometimes they can choose their partners, sometimes it is an assigned rotation, so they learn to work with each. And I find that, you know, I try to put children I know that are struggling with a more positive role model in the beginning and to see how that relationship develops and where it doesn't, and then to foster whatever I can to make it work out.”

Responses about inclusion after the KBK Workshop revealed more positive attitudes toward inclusion. Teacher Four shared that

> One little boy that was walking around and again he's somebody on the autistic spectrum. He had that little sticky note that had that one little boy's likes on it. He looked at me and said, “I know I want to keep this. I want to keep this so I can remember this day. Since the experience, he's been even more verbal and interested in what he could do later, like he was when we mentioned the part about the prosthetic, the 3D printed for children. He is so interested in that right now. And he's like, I want to think about how I can do a science fair project next year.

As the interview continued, she stated,

> So, it is like, this stuff is more impactful with them than maybe I realize. Inclusion is important, but I just sometimes forget to consider, maybe that child has like the little one. I could not tell what his disability was. And I think sometimes we look at children, we forget that every single one of us has some kind of a special need, right. And that really helped to reinforce that. You know you might not look like you have something going on, but we all have something going on, right? Inclusion is important, but I just sometimes forget to consider. You know, I don't think it really occurred to me till just now that we did have a child come receive a car with spina bifida in a school where you have another child with spina bifida.

Additional insights on the impact of the KBK Workshop on teachers’ attitudes towards inclusion were documented in the researchers’ reflective journal. The teachers were observed adapting the physical environment to make it more accessible and inclusive to the young children

with disabilities. Positive interactions occurred between the teachers and the young children with disabilities and their families throughout the workshops. The triangulated data suggests a positive response by teachers toward this inclusive informal PD experience. These findings are consistent with the study by Royster, et al. 2014 as they documented improved teachers' perceptions and attitudes toward inclusive classrooms following PD.

Professional Development on Inclusion in Science and STEM

Examining the effectiveness of PD on inclusion is valuable; however, the impact of these PD experiences can be magnified when focused on science and technology. Bargerhuff et al. (2010) documented the needs of science teachers in both knowledge and skills needed to provide equitable learning experiences. Perhaps one of the most surprising findings by Bargerhuff et al. (2010) was that 90% of the teachers reported little to no preparation for teaching science to students with disabilities. There is limited evidence on effective interventions for promoting more inclusive science and STEM classes in K-12 education (Klimaitis & Mullen, 2021).

One model documented by Bargerhuff et al. (2010) was the Creating Laboratory Access for Science Students (CLASS. This project, which was designed to engage more students with disabilities, project afforded teachers both access, instruction, and practice in the use of assistive technologies and inclusive practices. Following participation in the CLASS workshop series, teachers reported increased self-efficacy when engaging students with moderate to severe disabilities in their classrooms. Like the CLASS professional workshops (Bargerhuff et al., 2010), UCF GBG KBK Workshops engaged middle school teachers of whom the majority taught

science and STEM. In contrast, the KBK Workshop was shorter in duration than the CLASS intervention. While the results of this study suggest a positive response to the KBK Workshops this response may have been magnified if the KBK Workshop had been longer in duration.

Brusca-Vega et al. (2014) documented increased awareness of classroom culture and accessibility following PD. Both Bargerhuff et al (2010) and Brusca-Vega et al (2014) incorporated multisession and lengthy interventions in contrast to the one-day KBK Workshop. However, despite the short duration of the KBK Workshop, the researchers reflective journal documented the researchers' observations of teachers adapting of the classroom during the workshop to make it more accessible for the young children with disabilities and their families. After the workshop, teachers reflected on their classrooms and the accessibility of those spaces for students with disabilities. "We should have had a little bit bigger space, but we didn't know that either. Like the tables were fixed because it was in the science lab." The qualitative data suggests that teachers may advocate differently for students with disabilities in the future. Teacher Four who currently has two students with physical disabilities reflected,

> I'm getting used to that because it's the first time in a long time I had a child in a wheelchair that was a permanent situation right. typically, have more temporary where they can move themselves out of the wheelchair into a regular classroom chair. But he's getting to this stage where he's not able to do that. So, it's just being aware of that. As for the lab itself, since he's been at a table, it's not been an issue.

Project Based Learning and Inclusion of Student with Disabilities

The KBK Workshop offered a project-based learning experience for middle schools' students with a one-day informal PD experience for teachers. The researcher observed increased student engagement which may have been related to the UDL nature of the project. Students were excited to self-select which aspect of the project they wanted to contribute. All students engaged in some aspect of the modification of the ride on car for young children with disabilities. Teacher One commented on the benefits of hands on and experiential learning for all students.

> I really like the kids' doing projects and things. They sometimes moan and groan about having to do something, but then they start working on it and they can see that a lot of times the joy that comes out with them just being able to kind of relax a little bit and have an informal setting of working on the project at their pace.

The researcher observed teachers to be somewhat removed from the actual modification of the ride on car itself. Instead, the teachers were noted to allow for active learning through student discourse and project-based learning. Teachers intervened as needed for classroom management or to answer questions but otherwise used a constructivist approach to foster student learning. These teacher characteristics are noted as highly effective teaching practices for science teachers in middle and high school (Pande & Bharthi, 2020)

Interactions with the Young Child with a Disability

Teachers who participated in the KBK Workshops shared the impact of meeting the young child with the disability who received the car on both them and their students. One of the

KBK Workshops provided a modified ride on car for a child with a specific neuromuscular disorder. Teacher Four who participated in that KBK workshop shared that there was a middle school student with the same diagnosis in their school. Teacher Four spent time with the mother of a young child with a disability and was able to share what she knew about the diagnosis and at the same time learn more from the mother. Both participating teachers at the KBK workshop (Teachers Three and Four) described this interaction as powerful for not only their own learning and understanding of the growth and development that occurs in children with this diagnosis across the lifespan but also their students.

Personal narratives and sharing of lived experiences can be powerful educational tools. Chrysotomou and Symeonidou (2017) demonstrated the power of personal narratives in their study examining the efficacy of a PD for disability equity that employed personal narratives as an educational tool. They found that these interactions promoted a greater understanding of disability. Similarly, in the KBK Workshop both teachers and students hear firsthand from the families of young children with disabilities. These personal interactions and narratives give a face to individuals with disabilities and the challenges they encounter and possibly begin to dismantle the ableism mindset of society. The KBK workshops are founded on a strength-based approach. Rather than focusing on what individuals with disabilities cannot do; the focus is on what they can do. The goal of increasing empathy and empowerment of teachers and students to positively impact the life of a child with a disability in a meaningful way is drastically different than the more common emotion of sympathy. Building self-efficacy of teachers in skills such as collaboration and co-creation of solutions with individuals with disabilities may result in increased understanding and advocacy within the school and larger community. The theoretical

framework of this study was the theory of change which focuses on understanding how changes occur and how those changes can be leveraged to create social change. Increased advocacy and self-efficacy are necessary for dismantling ableism on a larger scale. While the results of this study did not result in statistically significant changes, the documented positive influence of KBK Workshops on teachers' attitudes and beliefs toward students with disabilities suggest this framework could provide a foundation for a larger, system wide initiative resulting in a critical aspect of social change – changing mindsets about individuals with disabilities.

Impact on Middle School Students with and without Disabilities

All teachers discussed the impact this event had on their students with and without disabilities. Teacher Four described how one student with disabilities was impacted by the KBK Workshop stating he told her that he never wanted to forget the events of that afternoon. Over the next week, he shared ideas that he had about projects he could do to improve the lives of children with disabilities. Teacher Four reflected that these interactions have challenged her to think differently about how to engage students of all abilities in these types of hands-on project-based learning experiences and other classroom activities.

Even in the schools that are not currently serving children with physical disabilities teachers found value in the interaction with the young children with disabilities and their families. Teacher One shared that he had had one kid when he signed up and shared that the student said,

I can't wait to help out these little kids, you know, so you have a little bit of empathy like hey, I want to do this for them. So, for them to see the fruits of them building it and then see the, the, the parents and their kids, how they took to the car.

The researcher observed increased student engagement in response to the UDL nature of the KBK Workshop. Some students were motivated to engage in more engineering type components such as construction of the postural supports, while others were enthusiastic about the aesthetics of the modified ride on car and a desire it to tailor it specifically to the preferences of the young child with the disability.

The mixed methods research design allowed the researcher to fully examine the impact of the KBK Workshops. This methodology allowed for the data to be triangulated to validate the study impact. After a review of all the data, KBK Workshops provided an informal PD that positively influenced teachers' attitudes toward students with disabilities and inclusive practices.

Study Limitations

It is important to note that there were limitations to this study that may have impacted the results. The most notable limitation is the small sample size that was employed due to the exploratory nature of this study. G Power was used to calculate the sample size; however, the calculated sample size of 34 was not feasible. The small sample size of eight may have impacted the statistical analyses and overall effect size. Therefore, the findings of this study are not generalizable to the larger population as sufficient power was not obtained with the small sample. Additional studies are warranted with larger sample size.

Sampling bias may also have impacted the results of this study. Teachers were provided with this experience as a volunteer opportunity. Of the four teachers interviewed, all reported

having a family member with a disability. The personal experience of having a loved one with a disability may have predisposed these teachers to volunteering for this experiment. Future studies should seek to have a sample that includes teachers with and without family members with disabilities.

As discussed previously, the instruments selected may not have been sensitive enough to capture change in this population. The scores on both the EADS and TATIS were relatively positive at the pre-workshop assessment which may suggest that teachers responded in a manner they felt was socially appropriate. In a future study, quantitative data/ survey might include an instrument assessing implicit biases in teachers, a knowledge assessment of universal design for learning and best practices for inclusive teaching, and measures of student performance before and after the KBK workshop.

Finally, recruitment of teachers from private schools presents an inherent limitation as most students with disabilities are served by the public school system. Every effort was made to gain approval from the public school system to conduct this research, but approval was not able to be obtained. Recognizing that across the United States parents have the option to place their students with disabilities in private schools it was reasonable to move forward with a sample representing private schools. All the private schools in this study accept state scholarships for students with disabilities and have students with disabilities as a portion of their overall student population. School choice offers parents the option to explore different educational settings and determine what is the best fit for their child. Many families are choosing private schools as an option. While the sample of teachers from private schools may limit generalizability, the results

of this study provide insight into teachers in private school's settings serving children with disabilities.

Validity

Potential threats to validity have been addressed in Table 7. The researcher has made every effort to mitigate these threats as indicated within Table 7. Table 8 addresses potential threats to internal validity.

Table 7

Threats to Validity

Threat to Validity	Solution
History: Events that occurred during the study may have impact the outcome.	History to impact the response of participants; little can be done to address this threat other than a recording of any noteworthy events that occur during the study.
Maturation: Processes within participants may impact the outcome	Maturation may occur in teachers particularly in their first 1-2 years of teaching. Teachers were excluded if they had less than one year of experience.
Testing: The effects of completing one test upon later tests	Testing effects present a threat to internal validity as participants might have altered their response to provide what they perceive to be more acceptable responses.
Instrumentation: Changes in the measure and/or changes in the scorers may have impacted measurements.	Instrumentation – The psychometric properties of the instruments have been examined in the literature and were reported in the instrumentation section of the proposal. Qualtrics was used to collect quantitative data.

Threat to Validity	Solution
Statistical Regression: The movement of post-test scores toward the mean, independent of any treatment effect	Instrumentation – the use of standardized assessment tool was used to mitigate this threat to validity.
Selection: Differences between treatment and control groups resulting from the non-random distribution of participants	Due to the nature of the study- Selection may present an unavoidable internal threat to validity. Participants volunteered to participate in this study.
Mortality: loss of participants from a group or differential loss between groups.	To minimize the threat to mortality, the curriculum was reduced to a one-time experience. In addition, incentives will be provided at the end of the study to reduce the potential for mortality.
Placebo (nocebo) effect: participants' expectations of and desires for outcome may impact the outcome.	Teachers' dispositions toward students drawn to participation may pose the risk of a confounding variable or set up increased risk for a placebo effect. To reduce this threat – the study is mixed methods and will include an interview to explore disposition, motivation, and attitudes of all participating teachers.
Hawthorne effect: Simply receiving attention from experimenters may have impact the outcome.	Participation in the workshop resulted in increased time with the primary investigator increasing the potential for the Hawthorne effect. Strategies to minimize this risk will include hidden observation during the workshop itself.
Experimenter bias: Experimenter's expectations of and desires for outcome my consciously or unconsciously impact the outcome.	To address experimenter bias; Qualtrics will was used as a method of data collection and data analyzed per testing protocols and statistics. A research assistant participated in data analysis to address the risk of experimenter bias.

Table 8

Threats to Internal Validity

Threat	Solution
Sample bias: The sample may not have represented the population of interest.	Purposive sampling was used to recruit a sample with identified characteristics.
Reactive Effects of Arrangements: The experimental environment is so different from the real world that generalization is not possible. Often called "ecological" validity.	All research activities took place within the participants' school (community-based research). This not only mitigates the reactive effects of arrangements but also provides insights on real world utility of the KBK Workshop.
Multiple Treatment Interference: Multiple treatments would not be administered in the same way in the real world, which impair replication if the treatments are interacting.	The study has been revised to include only one intervention and will take place in the participants natural setting which eliminates the multiple treatment interference threat to external validity.
Ecological effects: The extent to which the context of your study looks like the real world to which you hope to generalize	Conducting the study in the participants' school is the real world and therefore eliminates the risk of ecological effects.

The instruments addressed the following threats to validity: (1) instrumentation – selection of instruments with strong psychometric properties; (2) experimenter bias – all instruments were administered and recorded via Qualtrics. Threats to validity of the interviews were addressed through use of a research assistant, who is also a teacher, reviewed all data and interpretations to ensure both accuracy and interpretation as the primary investigator is not a teacher.

Changes to the procedures included the following to address possible threats to validity: (1) expanded criteria for purposive sampling; (2) use of Qualtrics for data collection (i.e., instrumentation and experimenter bias); (3) shortening of the intervention to a one-time experience (i.e., history, maturation, and mortality); (4) research activities took place in participants school (i.e., contamination effect, reactive effect of arrangement and ecological effects)

Experimenter bias presented a threat to both internal and external validity. As the Director of UCF GBG KBK Workshop despite best attempts to remain neutral and objective, the investigator was likely unaware of her implicit bias. To mitigate this threat all data were reviewed by an IRB approved research assistant who is a teacher and not affiliated with UCF GBG KBK Workshops.

Qualitative - Threats to trustworthiness

The perception of the primary investigator as an outsider by subjects presents a threat to trustworthiness. The primary investigator, not a teacher, but interpreted participating teachers' responses. Reliability was achieved with coding prior to final analysis. A research assistant who is a teacher was used to reviewing all data and interpretation of data to reduce any misinterpretation or bias.

Mixed Methods – Threats to validity

To mitigate threats to validity the research used a research assistant in the process of data analysis. The emerged were discussed, and consensus was achieved. Credibility and

dependability were developed through the training sessions, ongoing communication, and member checking throughout the process of data collection.

Future Implications and Research

Future research on KBK Workshops would benefit from the inclusion of an implicit bias assessment to identify and address any existing biases toward individuals with disabilities. In addition, incorporating content on best practices for inclusive learning experiences, such as UDL, and assessing the participants knowledge of this content both before and after the PD event. These additions could be of value to the field and l address any unidentified gaps in this research as well as provide a comprehensive assessment of impact.

All the teachers who participated in this study requested ongoing KBK Workshop opportunities. While these requests suggest a positive influence of the KBK Workshop on general education middle school teachers' attitudes toward students with disabilities and inclusion, the researcher believes this influence can be magnified with a longer intervention. A system wide intervention such as the development of a GBG Learning Community could be a powerful model for intervention.

System-based Initiatives

System or school wide PD initiatives are common strategies employed by districts. Royster et al. (2014) examined the Inclusion Professional Development Model (IPDM) for teaching inclusive classes to general education middle school teachers. Areas targeted by the IPDM included: (1) inclusion (2) planning for student needs in an inclusive classroom (3)

systematic instruction in an inclusive classroom (4) peer relationships and support (5) collaboration for the delivery of inclusive learning experiences and (6) evaluation. Parallel components exist in the IPDM, and the UCF GBG KBK Workshop conducted in this study. Specifically, the focus on inclusion and using peer relationships and supports. However, the IPDM was administered over a nine-week period and included six modules; Pre and posttest assessments for both studies included the TAIS. Statistically significant gains were found on the Teachers Attitudes Toward Inclusion Scale (p value =.000) in the IPDM study representing a strong effect size (d = .951) (Royster et al.,2014).

The statistically significant results of the Royster study contrast from the UCF GBG KBK Workshop which did not result in statistically significant findings. The difference between the studies is clearly the length of the intervention and the sustained PD aligned with a broader set of topics. Increasing the duration of the informal PD based KBK Workshop may result in more statistically significant results. Future PD aligned with the development of a system wide GBG KBK Learning Community could offer a more powerful mechanism for PD. The learning community could incorporate a larger number of workshops, and collaborations between local universities, school systems, and other community stakeholders serving children with disabilities. Engaging university stakeholders affords school systems an additional resource for future teachers and therapists. Engaging future teachers and therapists not only increases the volunteer pool for the GBG KBK Learning Community, but also provides a lens for these future professionals to increase their capacity in working with children with disabilities. Learning to employ a strength-based approach as a component of teacher and therapist education will result

in a workforce that views children with disabilities differently with a focus on universal design for learning and novel approaches to problem solving.

A GBK KBK Learning Community allows for teachers and other volunteers to participate in a KBK Workshop themselves rather than just observing. Experiencing the workshop firsthand might impact teachers differently than their role as facilitators of student learning in the current study. This model also could afford opportunities for coaching of teachers by teachers who have previously participated in a KBK Workshop. This model creates sustainability for the program by expanding the pool of teachers and therapists with experience in facilitating these learning experiences for students.

A final future direction would be the development of the GBG KBK workshop into a middle school curriculum. The curriculum could incorporate learning objectives for teacher PD and student learning influencing both simultaneously. A curriculum would allow for more time to be spent on STEM content such as physics, circuits, and design. In addition, the curriculum could include the creation of additional adapted toys or assistive technologies that would benefit children with disabilities.

Expanding on this initial model of KBK workshops provides opportunities for meaningful PD, system wide initiatives, interprofessional education, and improved learning outcomes for students. Perhaps the most important outcome of a broader initiative would be a more inclusive community and the breaking down of ableism. Additional research is warranted to explore the impact of these initiatives.

Conclusion

UCF KBK Workshops was positively received by this purposive sample of general education middle school teachers. While the quantitative data did not yield statistically significant findings, the triangulation of data revealed the overall positive influence of the KBK workshop on the teachers. This exploratory research suggests that the KBK Workshops may be an effective informal PD offering for general education middle school teachers to promote the inclusion of students with disabilities into science and STEM coursework. Expanding upon GBG KBK workshop framework to create a UCF GBG KBK Learning Community could provide a novel and engaging mechanism for interprofessional education incorporating students in exceptional education, physical therapy, and general education. An interprofessional experience of this nature incorporating faculty, students, and community schools could lay the foundation for a more inclusive community where all learners are welcomed. Additional research is warranted in this area.

APPENDIX A:
IRB APPROVAL

UNIVERSITY OF CENTRAL FLORIDA

Institutional Review Board
FWA00000351
IRB00001138, IRB00012110
Office of Research
12201 Research Parkway
Orlando, FL 32826-3246

EXEMPTION DETERMINATION

August 31, 2022

Dear Jennifer Tucker:

On 8/31/2022, the IRB determined the following submission to be human subjects research that is exempt from regulation:

Type of Review:	Initial Study
Title:	DETERMINING THE INFLUENCE OF KIDS BUILDING FOR KIDS WORKSHOPS ON ATTITUDES AND BELIEFS OF GENERAL EDUCATION TEACHERS TOWARDS STUDENTS WITH DISABILITIES
Investigator:	Jennifer Tucker
IRB ID:	STUDY00004587
Funding:	None
Grant ID:	None
Documents Reviewed:	• Consent Parents and Caregivers, Category: Consent Form; • Consent Teachers, Category: Consent Form; • EADS, Category: Test Instruments; • Email Invitation for Recruitment of Families, Category: Recruitment Materials; • Flyer, Category: Recruitment Materials; • Interview Families , Category: Interview / Focus Questions; • Interviews Teachers, Category: Interview / Focus Questions; • Research Protocol KBK Workshops , Category: IRB Protocol; • Survey Families , Category: Survey / Questionnaire; • Survey Teachers, Category: Survey / Questionnaire; • TATIS, Category: Test Instruments;

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made, and there are questions about whether these changes affect the exempt status of the human research, please submit a modification request to the IRB. Guidance on submitting Modifications and Administrative Check-in are detailed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system. When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

Gillian Bernal
Designated Reviewer

APPENDIX B:
INTERVIEW PROTOCOL

Semi-structured interview guide

Data	Question	Prompts & elicitations
To break the ice and provide background.	What made you want to be a teacher?	Previous experiences that led to PT as a career Age at time of decision Why middle school
Teaching Experiences	Tell me about your teaching experiences?	Positive experiences Negative experiences How many years have you taught?
Experiences with individuals with disabilities outside of the classroom	Tell me about any previous experiences that you have had with individuals with disabilities.	Friends? Family? Age of experience
Describe these experiences in greater detail	Describe your experiences with individuals with disabilities	Positive experiences Negative experiences with family of child with disability?
Experiences with inclusion	Describe your experience with teaching an inclusive classroom?	Positive experiences Negative experiences How might you want these experiences to look different.

Data	Question	Prompts & elicitations
Beliefs and attitudes about inclusion	What are your thoughts about inclusion? More specifically inclusive science classes?	Does this experience differ from your previous experiences? Positive experiences Negative experiences Would you be likely to engage students with physical disabilities in your classroom? Barriers? Facilitators?
Beliefs and attitudes about students with disabilities	Tell me about your experiences engaging students with physical disabilities in learning activities? If no experience, how receptive would you be to incorporating a student with a physical disability?	How many children with disabilities have you taught? Describe your thoughts on their capacity to engage meaningfully in the science curriculum? How did you feel about those experiences?
Beliefs and attitudes about the impact of the Kids Building for Kids workshop?	How has participating in Kids Building for Kids workshop changed your thoughts on individuals with disabilities or inclusion?	New skills? Problem solving? Creativity? Immediacy of solution?
How likely are you to embed similar activities into your teaching?	What are your plans for future inclusive learning experiences?	Types of experiences Participants

Data	Question	Prompts & elicitations
Member-checking.	Paraphrase what I heard about the main data: 1. Experience with UCF Go Baby Go 2. Beliefs and attitudes about role as a PT 3. How participating in UCF Go Baby Go has changed your perception of the role of PT Ask for a response.	

Useful prompts and elicitations:

Silence: Pauses suggest to the interviewee that you want them to continue talking.

Seeking elaboration: 'What did you mean...?' or 'Can you give more detail...?'

Probing for details: 'Do you have any examples?' or 'Could you say more about...?'

Specifying questions: 'What happened when you said that?' or 'What did he say next?'

Reflecting meaning: 'Do you mean that...?' or 'Is it correct that...?

Reflecting emotion: 'You sound [emotion] when you say that?' or 'Is it correct that you feel [emotion]...?

APPENDIX C:
INTERVIEW QUESTIONS AND NOTES

Semi-structured Interview Questions and Notes

The purpose of this phenomenological study is to explore the impact of participation in UCF Go Baby Go! Kids Building for Kids Workshop on beliefs, attitudes, and perceptions of the role of physical therapists for Doctor of Physical Therapy (DPT) students at the University of Central Florida.

Research questions include: 1) What is the experience of DPT students who have participated in a Kids Building for Kids Workshop? Sub – questions 1) How do DPT students' beliefs and attitudes about the role of a physical therapist change after participating in a workshop?

Question	Notes	Reflections
What made you want to be a teacher?		
Tell me about your teaching experiences?		
Tell me about any previous experiences that you have had with individuals with disabilities.		
Describe your experiences with individuals with disabilities		
Describe your experience with teaching an inclusive classroom?		
What are your thoughts about inclusion? More specifically inclusive science classes?		
Tell me about your experiences engaging students with physical disabilities in learning activities? If no experience, how receptive would you be to incorporating a student with a physical disability?		
How has participating in Kids Building for Kids workshop changed your thoughts on individuals with disabilities or inclusion?		

What are your plans for future inclusive learning experiences?		
Paraphrase what I heard about the main data: 1. Experience with UCF Go Baby Go 2. Beliefs and attitudes about role as a PT 3. How participating in UCF Go Baby Go has changed your perception of the role of PT Ask for a response.		

Useful prompts and elicitations:

Silence: Pauses suggest to the interviewee that you want them to continue talking.

Seeking elaboration: 'What did you mean...?' or 'Can you give more detail...?'

Probing for details: 'Do you have any examples?' or 'Could you say more about...?'

Specifying questions: 'What happened when you said that?' or 'What did he say next?'

Reflecting meaning: 'Do you mean that...?' or 'Is it correct that...?

Reflecting emotion: 'You sound [emotion] when you say that?' or 'Is it correct that you feel [emotion].

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