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SUPPORTING EDUCATORS IN IMPLEMENTING ALTERNATIVE INSTRUCTIONAL  
STRATEGIES

A MASTER'S THESIS  
SUBMITTED TO THE FACULTY  
OF BETHEL UNIVERSITY

BY  
TOBIE C. SANVICK

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
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BETHEL UNIVERSITY

SUPPORTING EDUCATORS IN IMPLEMENTING ALTERNATIVE INSTRUCTIONAL  
STRATEGIES

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APPROVED

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## Abstract

Educators need support offered to successfully implement alternative instructional strategies, like project-based learning, cooperative learning, and inquiry-based learning. This literature review points to six supports to overcome the challenges to implementation providing sustained support. A teacher's self-efficacy, attitudes and beliefs help overcome challenges faced and help with the readiness level. Professional development that provides sufficient time, but also considers the program orientation, includes content experts, and time for reflection provides support. Teachers offered a coach or mentor, practical experience of the strategy, and co-teaching opportunities support the use of the instructional strategy. Research points to starting these supports in teacher education programs to prepare future teachers. These supports in place help educators create engaging learning environments to increase student growth.

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## CHAPTER I: INTRODUCTION

### Introduction

As a middle school math teacher, keeping my students engaged in their learning is a priority. As High and Andrews (2009) succinctly stated, “all good teachers know that more learning takes place when students are actually engaged in the curriculum” (p. 58). Therefore, time spent on finding activities, lessons, and strategies with the hope of engaging and increasing learning for my students pointed to the need for supporting the use of these strategies. Some of the various strategies found to improve student engagement pointed to inquiry-based learning, cooperative learning, and project-based learning. These instructional strategies can be grouped together as active learning for students. Researchers Bishop and Pflaum (2005) found that the three key components to engaged learning at the middle level “includes active learning, relevant curriculum, and an individual pace” (as cited in High & Andrews, 2009, p. 61). Active learning strategies are also known as alternative teaching methods or ATMs (Khalaily, 2019). The instructional strategies, or ATMs, which promote active learning included in my research are inquiry-based strategies, problem-solving, problem-based learning, collaborative learning, and technology integrated teaching (Edwards, 2015; Khalaily, 2019; Rogers et al., 2011; Thibaut et al., 2019).

With the focus of education on learner-centered instruction instead of teacher-centered classrooms, active learning strategies are key to support engagement and learning. As educators apply Petress’ (2008) definition of active learning to make the students active partners in the learning process, helping educators implement instructional strategies to support the students being active learners was a motivation for my topic. Wanting to experiment with the new or alternative instructional strategies, teachers often get stuck on how to effectively implement them



in their classrooms. The comment made by a participating teacher in Lotter et al.'s (2018) research resonated with this thought. The teacher stated:

I have had administrators and fellow teachers comment about including more inquiry driven lessons in the content. But, none of them took (or had) the time to explain what it is, what inquiry looks like in a classroom setting, or strategies used to implement inquiry. ...Here I was given the concrete experience with content groups, which made me feel confident I could use it. Then we were able to apply the strategies in a classroom setting with a support system of fellow teachers (Lotter et al., 2018, p. 267).

Finding what helped this educator and what other methods can be used to support educators move from being unsure to confident in using active learning instructional strategies fueled this research.

Thinking about how to incorporate the engaging instructional strategies, or alternative teaching methods (ATMs), into existing curriculum is challenging. Teachers are faced with various barriers and obstacles to implementing the new strategies they want to use, as well as obstacles that come when a school determines a specific instructional strategy to be used by teachers instead of previously used methods. The constraint of time faced by teachers can include limited planning time, balancing time spent to get to know students and build relationships with time on content, and sufficient time to cover the state content standards, especially before high stakes testing (Edwards, 2015). Finding the best way to balance the standards requirements and the curriculum, as well as include engaging and effective strategies is a challenge that many educators experience. Professional development (PD) that is limited in duration, lacking in a balanced orientation, reflection, or content experts can hinder its effectiveness and the rate of implementation of an alternative teaching method (Carrabba &

Farmer, 2018; Gallagher, et al., 2014; Marra et al., 2011; Rogers et al., 2011). These limitations in PD can present another obstacle to educators.

This literature review aims to identify specific strategies to overcome the challenges and identify the support needed for the use of teaching strategies that are alternative to direct instruction and teacher-centered classrooms. Support may be provided through varied sources, including educators themselves, as well as administrators and district staff. This support can be aimed at an individual, a team, or an entire school that is working towards implementing a strategy. The research indicated that the readiness and self-efficacy of a teacher will support the use of ATM strategies, but also effective professional development will provide the necessary support (Charalambous & Philippou, 2010; Rogers et al., 2011; Thibaut et al., 2019; Turner et al., 2014). The aspect of teacher readiness impacts the initial buy-in of educators, a facet that school administrators and PD committees should consider if they require an implementation of an ATM. This research led to identifying and summarizing the strongest ways to support teachers who are actively seeking to increase the engagement and learning in their current classrooms, as well as to the importance these practices hold in teacher education programs. The support through quality professional development, modeling, mentoring, co-teaching, and practical experiences should start in teacher education programs. Researchers noted that for the change of using more effective and engaging instructional strategies to be long lasting, it is imperative that we train our future educators on how to implement these same strategies (Aksit et al., 2016; Brock & Carter, 2017; Chitiyo & Brinda, 2018; Khalaily, 2019). Therefore, the research found here must start in the university teacher education programs and continue through advanced programing and training for teachers.

The discoveries in the research on how to overcome the barriers and find the support educators need to implement instructional strategies are multi-faceted. From universities and school districts to consider educator readiness and attitudes to providing quality professional development, as well as including aspects of modeling, mentoring, co-teaching, and practical experiences for educators encompass the findings. These results helped answer my question of how to provide support to educators in the implementation of teaching strategies to increase student engagement and learning to impact student growth.

### **Definitions of Terms**

The important terms for this paper are as follows:

**Active Learning:** As described by Petress (2008), active learning is when the teachers and students partner in the learning process and when the learner takes a “dynamic and “energetic role” (p. 566) in their own learning; additionally, active learning is “enjoyable, motivational, and effective in getting life's tasks done” (p. 566).

**Direct Instruction:** Direct instruction was defined by Hoy and Hoy (2013) as “a teacher-centered form of instruction” (as cited in Carrabba & Farmer, 2018, p. 165) best used for learning basic skills with clear structures, like science and math facts and vocabulary. Direct instruction is when the teachers focus on providing the instruction to the student (Carrabba & Farmer, 2018).

**Embedded beliefs:** Embedded beliefs are the deep beliefs that drive the actions of teachers (Burns et al., 2014).

**Espoused beliefs:** Espoused beliefs are the articulated values that teachers say they believe or value about their classroom practices (Burns et al., 2014).

**Inquiry-based instruction:** Inquiry-based instruction, or inquiry instruction, creates a learning environment where the teacher is a facilitator of the learning process and students build their knowledge through investigating and experimenting (Turner et al., 2018).

**Project-based learning (PBL):** Project-based learning is an instructional strategy that is characterized as student-centered instruction “where students have greater autonomy regarding their learning” (Carrabba & Farmer, 2018, p.165). Teachers in Project-based learning settings take a classroom beyond the textbook to include real-world activities and projects to help students relate to the content as well as develop skills necessary for school and life (Carrabba & Farmer, 2018).

**Self-efficacy:** Self-efficacy “refers to the extent to which a teacher feels she has the power to implement the vision she has in her mind” (Edwards, 2017, p. 9) for increasing student engagement and achievement. Bandura first introduced this concept in the late 1970s, referring to “one’s perceived ability to plan and execute actions to achieve a goal” (as cited in Charalambous & Philippou, 2010, p. 3). Self-efficacy is what a teacher believes they can accomplish within the reach of their classroom.

**Teacher agency:** Edwards (2017) defines teacher agency as the “the notion that a teacher’s belief (in this case, a belief in active learning) is translated into action” (p. 9) and comes into play when a teacher teaches to their beliefs and values despite the barriers and challenges they face. Their belief will drive their decisions about what is best for their students (Edwards, 2017).

**Teacher’s orientation:** Rogers et al. (2011) defines teacher’s orientation as “the knowledge and beliefs teachers have for the purpose and goals of using PBL to teach science and mathematics content for a specific grade level” (p. 896). The orientation of a teacher, in more general terms, described by Rogers et al. (2011) is the “organizational framework” (p. 908) the teachers use to

guide their daily instruction in reference to content, curriculum, variety of strategies for engagement, and types of assessments. Orientations of educators will range from content-focused to career skills-focused (Rogers et al., 2011).

### **Statement of the Topic**

This research will explore how to best support educators in the implementation of instructional strategies proven to increase student engagement and learning to impact student growth.

## CHAPTER II: LITERATURE REVIEW

### Literature Search Procedures

To find the information and literature for this topic, research was initially conducted through ERIC with the terms “educational change,” and “implementation strategies” and “middle school.” Then, the search terms expanded to include “teacher support, implementation strategies and middle school,” “teacher support, implementation strategies and math,” as well as “active learning and barriers,” “student centered learning,” “professional development with cooperative learning,” and “alternative teaching strategies.” Additional searches were specific to the key words of “co-teaching, instructional strategies, and implementation,” “modeling, implementation of instructional strategies, and support,” “mentoring, teaching strategies, and implementation,” “co-teaching,” and “active learning, middle school, and barriers.”

Educators pursuing ways to improve student engagement and learning will need support in their implementation of alternate teaching strategies. This chapter indicates what can help create lasting change and use of a strategy, as well as the supports that help to successfully implement a strategy and overcome the barriers and challenges. Research indicates a teacher's beliefs and readiness will impact the willingness and thus the success of an implementation (Charalambous & Philippou, 2010; Edwards, 2015; Freeman et al., 2014; Lotter et al., 2018). The overall professional development quality and orientation, inclusion of content experts, and time for reflection, contributes to successful implementation for educators as well (Freeman et al., 2014; MacNabb et al., 2006; Marra et al., 2011; Turner et al., 2017). A coach or mentor provided to an educator, as well as having the new strategy modeled to them, indicated to researchers a way to support success with its use (Gokoglu & Cakiroglu, 2017; Edwards, 2017; Foss, 2010; Warner, 2009). Teachers having practical experience and time with the strategy

provided insight and understanding, especially if included in the teacher preparation programs. Co-teaching opportunities also supported the implementation of alternative teaching strategies to better support student learning, including students with disabilities (Chitiyo, 2017; Chitiyo & Brinda, 2018). Research also found that the degree of implementation impacts the validity or success of the strategy being implemented by educators (Erdogan et al., 2016).

### **Teacher Self-efficacy, Attitude and Beliefs**

The personal attitudes and beliefs of educators impact the outcome of the implementation of the new strategy. Edwards (2015) conducted a study that looked to identify the factors that allowed teachers who wanted to and were able to implement the active learning practices and multiple learning approaches advocated for by the Association for Middle Level Education (AMLE). The study identified several barriers to implementation in addition to the characteristics and supports those successful teachers utilized to overcome these barriers.

The results of Edwards' (2015) study formed four themes of barriers that related to the education system, to students, to content, and challenges within the teachers. Research results identified that the biggest challenge from the education system was the lack of time, both for planning and instruction. This challenge became heightened by the pressure from high stakes testing and the amount of content to be covered for those tests, as well as class size and lack of resources educators faced. The second theme of challenges related to the students. The various behavior issues students display, and their wide range of abilities functioned as a barrier for implementation. The third barrier theme related to the teachers' familiarity with the content they taught as participating teachers change grade levels and subjects regularly. This movement impacted their ability to make content relevant to students (Edwards, 2015). Finally, the participating teachers identified internal dilemmas they had with implementing the instructional

principles due to a lack of ideas or variety. The teachers noted that it did require more effort on their part to make the shift to active learning instructional strategies (Edwards, 2015).

Edwards' (2015) research found that despite these barriers to implementation, all nine participating teachers ranging from two to twenty-five years of experience teaching, found ways to overcome them, implement active learning, and use multiple instructional approaches in their classrooms. All lessons observed by Edwards (2015) espoused the active learning approach. This included over half, and up to the entire time, of the observed instructional time devoted to the use of instructional principles of effective middle level education encouraged by the Association for Middle Level Education. The lessons observed averaged four different instructional strategies used in each lesson, with a total compiled list of over twenty different instructional approaches.

The results of the data for implementing the strategies centered on three characteristics displayed by all participants: tenacity, being student focused, and willing to experiment in their teaching practice. Edwards (2015) describes tenacity as “a willingness and determination to overcome barriers to implement” (p. 77) both active learning and multiple learning approaches that teachers believe in. As one participant teacher, Pam said, “I think it’s a commitment that you just have to make” (Edwards, 2015, p. 78). The student focused characteristic formulated through teachers rarely commenting on themselves; their comments focused on their students and how they witnessed the impact their instructional decisions had on their students. The teachers also demonstrated a deep care for each student and built relationships with them.

The last characteristic exhibited to overcome the obstacles and challenges of implementation was what Edwards (2015) called experimental for their willingness to take a risk and try new strategies in their classrooms. The research found that the participating teachers



were willing to learn new strategies and try them out in their classrooms. This was demonstrated through the participating teachers using a variety of venues to explore new strategies and then evaluate the effectiveness by the level of student success when the strategy was used. Edwards (2015) study proves that although there are obstacles and barriers to implementing effective strategies for middle level education learners, it is still happening. Teachers who have tenacity and belief, are focused on their students, and are willing to experiment can overcome the barriers to implementation.

An educator's level of efficacy towards a change in instructional strategies will have an impact on the success level of implementation, unless support can decrease the concerns. Charalambous and Philippou (2010) conducted a study focusing on teachers' concerns and efficacy beliefs about implementing a new mathematics problem solving approach. The researchers sought to evaluate the teachers' concerns and how effective they felt in year five of implementation. Researchers asked the participating teachers to evaluate the usefulness, difficulties, and student reactions to the problem-solving approach. Researchers Hall et al. (1977) expanded Fuller's model "that posits that teachers move through seven stages of concerns as they adopt a reform: awareness, informational, personal, management, consequences, collaboration, and refocusing" (as cited in Charalambous & Philippou, 2010, p. 2). Based on these stages of concerns, Charalambous and Philippou (2010) believe that the concerns that impact teacher efficacy beliefs on using an innovative approach will inform as well as be informed by the concerns the teacher has. This includes the teacher's held beliefs of the effectiveness of their prior problem-solving approaches.

The overall results of the study confirmed Charalambous and Philippou's (2010) three original hypotheses and provided new insights about the connection between teachers' concerns

and efficacy beliefs when implementing a curriculum change. Teachers' efficacy beliefs influence their concerns over daily tasks and the impact on student learning. The second insight found previous instructional practices used by the teachers along with teachers' efficacy belief might impact their resistance level to implementing the new problem-solving approach unless teachers are provided with what Charalambous and Philippou (2010) call "systemic and sustained support" (p. 14). The researchers third insight from the data, "showed teachers' concerns in each succeeding stage to be informed by their concerns of each preceding stage" (Charalambous & Philippou, 2010, p. 14). Charalambous and Philippou (2010) cautiously indicate that if teachers struggle with implementation of the reform and consider the change a threat to student learning; it will be ignored, and the previous instructional approaches will be continued. This drove Charalambous and Philippou (2010) to suggest the need for teachers to receive support to overcome management concerns and become informed about the approach and its goals "to maximize the effectiveness" (p. 15). This support can lessen the concerns, increase efficacy, and impact positive student learning results from the reform as hoped.

One study completely focused on the effectiveness of professional development on the implementation of inquiry instruction and teacher beliefs on inquiry. Lotter et al. (2018) used a professional development model based on Bandura's social cognitive theory of learning and belief that teachers need to have self-efficacy beliefs about their own abilities to implement the inquiry instructional approach. The study was based on prior research that advocated that "teachers must hold beliefs consistent with inquiry practices, obtain inquiry teaching skills, and have time to practice implementing these skills with students in a supportive environment" (Lotter et al., 2018, p. 256). The study used a yearlong professional development program that included a two-week summer session and follow up sessions through the school year. Lotter et

al. (2018) described the sessions to include “whole-group inquiry instruction, small group content instruction, practice-teaching with middle school students, and small group reflection sessions” (p. 259). The results indicated that teachers’ beliefs about inquiry and their instructional changes had evident growth and improvement in the primary areas of improved understanding of inquiry, increased use of inquiry strategies, more effective teacher questions, and the creation of a more student-centered classroom (Lotter et al., 2018). Thus, indicating that the support from the professional development provided a positive change in teachers’ beliefs thus impacting the overall implementation of inquiry-based instructional strategies.

Educators’ attitude and beliefs about using strategies proven to increase student engagement do not always align with the rate of implementation of those strategies. Faulkner and Cook (2006) found that even though teachers held the belief that they did use effective teaching strategies including collaborative learning, critical thinking, and problem-based learning, the results of their study indicated that the top three instructional techniques teachers identified using within the last 30 days were whole-class discussion, lecture, and worksheets. Their research pointed to the effect and influence state assessments can have on the choices that educators make; even when educators want to use more effective instructional strategies for middle level learners. Faulkner and Cook (2006) noted that the teacher comments lead them to believe that even though teachers are aware of “best practices” (p. 10) strategies, they choose to use those they believe to be more efficient for lack of time due to the assessment pressures. Therefore, the researchers note that a direct correlation cannot be assumed between what teachers support and what is being implemented in relation to the use of effective instructional strategies for middle level learners (Faulkner and Cook, 2006).

Khalaily (2019) investigated that same concept looking for which factors most influence teachers to apply an alternative teaching method (ATM) versus direct or frontal teaching where a teacher stands in the front of the classroom and delivers the content material. The ATM's referred to by the researcher include project-based learning, exploratory learning, collaborative learning, and technology integrated teaching. Khalaily (2019) ascertained from the study's results that positive attitudes toward ATMs does not directly correlate to the degree of application and implementation of alternative teaching methods. The results indicated that attitudes toward frontal teaching and the rate of implementation of ATMs was inversely related, indicating to Khalaily (2019) "attitudes toward frontal teaching have a separate determination power regarding the implementation of alternative teaching methods" (p. 19). Consequently, pointing toward the attitudes educators hold towards various teaching strategies can be powerful, yet have varying effects on the implementation of those strategies.

### ***Teacher's Orientation***

While implementing a project-based learning (PBL) approach, Rogers et al.'s (2011) case study focused on the teachers' orientation and past professional experience as an area that must be considered as it impacts the commitment to the program. A teachers' orientation in this case study refers to the "knowledge and beliefs teachers have for the purpose and goals of using PBL to teach science or mathematics content for a specific grade level" (Rogers et al., 2011, p. 896). The three teachers of this case study had varied teaching experiences and orientations towards teaching. Specifically, one teacher was content/achievement-focused, the second teacher had a managerial approach to teaching and highly supported the PBL approach adoption, and the third teacher had a goal to balance the science content with twenty-first century skills in the PBL adoption. The case study found that regardless of the professional development (PD), the PBL

approach implementation was impacted by the teachers' orientation and the teachers' beliefs about learning, teaching, and content. Rogers et al. (2011) found that the teachers only made "superficial changes to their practice" even though they "believed they had made significant instructional shifts" (pp. 911-912). The study focused on the teacher's beliefs and experiences prior to the implementation as well as throughout the adoption of the PBL approach. Through this lens, the researchers found the beliefs of the teachers stayed the same. For beliefs of teachers to change to align with the approach that is being adopted, in this case the PBL, Rogers et al. (2011) ascertain the implications of the study point to the need for PD to address the issues of the impact a teachers' orientations will have on implementing a new curriculum.

### ***Embedded Beliefs***

A case study on a professional development (PD) program, Active Learning in Math and Science (ALMS), proved to make an impact on teachers' beliefs and attitudes towards the use of collaborative learning strategies. Burns et al. (2014) found "teachers easily and immediately grasped the learning benefits of collaborative learning and wanted to use it" (p. 24), and teachers made a shift in their organization and planning of lessons. As the teachers went through the six-month PD program, the researchers utilized multiple measures of data to allow for multiple perspectives. Through these measures, Burns et al. (2014) observed the shift of the teachers' role to be of "facilitating, guiding and monitoring student learning" (p. 24) in the new collaborative learning environment. These positive instructional changes resulted from many of the teachers involved making shifts on their 'embedded beliefs' regarding themselves and their students.

This professional development allowed for teachers to witness students in collaborative groups resulting in Burns et al. (2014) observing the teachers transfer their thinking from

themselves as the focus and source of knowledge to what was best for the student as the learner. The teachers in this study made a shift of traditional teaching methods to collaborative approaches and thus positively impacted students' engagement, behavior, and academic performance. Burns et al. (2014) used the words "excitement" and "hungry" (p. 28) to describe the case study teachers' attitudes towards more instructional techniques indicating that the ALMS professional development was indeed a positive change agent towards belief and implementing learner-centered instruction.

The main purpose of the study conducted by Thibaut et al. (2019) was on improving implementation by adding a detailed focus on examining teachers' attitudes. The study looked at the instructional approach of iSTEM (integration of STEM education) with the goal of finding "variables that can explain variation in teachers' attitudes toward teaching iSTEM" (p. 1000). The study specifically looked at how teacher attitudes towards the five key principles of the iSTEM approach were influenced by not only professional development (PD), but a broad range of teachers' background characteristics and school context variables. The results indicate that participation in PD has a strong positive correlation to teachers' attitudes towards all five key principles of the iSTEM approach. Thibaut et al. (2019) pointed out that the cross-sectional design of this study indicates that participation in PD may lead to more positive attitudes but also that those with positive attitudes could also participate more often in professional development opportunities.

There are other background characteristics that positively correlate to a teachers' attitudes other than PD, with looking at specific parts of the iSTEM key principles. For attitudes specific to content having experience in science, technology and mathematics all showed a positive correlation in the results (Thibaut et al., 2019). Those with experience in teaching technology

also showed a positive correlation with attitude towards problem centered learning. For the cooperative learning key principle, researchers found a positive correlation between female educators and attitudes. The study found two areas with a negative correlation between teachers' attitudes and teaching iSTEM. Years of teaching experience showed a negative correlation with the principles of problem-centered and design-centered learning. Specific experience in teaching mathematics also showed a negative correlation with both inquiry-based learning and design-based learning. Thibault et al. (2019) encouraged future professional development to target improving attitudes towards specific key principles of iSTEM by considering the person's background experience and taking the PD away from a generic approach with hopeful effects of improving not only the attitude of teachers but the overall implementation of iSTEM.

### **Readiness**

The readiness level of educators and school systems to make changes by implementing a new learning strategy or program is a crucial factor to consider before implementation. Freeman et al. (2014) report on their study consolidated a range of factors the key participants of an eighteen-month professional development program "perceived as most important" (p. 851) to support implementation. The program consisted of allowing time for a core team of three to five members to "disseminate learning to fellow staff" (Freeman et al., 2014, p. 852) after attending seven PD sessions across the timeframe of the program, and time to meet regularly with their teams. The non-core team staff also attended one full-day PD session at the beginning of the program. Enhancing Relationships in School Communities (ERIS) researchers visited each school initially and then three more review visits to discuss progress and to support the implementation (Freeman et al., 2014).

The multiple factors that emerged Freeman et al. (2014) grouped into six major themes creating a model that could guide future research and practice. Freeman et al.'s (2014) themes are “ensuring pre-program engagement, a whole school vision and process, considering program content, program structure and process, implementation (core) team roles, and monitoring and feedback processes” (p. 853). The theme that focuses on the start, or the pre-program engagement for successful implementation, indicates a level of readiness required for success. This engagement or readiness included initial motivations that allowed everyone involved to be aware of the need for the program; the timing of the program fit into the existing structures and priorities of the school, and strong leadership and staff commitment to the program from the start impacted the schools (Freeman et al., 2014). The researchers' themes indicate that readiness is one of five key factors that will contribute to the success of an implementation.

In a three-year intervention with middle school teachers to improve student engagement and motivation, Turner et al. (2014) found that teachers fell into two categories of either showing growth or having no growth of instruction affecting student motivation. With the problem of low student engagement (SE), the researchers wanted to see how that could change by providing resources and support on instructional strategies through professional development (PD) and PLCs to middle school teachers over a three-year period. The focus of the strategies presented focused on four motivation constructs of belongingness, competence, autonomy, and meaningfulness. The study was conducted at one middle school with all teachers participating in the provided professional development, and six teachers chosen at random for the observations. Willingness and readiness could have impacted the teachers' results, as the school required all teachers to participate in the study. The teachers did not volunteer or have a choice to participate, taking away the connection to what Turner et al. (2016) said is a teacher's “willingness to invest



time in practices” (p. 1220). Thus, impacting the fact that of the six teachers observed, only half of them changed their practices because of the professional development.

Turner et al. (2016) study results indicated a split between the participating teachers' results. They showed that three of the teachers showed growth in student motivational support (MS) and were referred to as the upward group. Whereas the other three teachers showed no growth, or even a downward direction and were referred to as the stable group. The stable group showed no statistically significant change in MS or in SE throughout the three years.

Interestingly, Turner et al. (2016) found the two groups had no difference in year 1 levels indicating that all the teachers started out using the same or similar motivational strategies. However, the stable group of teachers did not apply the motivational strategies that the PD suggested, and their data either stayed the same or declined in the following two years. The upward group did display significant growth between the different years with both MS and SE. Turner et al. (2016) used the data to determine that the teachers who were observed to use more strategies that supported motivation also had more observed students engaged.

Turner et al. (2016) study was to analyze how teachers' instructional strategies changed when provided support in understanding and adopting instructional practices shown to support student engagement. The researchers took one teacher from both groups from the same content area and compared their third-year observations for further analysis to answer their research question on how teachers' motivational support differed. They found that the teachers from the upward group implemented the strategies presented in the professional development of the program as well as other research based effective teaching strategies (Turner et al., 2016). The longitudinal nature of this study acted as a strength to provide time to show potential growth and change over time. The sustained nature of the PD allowed teachers more time to apply the

strategies they learned about. The transfer of training from the researcher-led discussions to PLC provided the opportunity for the participating teachers to have more ownership and community support in the use of the strategies to support student engagement. The teachers in the upward group indicate that the use of the strategies to increase motivation and student engagement do work and impact the student's engagement level (Turner et al., 2016). The differences between the groups lie in the factors of beliefs and their willingness or readiness to change which thus impacted the level of use of the strategies.

Flowers et al. (2017) studied the implementation of the Schools to Watch Project, which offered a whole school reform model with a multilayered system of support to low-performing middle schools. These middle schools were identified by their state as needing improvement, corrective action or restructuring or showed a lack of progress in their state testing scores over a period of time. The researchers found three themes of success for the implementation of the three project schools that performed the highest during the study. One theme was the readiness and mindset of improvement that the staff already had at the start of the project (Flowers et al., 2017). Both teachers and administrators had the readiness for change at the start of the project at all three schools that performed the highest during the four-year study. This readiness "was unique among all the project schools" (Flowers et al., 2017, p. 12), and allowed for a quicker buy-in for the project by teachers as well as teachers willing to become leaders. This demonstrates that a readiness for change along with positive attitudes can impact the implementation of effective instructional strategies.

A clear vision held by an educator will point towards the effective implementation of active learning strategies. Edwards (2017) conducted a case study to "follow the learning trajectory of the beginning teacher" (p. 1) attempting to implement active learning instructional

methods regardless of her environment. The study hoped to identify the challenges and supports necessary to overcome those challenges and thus effectively implement the active learning strategies. The results from the data showed the necessity of five themes of support to overcome the top four challenges faced by this beginning teacher. The five support themes identified by Edwards (2017) were seeing it with her own eyes, supportive mentors, management strategies, reflection, and resources. What overarched the necessary support that Edwards (2017) found was that the beginning teacher involved was “motivated and committed to implementing active learning in her classroom and found ways around the challenges she experienced” (p. 8). The readiness of this teacher proved necessary to withstand the challenges faced and drove her to find what was necessary to get around the obstacles. This one teacher can be an example of the research that says, “teachers who possess a clear vision are more likely to enact what they believe is best for their students” (Edwards, 2017, p. 9).

### **Professional Development**

Four different studies of effective teaching strategies pointed to effective implementation of their strategy included a professional development program. Montague et al. (2011) studied the effectiveness of the *Solve It!* intervention strategy on students with learning disabilities (LD) in general education math classes on their problem-solving abilities. The results after the seven-month study indicated a successful implementation of the strategy with the participants as the students using the intervention strategy, students with LD, low and average achieving students, all outperformed the comparison group not using the strategy. The general education teachers using the *Solve It!* intervention participated in a three-day professional development training prior to the start of the implementation. They were given scripts for the lessons and had a practice session modeled to them. Although the teachers were not specifically trained to meet

the needs of students with learning disabilities, the results indicated that the training and application of the strategy was effective (Montague et al., 2011).

Researchers MacNabb et al. (2006) studied the effectiveness of the implementation of the Brain Science on the Move program developed by the Department of Neuroscience at the University of Minnesota and the Science Museum of Minnesota. The program included the BrainU for teachers, a two-week intensive summer training, as well as the four main components: Explain Your Brain (EYB) assembly, EYB Exhibit Stations, Class activities, and Brain Trunks (2006). MacNabb et al. (2006) found that the program successfully provided a system to increase knowledge of content knowledge for both teachers and their students, and increased knowledge of how to implement the inquiry-based teaching approach to the lessons. They used research-based knowledge that teachers need support through more than just one week of professional development a year to be effective and increased the BrainU institute time from one week to two after the first year (MacNabb et al., 2006). There was time and support given to the teachers to feel confident about implementing the program with their students that included using more inquiry-based learning.

Another study on inquiry-based instruction in both math and science classrooms, provided the teachers involved with a four-week summer training program on how to incorporate inquiry-based learning (Turner et al., 2017). The research group noted that due to this training, the data was not necessarily representative of a general population of teachers because the participating teachers could have attended between one to five years of training. Researchers made the conjecture that this professional development training would set the participating teachers apart in a positive way from teachers who had not had training in relation to incorporating inquiry-based learning in their classrooms (Turner et al., 2017).

Carrabba and Farmer's (2018) research into the impact of project-based learning (PBL) and direct instruction on motivation and engagement of middle school students found the need for increased amounts of professional development and training in PBL. The teachers in the PBL group received training from the Buck Institute for Education PBL 101 workshops, however Carrabba and Farmer (2018) noted there was still a "lack of adequate training for teachers" (p. 173). The study found that students had higher engagement in the alternate teaching method of PBL instruction over direct instruction, but Carrabba and Farmer (2018) suggest to future researchers to allow time for more training for teachers as well as time for teachers to become more at ease with PBL before implementation.

Rogers et al. (2011) case study of three teachers implementing a PBL approach found that professional development (PD) is needed to support the implementation at a high intensity and over an extended period (p. 912). The three teachers had varied incoming experiences and orientations to the new PBL approach, but also experienced varied amounts of professional development as well as sustained PD. Only two of the three participating teachers attended a summer intensive PD opportunity. The sustained PD throughout the school year included contact time with a coach but varied in form of communication as well as in actual time. The realities of outside factors of the participating school districts going through a logistic transformation of school size created a situation where the intended plan to have a specific principal or lead teacher serve as support for all levels of implementation did not result in the ideal plan (Rogers et al., 2011). Thus, creating the case by Rogers et al. (2011) to recommend that PD focus on helping teachers implement the PBL approach as the developers had intended as well as to support them in transforming their teaching practices.

A study facilitated by Gallagher et al. (2014) study brought to light the importance context plays in the ultimate success of the implementation of a professional development focus. The researchers, working along with the National Writing Project (NWP), wanted to study the implementation of a new professional development program created by NWP to support teachers of third, fourth, and fifth graders in their writing instruction to meet the new Common Core State Standards for English Language Arts (CCSS-ELA). The study focused on the implementation of the program, how effective the PD was on teacher practice and student writing, looking at gaining understanding on how context affected the implementation, and then providing formative feedback about the program to NWP (Gallagher et al., 2014).

Gallagher et al. (2014) found that there was a positive impact from the professional development on three teaching practices yet no impact on other practices. These impacted practices were time given for students to write, increase in the frequency of teaching strategies for effective argument writing, and using writing strategies to help students learn other subjects. The results indicated no impact on the three other teaching practices. The no impact practices included the overall time spent teaching writing, the length of writing a student was required to do, and the frequency of students editing or revising their writing (Gallagher et al., 2014).

Gallagher et al. (2014) interview data suggested that multiple factors were at fault for the lack of impact on students' quality of writing. These factors included the teachers' emerging understanding of the writing instruction implied by the new CCSS-ELA, existing norms that impact the time given to writing instruction, and state tests that did not match in focus or how assessed the students. The research group ascertained that "absent a surrounding context that is highly supportive of teacher learning and change, one year of PD cannot sufficiently alter instructional practices enough to impact student outcomes" (Gallagher et al., 2014, p. 4).

Therefore, the research group suggested to other researchers to collect data on the context when looking at implementation and impact in future studies (Gallagher et al., 2014). The impact of the existing structures, norms, and practices, as well as the state testing pressures created a context that limited the impact of the implementation of the professional development in this case.

Saborit et al. (2016) looked at how continued training, or professional development, would impact the overall attitudes of educators in using cooperative learning instructional strategies. This limited study, as a part of a larger study, took a snapshot look at the impact continued training had on the overall attitude and implementation of the strategy. Almost a thousand teachers from schools in the National Network of Schools on Cooperative Learning (NNSCL) participated in 20 hours of training that included the five essential elements of cooperative learning in theory and practice, as well as design of activities for the essential elements, and assessment (Saborit et al., 2016). The teachers then included cooperative learning in their classes through the school year. At the end of the training program, the participating teachers completed an anonymous, voluntary questionnaire used for the study.

The data indicated to Saborit et al. (2016) that the teachers showed a positive attitude towards cooperative learning and innovation in education after this continued training. The participating teachers also displayed that they could apply cooperative learning at a higher perceived rate after the training program (Saborit et al., 2016). However, a negative correlation with teacher attitudes to cooperative learning was found in the age of the secondary educators, possibly due to their original pedagogical training. A similar finding with more years of experience in teaching had a negative correlation with all levels of educators, indicating to the researcher group those younger teachers are more willing to implement cooperative learning

strategies (Saborit et al., 2016). However, the researchers found no significant differences between the primary and secondary level teachers in overall attitudes towards implementing cooperative learning. There was also no significant difference found between the teacher's knowledge area and in attitudes. Saborit et al. (2016) state that “teacher training appears to play a more important role in cooperative learning implementation than the teachers’ knowledge area” (p. 443). The study results also reinforce that implementing continued and ongoing training could be responsible for the positive attitudes and Saborit et al. (2016) suggest it should be a key element to implementing new instructional models in educational settings.

Giunco et al. (2020) study indicated the necessity of professional development training to support teachers in crisis situations and sudden transitions in instructional approaches. Giunco et al. (2020) studied urban Catholic school teachers to look at how their practical experiences during the COVID-19 emergency could “help plan, build, sustain and improve” (p. 244) the larger community of educators as they prepared for the following academic year still within the constraints of COVID-19 pandemic. The paper used existing research on online learning and emergency protocols along with the data from the teachers’ input to make recommendations for continued implementation. Even with limitations of the age and experience of the participating teachers, and the private school context, the study provides insights into the necessary support needed in an emergency setting to transition the approach of instruction. Giunco et al. (2020) indicated that the participating teachers voiced the need for instructional and professional development training in best practices of research-based practices of technology use. Continued training on use and access of technology formats through PD, as well as providing training for the community for students and parents was also highly suggested. Participating teachers reiterated the need for good and effective communication and shared responsibility for that



communication between all stakeholders. The study also sheds light on limitations in teacher preparation programs in training on digital instructional design, as well as for practicing teachers (Giunco et al., 2020). Overall, the participating teachers indicated their need for support through time and PD to best implement the change of the instructional approach to remote learning.

### ***Program Orientation***

Researchers Marra et al. (2011) looked at the different orientations of professional development to examine how orientations of PD projects relate to the outcomes of the PD, specifically focusing on what orientation had the biggest impact on teacher' outcomes. These outcomes include: "impact on teaching practices, contributions of PD aspects to teaching practice, and teacher confidence in subject matter and teaching knowledge" (Marra et al., 2011, p. 795). "A PD orientation," as defined by Marra et al. (2011), "is comprised of project characteristics that drive the PD design and implementation for that project" (p. 794). The study focused on fourth through eighth grade science, mathematics or both content area focused educators. All the PD programs had a duration of seventeen months with the requirement of having a partnership between a higher education institution and a high-needs school district (Marra et al., 2011).

Marra et al. (2011) used previously established orientations of professional development: activity-driven, content-driven, pedagogy-driven, curriculum materials-driven, and needs-driven. From the results of the survey, the researcher group created an additional orientation, the balanced-driven, that "exhibits a meaningful integration of the content-driven and pedagogy-driven orientations (p. 803). When looking at the impact on teacher practices, the balanced-driven and content-driven projects both reported to make significant improvements to

teaching practices. There was no main effect found on consistency and orientation of the project, but participants in the balanced and content-driven PD projects reported a stronger impact on their professional practice than the activity-driven and pedagogy driven projects. Marra et al. (2011) found no significant relationship between the teacher confidence related to the PD orientation at the post-survey data collection. Overall, Marra et al. 's (2011) study results add to existing research that a balanced orientation of PD is valuable over projects with other orientations. They specifically found that participants in the PD projects with a balanced orientation showed an intention to make more improvements in their teaching practices than the activity-driven and pedagogy driven, while content-driven orientation projects were also relatively strong. Marra et al. (2011) conclude that the orientations and consistency ratings offer professional developers a new framework through which to consider when developing, designing, and implementing effective PD for mathematics and science teachers. Providing a balanced orientation between content and pedagogy driven professional development can make a greater impact on the success rate of implementation.

### ***Role of Content Experts in Professional Development***

A professional development project created to help support the implementation of new content and pedagogy in early childhood found that the program's success was due to the role of the expert throughout the program. Warren (2009) developed a professional development model, Transformative Teaching in the Early Years Mathematics (TTEYM), specifically to support early childhood teachers in the implementation of the new Patterns and Algebra strand in mathematics and then studied the effectiveness of the PD program. The goal of the research developers was to create appropriate learning activities to introduce early algebra concepts for both the educators and the students. The TTEYM had two focus areas: the mathematical focus and the pedagogical

focus. The mathematical focus broke the patterns and algebra strand into three distinct knowledge areas. The pedagogical focus challenged the teachers to find activities that would introduce the key concepts using unmeasured quantities (Warren, 2009). The first cycle of the PD, the participating teachers planned and implemented four lessons for their specific mathematical content. During this phase, the teachers started out as learners themselves. The expert guided and challenged them in the planning process and provided a demonstration of what the lesson could look like. Warren (2009) described the expert as the “knowing person” (p. 36) in both subject matter and in pedagogy and assisted the teachers collaboratively planning the learning experiences. The final part of the PD cycle was for the pairs of teachers to share with the other teachers and the expert via “collaborative sharing” (Warren, 2009, p. 37). The participating teachers took on the role of expert at this point, sharing with the other teachers their new mathematical and pedagogical knowledge.

The expert played a role in each cycle of the PD, starting with the expert sharing input on knowledge of content and pedagogy (Warren, 2009). The teachers, as learners in the PD, expressed gains in their mathematical knowledge from the expert input, the expert’s demonstration lesson, working in pairs, the ongoing feedback from both the expert and peers, and the sharing day where the teachers showed their new expertise. The data suggests that the interaction with the expert helped the participating teachers to think mathematically through their initial conversations as well give them “greater understanding of students’ mathematical thinking” (Warren, 2009, p. 40). The relationship developed between the expert and the participating teachers provided support, a model to them of mathematical and pedagogical knowledge, and then supported them in their own growth to become experts “of their own right” (Warren, 2009, p. 41). The growth experienced by the participating teachers in this professional

development was closely related to the significant role of having an expert throughout the PD program.

A study conducted by Freeman et al. (2014) proved that having access to content experts in the form of external consultants, researchers, and core teams is beneficial in the implementation of the program supported by the Enhancing Relationships in School Communities (ERIS) researchers. Feedback from the data collection indicated that the support provided by the researchers with the knowledge and expertise of the program was “valued and differentiated the program from other professional development experiences” (Freeman et al., 2014, p. 859). The inclusion of the core team’s role was one of the major themes that emerged from the data with important and positive results towards the implementation. Results from the interviews by Freeman et al. (2014) described the core teams as “useful” and “as the key force leading the initiative” (p. 860), especially combined with the PD held away from the school and with the consultant researcher support visits. The core team’s roles included “managing planning and implementation process, providing leadership, learning new information and skills to disseminate throughout their school, trialing new methods, and motivating and supporting colleagues in the transition process” (Freeman et al., 2014, p. 860). Another aspect of the core team’s role provided the staff with assistance and support by helping plan and embed the program relevant material into existing curriculum. The complex aspects of the core team’s role included another example of PD where a content expert supported all participants.

Lotter et al.’s (2018) study on the changes in inquiry instruction in middle schools after a year-long professional development had positive results. The key components to the quality PD included content experts of a university content instructor and a pedagogical instructor. These two layers of content experts provided the specific science knowledge as well as inquiry lesson

pedagogy for middle school aged learners (Lotter et al., 2018). This study not only supports the research for content experts to be a part of quality professional development, but also the impact reflection has on the success of implementation.

### ***Reflection***

Professional development that included an element of reflective practices was evident in research to be an important and effective piece to support the implementation of strategies. As mentioned above, the study conducted by Lotter et al. (2018) found that the reflection sessions of the PD, that allowed for feedback from both content and pedagogy experts, was a factor in the growth of the participating teachers. These sessions were “described as valuable by all the teachers in the post-survey” (Lotter et al., 2018, p. 268).

Within the whole school approach adoption of a new strategy, researchers Freeman et al. (2014) indicated the value of the reflective piece of professional development in embedding the knowledge and development of skills. The core teams that led the implementation process in their school provided PD to their staff through formal and less formal means, including the reflection pieces of rehearsal through role play and discussion. The structure of this PD allowed for time away from the school and the distractions that await educators there, allowing for more reflection. One core team member indicated reflective discussions as beneficial, pointing to the effective reflective practice of the professional development that both the core team leaders and participants identified to benefit themselves and their colleagues (Freeman et al., 2014).

The Middle School Mathematics Academy (MSMA) project was a three-year professional development (PD) program with a goal of increasing students’ mathematical achievements by focusing on four aspects:

a) strengthening teacher's mathematical content knowledge, b) building teachers' proficiency in the use of effective teaching strategies, c) developing mentor relationship between middle school teachers and university mathematics faculty, and d) supporting teachers in the selection and implementation of research-based, standards-based mathematics curricula (Foss, 2010, p. 2).

The professional development sessions were broken up between summer intensive sessions and at least four sessions throughout the school year. The focus of the study of the MSMA project was the required reflective process that teachers participated in during the PD sessions and implemented what they were learning. These reflections are what the researcher used to determine the success of the implementation of the Academy alongside classroom observations (Foss, 2010). The journal entries throughout the three years showed evidence of teachers' growth in their own content knowledge, their increase in using and supporting effective research-based strategies, and as Foss (2010) summarized, "the MSMA teachers moved from doubts about their mathematics abilities to feelings of confidence and support for one another" (p. 28). The PD program, including the reflective pieces, demonstrated a successful implementation of increased use of research-based effective instructional strategies by the teachers.

Edward's (2017) case study on a beginning teacher implementing active learning strategies found that the teacher's ability to reflect was one of the necessary supports to overcome the challenges faced during implementation. This beginning teacher had the natural tendency to reflect in action, to acknowledge the problem and work through it in front of her students. She reflected with them on how something did or did not go well and changed as needed (Edwards, 2017). This process also included adjusting after reflecting on the effectiveness of execution, usually within classroom logistics, after one class of instruction to

immediately impact the next class. The researcher's finding supports the development and encouragement of educators to reflect in their learning and implementation of instructional strategies supported by effective professional development (Edwards, 2017).

### **Coaching/Mentoring**

Multiple studies displayed evidence of collaboration occurring through coaching or mentoring for the participants when using a new strategy. Turner et al.'s (2017) study on inquiry-based learning environments indicated that the participating teachers received support through graduate students working alongside them on "implementing inquiry learning processes" (p. 1466) ten hours a week. This support and collaboration set the participating students apart from other general population teachers.

The Middle School Mathematics Academy identified mentoring as an important piece to its professional development program (Foss, 2010). Participating teachers collaborated with university mentors through eight site visits during the first year of the academy, and then five visits during the second year. Foss (2010) describes these mentoring sessions to include "demonstrations, co-teaching, and pre-and post-teaching conferences" (pp. 2-3). The project intentionally included the mentors to support and encourage the teachers to make the changes towards a new teaching philosophy that included new instructional strategies. As Foss (2010) indicates, at the end of the project, all the teachers had a positive experience with at least one aspect of the project. The teachers showed appreciation for the Academy, and they indicated goals to continue the many aspects of the PD vision and the collaborative work started.

The Schools to Watch (STW) Project for low-performing middle schools encompassed a whole school reform model that provided multilayers of support for the staff involved (Flowers

et al., 2017). The collaborative technical assistance included a STW coach and/or instructional coach, a mentor for the principal, and a mentor STW school. As the researchers examined the most highly implemented schools of the STW project, they found these supports to be one of the major themes impacting the schools' success in the project. The stakeholders who completed the end-of -project interviews indicated that the three different coach/mentor roles impacted overall improvement guidance, principal leadership, and classroom instructional strategies in a “synergistic nature” (Flowers et al., 2017, p. 12). The collaborative practices in the project are summed up by Flowers et al. (2017) as “strong coaching services” (p. 12) adding evidence to support the successful implementation of instructional strategies will benefit from the element of coaching support.

Edward's (2017) case study of a beginning teacher found that the mentoring from positive colleagues in implementing active learning strategies was the biggest support to counter the biggest challenges. Having a supportive mentor from another school within the district, along with other interactions with positive colleagues and supportive administration, helped her persevere. The mentor teacher provided advice and instructional strategies through occasional meetings on weekends to plan together. This veteran teacher's beliefs on effective instructional strategies, encouragement, and sharing of strategies built into the teacher to continue to teach the way she believed she should. The researcher provided support through emotional support and demonstrating active learning strategies which helped the teacher “see it with her own eyes” (Edwards, 2017, p. 6) The beginning teacher reflected on the advantage and desire to see the active learning strategy modeled for her to build her confidence in implementing the same strategy with other classes. Edwards (2017) also stated that the ability to see the process by having it modeled to the beginning teacher was a significant support.



Warren's (2009) investigation into the TTEYM project to support mathematical learning of early childhood educators showed levels of modeling and coaching not only between the content expert and participating teachers, but between the teachers. As mentioned above, the data showed that the participating teachers were becoming experts "in their own right" (Warren, 2009, p. 41), and provided coaching to each other on their collaborative sharing days. This layer of coaching support among the participating teachers added to the overall support from the content expert.

In researching the roles of mentors and their impact on teachers' change in technology integration, Gokoglu and Cakiroglu (2017) found that the mentors made a positive impact on the teachers' growth in using technology. The study included three mentors interacting with eight teachers in the implementation of using technology in their lessons. The results indicated that the emerging leadership roles of the mentors were providing technical support to the teachers, providing educational materials the teachers used in their lessons, guidance on how to access instructional materials for the teachers, and encouragement of using technology in the lessons. The mentors supported the teachers in weekly meetings, seminars, and interviews. The mentors followed the Systems-Based Mentoring Model (SBMM), an integration model to support the teachers in integrating technology and working through the stages. Gokoglu and Cakiroglu's (2017) results showed that the teachers were using technology in their lessons more frequently after they had practice with the mentor related to the technology integration. Overall, Gokoglu and Cakiroglu (2017) found that the mentors acted "as a guide, a promoter, consultant and the supplier of educational materials within the context of the technological integration" (p. 212) for the teachers. This positively impacted the teachers and their use of technology in their classrooms as well as their overall attitudes.

Mentors and coaches play similar roles in educational settings. A multiple case study conducted by Huguet et al. (2014) examined the aspects of a coach's role that impact teachers' skills and knowledge in using data to guide their instruction. The researchers wanted to know how coaches collaborate with teachers to build capacity to use data to guide instruction, and what conditions support this process. The participating coaches took part in a larger comparative case study of six low performing middle schools committed to supporting teachers with the use of data during a school year (Huguet et al., 2014). The initial data collection and analysis pointed out that two of the four coaches showed strong skills and two showed developing skills; as a result, the researchers used these two groupings to analyze further.

Huguet et al.'s (2014) findings of this study point to the factors that differentiated these two levels of coaches. The *strong* coaches used a variety of practices that included assessing individual teacher goals, modeling methods to use the data, observing teachers in their data use cycle, providing feedback, and sharing their expertise. These coaches also engaged in brokering by providing teachers with connections to experts and resources that supported data and application. The *developing* coaches also used these practices, but with lesser frequency and variation. Huguet et al. (2014) also looked at the various teaching tool artifacts used by the coaches for improving the use of data. The strong coaches supported the teacher by helping them learn how to find, sort, and interpret the data on their own, whereas the developing coaches provided printouts of their data without instructing how to use it or how the data impacts their instructional practices (Huguet et al., 2014). The strong coaches helped their teachers take the data and think about how it could change their practices and they provided suggestions and resources to support those needs found via the data analysis.

Another aspect found by Huguet et al. (2014) that differentiated the strong coaches from the developing coaches was their interpersonal skills and expertise in the content area. The study showed that both strong coaches demonstrated and received teacher reports of having strong interpersonal knowledge and skills; they were described as supportive, readily accessible, caring towards their needs and their students, and the opposite of condescending (Huguet et al., 2014). When it comes to expertise in the content area, all four coaches had expertise in data, however only two matched the content area of the study. This resulted in the teachers not reaching out to their coach for instructional support and sought it elsewhere. The lack of expertise also limited the coaches' ability to provide various instructional strategies to support the teachers (Huguet et al., 2014).

The last findings of the Huguet et al. (2014) study points to the role of the school leadership and strong coaching. The strong coaches were supported by their principals in navigating the school politics and had the overall support of the principal for their work and role with the teachers. The developing coaches did not have that support from administration which limited their coaching potential. Huguet et al. (2014) discovered that strong coaches were found to make positive impacts on teachers through the various practices and strong interpersonal skills they possessed having a positive impact on the implementation of instructional practices based on data.

### **Practical Experience for Current Educators**

In a study on professional development, Lotter et al. (2018) found that educators having “collaborative practice teaching” (p. 256) experiences positively impacted teachers' inquiry instruction implementation. The teachers participated in a two-week summer intensive program

that provided modeling of inquiry strategies that allowed teachers to interact as their middle school students would while also time to team teach lessons via “practice teaching” (Lotter et al., 2018, p. 260). Participating teachers' feedback included “the mastery experiences of the content sessions and the practice teaching as a key to their changes” (Lotter et al., 2018, p. 267). Lotter et al. (2018) shared how one eighth-grade teacher from the second cohort of this study said,

I have a better vision of how it should look in the classroom after teaching the students in the summer program. I think teaching the actual content in the summer to students then discussing how the lesson went helped me tremendously (p. 276).

This practice piece of the professional development model, along with support and reflection, allowed the teachers to show their greatest growth. Their main learning came in these four areas: improved understanding of inquiry, increased use of inquiry strategies, more effective teacher questions, and the creation of a more student-centered classroom (Lotter et al., 2018).

Researcher Khalaily (2019) investigated which factors most influenced teachers to apply and implement alternative teaching methods (ATM). The study confirmed that positive attitudes towards ATMs do directly impact the level of implementation, however, positive attitudes towards frontal-traditional teaching lowers the implementation and use of ATMs (Khalaily, 2019). The greater influence found by Khalaily (2019) on the rate of implementation of ATM's was the practical experience during teaching training or advanced teaching training. There was a “significant direct correlation between having experience with alternative teaching methods and the rate of implementation of ATMs” (Khalaily, 2019, p. 19). Because of this finding, Khalaily (2019) concludes that when teachers have practical experience with alternative teaching methods it will improve the implementation rate. Professional development and teacher training programs

can benefit from this information as they look to prepare teachers to use research-based alternative teaching methods.

Brock and Carter (2107) studied the use of a combination of effective strategies including practical experience for training both teachers and paraprofessionals. Their work focused on how effective the educator training was on the accuracy of implementation of intervention strategies for students with disabilities. Brock and Carter (2017) looked at the two training strategies shown to be effective in prior research, the use of modeling and performance feedback. The researchers used case studies to look for consistency in findings about the use of modeling and performance feedback. Modeling can include both video and an in-person demonstration of the implementation steps. Performance feedback entails first observing and collecting data on an educator implementing a teaching strategy, then time given to share that data with the educator with the goal to improve future performances (Brock & Carter, 2017).

Brock and Carter (2017) found that both performance feedback and coaching alone were not a significant predictor of effect size. It was the combination of modeling with performance feedback that was statistically significant and the strongest single predictor. No statistically significant predictor of training duration was found on effect size. This led researchers to suggest that how educators are trained is more important to consider than the duration of the training. The modeling of the steps for an intervention strategy can reduce errors in the implementation, and then re-modeling during the performance feedback, as Brock & Carter (2017) say, will “likely aid the clarity of the feedback” (p. 141). The combination of these strategies works together to increase the consistency and exactness of the intervention strategy used with the students of disability. The researchers found enough support from this study to ascertain that to help bridge the gap of evidence-based practices to implementation in special education, training

educators in an effective way would include modeling, follow up coaching, and performance feedback (Brock & Carter, 2017).

### **Practical Experience During Teacher Education Programs**

Researchers Aksit et al. (2016) looked at the difficulty of implementing active learning strategies by looking through the eyes of future teachers in teacher education (TE) programs. The researchers focused on what the students in the teacher education (TE) program perceived as the definition of active learning and suggestions to improve their use of these strategies when they become teachers. By focusing on the students in a TE program versus current educators, Aksit et al.'s (2016) results point to the future and continued implementation of strategies to promote active learning in classrooms. Most participants recognized that they had experiences of active learning in their TE. Five important categories for the meaning of active learning emerged from the participants' responses. The categories were that active learning improved professional identity, encouraged experimentation with new methods, reinforced self-esteem, provided an experience with the cooperative learning culture, and created ownership of learning (Aksit et al., 2016).

Aksit et al.'s (2016) study identified obstacles to using strategies for active learning. They found that educators in the TE program were still using a traditional lecture approach. The other obstacles included overcrowded classrooms not conducive to small groups, lack of time, pressure in the studies, lack of necessary materials, equipment or resources, the student teachers' own passivity, and the examination system of their education system (Aksit et al., 2016). Despite the obstacles, the participants of the study described their experiences with active learning as engaging, providing them with a chance to learn actively, as well as to gain understanding on

how to match a wide range of teaching strategies to the needs of learners. Aksit et al. (2016) quote one participant saying, “this approach made me realize how I should guide the active learning process in my own class in the future more effectively and made me assimilate it better” (p. 98). The personal experience positively impacted the confidence of the future teacher to use the strategies in their own classroom. The two main suggestions on how to meet the challenges faced in implementing strategies to provide active learning started with the teachers’ own expectations to be active participants in the learning process. The second suggestion was that educators in teacher education (TE) programs should not only be qualified but be models of strategies that promote active learning in classrooms (Aksit et al., 2016).

Aksit et al. (2016) conclude that teacher educators play a key role in the implementation of strategies for active learning in the education system overall. The strategies for active learning need to be modeled and used more often in TE programs to be effectively used in the K-12 school systems. Teacher education programs need to address the obstacles by helping the faculty become less resistant to change and to become highly qualified to train new teachers. Overall, Aksit et al. (2016) identify the need for future teachers to have practical experiences with strategies for active learning, including modeling, to impact their implementation in future classrooms.

### **Co-teaching**

Co-teaching is a strategy that provides educators with practical experience with instructional strategies they want to implement by providing support to educators at all levels. Co-teaching, in inclusive classrooms, is used to meet the needs of all students in both general and special education. Chitiyo and Brinda (2018) wanted to determine the level of preparedness

current teachers of inclusive classrooms, both general and special education, have with using the co-teaching strategy. The researchers also investigated how the educators became prepared in co-teaching. In this study's setting, co-teaching refers to the collaboration between the general and special education teachers to meet the needs of all students, including those with disabilities. This collaboration can take multiple forms including planning, designing, and delivering of instruction, classroom management, and administering assessments (Chitiyo & Brinda, 2018). The first finding of the study indicated the low level of preparedness for co-teaching use and strategies the teachers were from university coursework. Less than half of the participants indicated learning co-teaching in their university coursework. If the goal for education is for inclusive classrooms, Chitiyo and Brinda (2018) suggest teacher education program coursework should include co-teaching instructional strategies to equip them in a strategy that can help meet the needs of students with disabilities in the least restrictive learning environment. These courses should equip the future educators with "skills of co-planning, communication, problem-solving, collaboration, and organization" (Chitiyo & Brinda, 2018, p. 48-49). This foundational work can then build from experience in the classroom, and additional training provided, which is the second finding from this study. Chitiyo and Brinda (2018) indicate the continued need for training on co-teaching strategies for practicing teachers because the study found no difference in the level of preparedness between those who used co-teaching and those who had not. In addition, Chitiyo and Brinda (2018) found the confidence level of the teachers was only at half, and therefore continued professional development and training would improve confidence levels and the overall use of co-teaching strategies for inclusive education.

Chitiyo (2017) used the previously mentioned study data to look at individual barriers identified to using co-teaching strategies. The researcher found that more than half of the



participants indicated that the biggest barrier was their lack of the necessary skills needed to use the co-teaching strategies. As a result, Chitiyo (2017) urges that teachers need to be trained in co-teaching strategies both in teachers education programs and current educators through professional development. Focusing on the barriers categorized as environmental barriers, Chitiyo's (2017) results show that a little over twenty percent of the participants indicated that their colleagues do not support using co-teaching strategies. With collaboration a key element to planning and decision making in the co-teaching strategy, this barrier needs to be addressed. Over eighty percent of participating teachers indicated they see an advantage to using co-teaching, suggesting to Chitiyo (2017) that the "majority of the participants perceived co-teaching to be beneficial for their students" (p. 61). This points to a positive belief and readiness for the strategy that indicates to school stakeholders training the educators could increase the implementation of co-teaching strategies.

Co-teaching was mentioned in many studies to learn a strategy and gain confidence in the strategy, including Sowell's (2017) study on mentors of beginning teachers. Sowell (2017) found that the participating mentors suggested co-teaching as a successful approach to support a beginning teacher in building confidence in classroom management strategies, as well as supporting the beginning teacher in improving their instruction. This study sought to find insights into the power of mentorship of beginning middle level teachers through the lens of the mentor, including their perspective of what is necessary to include for a successful mentoring program.

From documentation and interviews with the three mentors, Sowell (2017) found three main themes emerge as necessary elements in a mentoring program with beginning teachers. The first theme, building a relationship between the mentor and teacher, was imperative to have any

impact on the beginning teachers' growth and the overall impact of the mentorship program. The second theme that emerged was that the mentor's main role was to help increase classroom management in order to create a supportive learning environment. All three participating mentors documented time spent in helping the beginning teachers with this aspect of teaching but with different approaches. In one approach, the mentor went into the classroom and modeled strategies as well as co-taught with the teacher before passing back full control (Sowell, 2017).

The third theme of the mentor's role to beginning teachers was supporting them in improving their instructional practices (Sowell, 2017). The researcher described this theme as the most discussed in the data from the participating mentors. The supports suggested by the mentors were to model lessons, co-teach lessons, collaborate in planning lessons and finding resources, as well as observing lessons and then providing specific feedback. The observations should also include the beginning teacher observing other teachers to increase observed instructional strategies. Sowell (2017) noted the importance of providing beginning teachers with mentoring that includes a trusting relationship, modeling, co-teaching, and collaboration of classroom management and instructional strategies. This mentored support allows the beginning teachers to withstand the societal pressure to perform at the same level as an experienced teacher by building their confidence and support system (Sowell, 2017). The use of the co-teaching support aided in this confidence.

### **Full vs. Partial Implementation**

Research group, Erdogan et al. (2016) examined the long-term impact and sustainability of using a specific instructional approach with various levels of implementation and how it impacted student achievement. The study focused on the STEM Project-based learning (PBL)

instructional approach that was implemented and looked to see the impact of that outcome (Erdogan et al., 2016). The research also looked at how the three distinct levels of implementation influenced students' achievement specifically on high stake science tests taken in grades eight, 10, and 11.

Erdogan et al. (2016) found the schools showed three distinct levels of the STEM PBL implementation. All the schools and teachers participated in thirty or more professional development sessions over a three-year period as well as weeklong summer institutes in each year to learn how to implement the instructional strategies within their classroom. The study evaluated the teachers on their level of STEM PBL implementation. For this study, the teachers' scores were averaged resulting in one school considered a full implementation school, one school a partial implementation due to blending the PBL approach with their previous instruction methods, and one school having no implementation shown at all (Erdogan et al., 2016).

Erdogan et al. (2016) compared the results of the different schools to look for the influence and impact variations of the level of implementation, as well as looking for any indicators of the STEM PBL instructional approach influencing student success based on ethnicity and gender. Researchers found that the group of students at the full implementation school showed a higher growth rate that was statistically significantly different than both the partial and no implementations schools (Erdogan et al., 2016). However, they also found that the growth rate of the students in the school with no implementation was higher than the growth rate of the students in the partial implementation. This finding pushed the researcher to look at the differences of growth rate from the full to the no implementation school. They found the growth rate of students at the full implementation school was not statistically different from the rate for students in the school with no implementation (Erdogan et al., 2016).

Erdogan et al. (2016) point out three main insights gained from this study. First is that students who experienced the full STEM PBL implementation in their science course had the greatest effects across ethnicity and gender in their growth rates providing important positive learning for “all measured stakeholders” (p. 2150). The second insight showed that the no implementation school was “strong with positive and respectable effects” (Erdogan et al., 2016, p. 2151) with similar growth rates to the full STEM PBL group. The third insight suggested to the research group that “partial implementations are not useful for improving student learning in meaningful ways” and are “not as good as the status quo” (Erdogan et al., 2016, p. 2151). For the effects of implementation of instructional practices, the researchers go on to ascertain that using just parts of a program, even if deemed the best parts, will not yield the important growth for student learning as indicated by their research into the high-stake test results (Erdogan et al., 2016). Consequently, these results add an interesting dimension to the implementation of alternative instructional strategies and the importance of support.

## CHAPTER III: DISCUSSION AND CONCLUSION

### Summary of Literature

The literature review pointed to six strong areas to consider when finding the best ways to offer support to educators in the implementation of innovative strategies with the intention of increasing student engagement and learning to impact student growth. The six areas include teacher attitudes and beliefs about instructional strategies, readiness, quality professional development that includes content experts and reflection, coaching and mentoring opportunities, practical experiences, and co-teaching. Overall teacher readiness for a strategy, combined with positive teacher efficacy, attitudes, and beliefs, impacts the effective start to implementing new or different strategies by educators. Edwards (2016) found that even though there are obstacles and barriers to implementing effective strategies for middle level education of active learning and multiple learning approaches, implementation is still happening by teachers who have tenacity, are focused on their students, and are willing to experiment. The level of readiness of teachers was one of three main contributing factors Flowers et al. (2017) found in the most successful implementation of the Schools to Watch (STW) Project impacting student achievement.

The professional development (PD) provided to support the implementation of a strategy should include a balance of providing quality time, content experts, and opportunities for reflection to support the implementation levels of educators (Foss, 2010; MacNabb et al., 2006; Marra et al., 2011; Warren, 2009). Strong professional development programs found in the research indicated the use of intensive starts to the PD program, ranging from three full days to two weeks, with continued time throughout the school year to further train and learn. Time was not only a key component for success but recommended by researchers to include

more PD time (Turner et al., 2007; Carrabba & Farmer, 2018). Researchers Warren (2009) and Freeman et al. (2014) noted the value of PD came from experts on the content area positively impacting the level of implementation of the learning strategies. Foss's (2010) research also supported opportunities for reflection in PD to impact the success rate of implementation. Professional development that allows for coaching and mentoring of teachers also supports the successful implementation of proven strategies. Researchers found that providing training that included modeling the use of the strategy from coaches and mentors was shown to be effective (Edwards, 2017; Flowers et al., 2017; Gokoglu & Cakiroglu, 2011; Huguet et al., 2014; Turner et al., 2017).

Professional development alone does not ensure a successful implementation of pedagogical strategies; rather, opportunities for practical experience provided for educators was shown to be extremely beneficial (Lotter et al., 2018; Brock & Carter, 2017). For educators, having the ability to experience what an alternative learning strategy looks like and experience how it works oftentimes increases the level of implementation of the strategies. Khalaily (2019) found the greater influence on the rate of implementation of alternative teaching methods was the practical experience during teaching training or advanced teaching training. Because of this finding, Khalaily (2019) states that "teachers' practical experience with alternative teaching methods is expected to improve the implementation rate of these teaching methods by teachers" (p. 23). This practical experience should start during the training and education of teachers in their preparatory college courses. Alternative learning strategies like PBL and cooperative learning should be modeled and experienced by teachers during their training prior to becoming licensed teachers. Aksit et al. (2016) found that participants in

teacher education programs wanted more active learning strategies to be included in their own courses versus the lecture style they most experienced.

Co-teaching increased the use of inclusive classroom strategies and should be included in teacher training and in the PD of educators to support effective strategies to be implemented to support all students (Chitiyo, 2017). In studying the mentorship of teachers, Sowell (2017) found co-teaching strategies to be effective in supporting teachers in using instructional strategies. The support provided through co-teaching impacted the teacher's implementation of the instructional approach.

Research was conducted on ways to support the successful implementation of various instructional strategies to impact positive student growth, however there was also a study that indicated the importance of the level of implementation. For example, Erdogan et al.'s (2016) long-term study found that the partial implementation of STEM Project-Based Learning (STEM PBL) had a lower impact on student achievement than the full implementation or no implementation. The various alternative teaching methods, even when proven to be effective on student achievement and engagement, need to have full implementation to have that effect. Otherwise, direct instruction, or as Erdogan et al. (2016) called "the status quo" can have more positive effects than a partial implementation of an instructional strategy.

### **Professional Application**

This literature review indicates the need for having a positive and open attitude towards learning new strategies. As an educator, when presented with a new initiative, taking the time to prepare oneself and be open for learning will have a positive impact on the success of implementing the new strategy. This awareness can support efforts to be reflective and open to making the changes sought after by implementing the instructional strategy. Applying the

research points educators to hold positive beliefs not only about their own abilities, but also towards the innovative approach to be implemented.

To apply the research on the characteristics of quality professional development (PD) as a teacher could be more difficult. Being aware of these aspects, however, educators can advocate for them. For instance, educators can take a more active role by becoming a part of professional development committees to support sufficient time allotted for PD, the use of a balanced approach, the inclusion of content experts, and inclusion of time for reflection. In addition, educators can advocate and encourage that coaching and mentoring opportunities be offered in the implementation plan. As new and innovative instructional strategies are implemented, educators can also support the research by finding ways for practical experiences with the new instructional strategy to be included in the PD opportunities or in the professional learning communities (PLC's) of the school.

An individual educator can apply this research in three ways. First is by using this research to evaluate a training on a new instructional strategy. By using the six principal areas found to be effective to support implementation, educators can rate a potential training option by looking for the inclusion of these areas. Secondly, applying this research might have an educator seek out a mentor or coach on their own to provide the necessary support in using a new instructional strategy. Third, educators can seek out practical experiences and ways to co-teach an instructional strategy they want to implement to increase student engagement and learning.

This research can help professional development committees in schools create a successful PD program of a strategy they hope to implement school wide or district wide. Being aware of the research that supports teachers in a successful implementation of an



instructional strategy is necessary for these departments to positively impact their school educators and learners. Bringing in content experts and including time to reflect is one way PD committees can apply the research. Another way is for the committee to set up structures to allow for mentorship and coaching opportunities within schools or districts to positively support implementation.

Understanding the importance of full implementation can also allow educators to put in the effort and time to implement the alternative teaching method completely to be able to experience the positive effects hoped for. The research of quality PD can seem out of the control of an individual teacher, however as mentioned above, individuals can still take personal ownership of their part of what can support the implementation. The purpose to increase student engagement and achievement using various active learning strategies and instructional methods can be a motivating factor for an educator to apply the research individually.

### **Limitations of the Research**

Some of the research found was limited by the number of participants, the length of the study, and the contexts surrounding the implementation. A few of the studies had small numbers of participants the researchers based the results from. Sowell's (2017) study on mentors was limited by only having three mentors to observe. Huguet et al.'s (2018) study on coaches collected numerous amounts of data on the participants, however, there were only four coaches in total. The researchers Rogers et al. (2011) acknowledge a limitation of their study was the low sample size of three teachers from the two participating schools that had school wide adoptions of the PBL approach. It was also lacking in information given on how these three teachers were selected, and/or why only the three participants.

Edwards' (2017) case study on beginning teachers' use of active learning strategies was conducted with only one teacher in one subject area. To increase the validation that the data can represent a typical first year teacher, more research should be done by conducting the same process with other first year teachers either in different subject areas or different school districts. This could provide more insight into the challenges and supports necessary for supporting new teachers in implementing an active learning teaching approach. It would also be interesting to have follow up observations and participant interviews completed in following years to see what challenges the participants still have or have overcome with the support in place.

The length of time of the study limited the research by not providing a long-term view of the impact of implementation of the instructional strategy. For instance, Carrabba and Farmer (2018) looked at the implementation of a PBL for the period of only one month. Their findings are useful, however, by following up with the participating teachers through another cycle of implementation, the results would be more supported. Other research would also benefit from revisiting participants to follow up with the long-term impact of the implementation.

Context of the research, including participants, was indicated in a few studies. Studies that offered questionnaires did not always know the context of why potential participants did not participate. Understanding what would prevent someone from participating could impact the overall results as well as add to them. Faulkner and Cook's (2006) study only had 27% of possible participants respond to their questionnaire. Without fully knowing why their participation was low, the results are not conclusive as the possibility exists that the views of the educators who did not respond differ from those that did respond. The timing of the survey

could have impacted the low participation rate as it was sent out electronically close to the administration of the state assessments. Other potential problems Faulkner and Cook (2006) identified with the data collection were attributed to lack of personal access to electronic mail and technical difficulties accessing the survey.

Edwards (2015) noted a limitation of the research into what allowed teachers to overcome barriers to implementing active learning strategies was the participants were a “very select group of teachers” (p. 79). All participating teachers had at least a master’s degree and were highly motivated teachers. This makes the findings hard to fully generalize to a “typical” middle level teacher, initiating a suggestion by Edwards (2015) for more research to include a broader and more random sampling of teachers and increasing the context of the research.

### **Implications for Future Research**

Further research would be beneficial on the level of implementation impact, as well as what types of alternative teaching methods require full implementation to be effective. There is a wide range of alternative instructional strategies that educators can use to increase student engagement and achievement, and knowing which ones require a full or all in implementation would be beneficial to the educators. As Erdogan et al. (2016) indicated that partial implementations had a lower impact on student learning than a full or no implementation rate of the STEM PBL strategy. Additional research into finding data on the effects of implementation of a strategy over just teacher perceptions are encouraged as Faulkner and Cook (2006) found that even when teachers are positive and think they are using more varied instructional strategies for student engagement, this did not necessarily match what the data showed them using in their classrooms.

Further research at the effective implementation of instructional strategies should collect data on the context of the implementation, as Gallagher et al. (2014) found a connection with context and success rates of implementation. Further exploration can determine a better picture of the impact contexts like state testing and other factors have on impacting the success of a strategy. Chitiyo (2017) study encouraged continued research into co-teaching to find best ways for additional preparation for both teachers in teacher education programs and educators in classrooms to be better equipped to use co-teaching to positively impact inclusivity of classrooms.

## **Conclusion**

Supporting educators in the implementation of active learning instructional strategies to increase student achievement and engagement is complex. Research indicates that teachers' attitudes, beliefs, and self-efficacy will impact the implementation of the strategy, as well as the readiness of the teacher. Starting here, getting educators ready and positive about implementing a new or different strategy, can create a solid foundation of support to successful implementation.

Effective and quality professional development programs require multiple aspects of a balanced program orientation, inclusion of content experts, and opportunities for reflection to impact implementation success. A balanced orientated PD, including both content and pedagogy, showed to be most effective for design and implementation (Marra et al., 2011). Access to content experts in training and throughout the implementation increased participants' confidence and use of the strategy, suggesting an aspect to include in PD (Freeman et al., 2014; Warren, 2009). The element of reflection increased success of implementation and teachers' understanding and use of the approach. (Edwards, 2015; Foss, 2010; Freeman et al., 2014; Lotter et al., 2018). Providing the support through training and PD with the proven effective pieces will

support educators implementing varied instructional strategies to increase student engagement and achievement.

Professional development combined with opportunities for a coach or mentor will also support staff in their pursuit of implementation. The coach and mentor provide one-on-one support and connection to increase the knowledge, confidence, and understanding of the educator. They also provide opportunities to model and co-teach the strategy being implemented. This connects with the research that showed having educators experience the instructional strategy prior to implementing it in their classroom can increase the implementation success. Khalaily (2019) and Lotter et al. (2018) both showed evidence of success by providing the educators with practical experience using the strategy in a training setting before use in the classroom. This need also translates to teacher education programs. These programs should provide practical experiences with the various alternative instructional strategies like PBL or cooperative learning to the future educators to increase the usage of these strategies in their future classrooms (Aksit et al., 2016).

Educators can use co-teaching to support the implementation of instructional strategies to engage students in inclusive classrooms as well as providing support in teaching new instructional approaches. Supporting educators using co-teaching strategies allows for teachers to use strategies proven to support student growth in inclusive classrooms for all learners (Chitiyo, 2017). Mentors and coaches use co-teaching to support the implementation of instructional strategies, and as Sowell (2017) found, to support beginning teachers. These opportunities provide support to teachers in their efforts to increase student achievement and growth.

Being aware of the level of implementation of an instructional approach proved to impact the effectiveness made by the approach. Erdogan et al.'s (2016) study indicated that without full

implementation, the method previously used was just as effective if not better than a partial implementation of the instructional approach. This research indicates the need to be conscientious of understanding the instructional approaches methodology, and what makes it effective to best implement the approach.

Supporting educators wanting to implement alternative instructional strategies and approaches in their classrooms to increase student engagement and achievement is multi-faceted. Considering the readiness level, attitudes, and beliefs of instructional strategies of a teacher, and by providing quality and effective professional development that includes support through coaching, mentoring, practical experiences and/or co-teaching opportunities, educators will be supported and set up for success in implementation of innovative strategies.

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