ACCEPTANCE

This dissertation, THE RELATIONSHIP BETWEEN TEACHERS' ATTITUDES AND PERCEPTIONS TOWARDS COOPERATIVE LEARNING STRATEGIES AND TEACHERS' SELF-EFFICACY IN AN ONLINE SETTING, was prepared under the direction of the candidate's Dissertation Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree of Doctor of Education in the School of Education, Concordia University Irvine.

Matthew Rhoads, EdD
Committee Chair

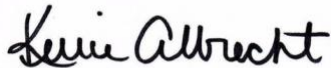Helene Cunningham, PhD
Committee Member

Barbara Howard, EdD
Committee Chair

The Dissertation Committee, the Dean, and Senior Director of the Doctor of Education Program of the School of Education, as representatives of the faculty, certify that this dissertation has met all standards of excellence and scholarship as determined by the faculty.

Heather Vezner, Dean

Kellie Albrecht, PhD
Senior Director

COPYRIGHT PERMISSION
AGREEMENT

Concordia University
Library 1530 Concordia
West
Irvine, CA 92612
www.cui.edu/library
librarian@cui.edu

I, Caris M. Adams, warrant that I have the authority to act on any copyright related matters for the work, THE RELATIONSHIP BETWEEN TEACHERS' ATTITUDES AND PERCEPTIONS TOWARDS COOPERATIVE LEARNING STRATEGIES AND TEACHERS' SELF-EFFICACY IN AN ONLINE SETTING, dated May 6, 2023 to be included in the Concordia University Library repository, and as such have the right to grant permission to digitize, republish and use the said work in all media now known or hereafter devised.

I grant to the Concordia University Library the nonexclusive worldwide rights to digitize, publish, exhibit, preserve, and use the work in any way that furthers the educational, research and public service purposes of the Concordia University.

This Agreement shall be governed by and interpreted in accordance with the laws of the State of California. This Agreement expresses the complete understanding of the parties with respect to the subject matter and supersedes all prior representations and understandings.

ACCESS RESTRICTIONS
My electronic thesis or dissertation can be made accessible via the Concordia University Library repository with the following status (select one):

x | Option 1: Provide open access to my electronic thesis or dissertation on the internet

□ Option 2: Place an embargo on access to my electronic thesis or dissertation for a given period from date of submission (select one):
                    □ 6 months   □ 1 year   □ 3 years

Permission Granted By:

_____   _____
Caris M. Adams   Signature of Candidate

VITA

Caris M. Adams

ADDRESS
1530 Concordia West
Irvine, CA 92612
Caris.adams@eagles.
cui.edu

EDUCATION
EdD   2023   Concordia University, Irvine
Leadership
MA   2007   Concordia University, Irvine
Education
BA   2003   Concordia University, Irvine
Behavioral Sciences

PROFESSIONAL EXPERIENCE
2021 - present   Elementary School Teacher
Competitive Edge Charter Academy
Yucaipa-Calimesa Joint Unified School District

2006 - 2021   Elementary School Teacher
Rim of the World Unified School District

THE RELATIONSHIP BETWEEN TEACHERS' ATTITUDES AND PERCEPTIONS
TOWARDS COOPERATIVE LEARNING STRATEGIES AND TEACHERS' SELF-
EFFICACY IN AN ONLINE SETTING

by

Caris M. Adams

A Dissertation

Presented in Partial Fulfillment of
Requirements for the
Degree of
Doctor of Education
in
Leadership
Date of Commencement

School of Education
Concordia University Irvine

ABSTRACT

The purpose of this mixed-methods study was to understand the relationship between teachers' self-efficacy and teachers' attitudes and perceptions towards cooperative learning strategies in an online setting. This study also intended to understand the relationship between teachers' attitudes and perceptions towards cooperative learning strategies in an online setting and teachers' years of teaching experience. A survey using the Cooperative Learning Implementation Questionnaire (CLIQ; Abrami et al., 1998), the Teachers' Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001), and two free response questions was administered. A total of 123 participants from K-college level responded to the survey and provided information to answer three quantitative and two qualitative research questions. A correlational research design was used to determine there was a statistically significant and moderate, positive relationship between teachers' self-efficacy and teachers' attitudes and perceptions towards cooperative learning in an online setting. There was also a significant and moderate, positive relationship between teachers' attitudes and perceptions towards cooperative learning in an online setting and teachers' overall years of teaching experience. Thematic coding was used to draw conclusions from the data gathered in the qualitative research questions. The qualitative findings indicated that teachers had both positive and negative experiences contributing to their self-efficacy towards using cooperative learning in an online setting. Furthermore, participants indicated numerous factors such as attitudes, limitations, impact on students and strategies that influenced their perceptions of cooperative learning in an online setting. The results showed that teachers with high levels of self-efficacy and more years of teaching experience had positive attitudes and perceptions towards cooperative learning.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGMENTS

To Mom. You have been my number one supporter and editor in this paper and in my life. All I am today is because of the faith, hope, and love you instilled in me since I was a child. You would sing to me at night as you tucked me in for my dreams, "dream big, reach high, your goal the stars, your aim the sky." This is one star in my pursuit of the sky. Mom, you are MY star.

My little sister, my biggest star. It's not easy being the big sister overshadowed by the striking light of the little sister. I am so proud of you and to be your sister. Your belief in me is bigger than I've ever believed in myself. I strive to be the person you believe I am. Jason, my brother, you have always been a shining star no matter what stage you are on. You bring so much light and love to me, our family, and everyone you meet. Keep shining! Justin, my brother, my star. I believe in you and all your dreams, keep pursuing them.

Dr. Rhoads, you were the spotlight that so graciously and patiently shed light one step at a time along this journey until I reached the end. Thank you for showing me the way. Dr. Howard and Dr. Cunningham, you were the firecrackers of light that sparked me to make this dissertation brighter than I knew possible. Dr. Alemi, thank you for your expertise and encouragement along the way.

To the rock of women in my life who have been unbreakable pillars of support and steadfastness: My mother, my sister, my Aunt Sharon, Amy, Tawnya, Tami, Rebecca, Pam, DD, Beth, Brittney, Dawn, Sarah, Kim, Claudia, Leah, and Tiffany. Some rocks never break.

To the future stars who I dare to dream big: Elizabeth, Victoria, Alexis, Violet, Katie, Alicia, Sophie, Mattea, Emily, Kaitlyn, Jacks, Ashlynn, and Becca, may you shine as bright as your mommas have dreamed for you in your own light. Dream big, reach high, your goal the

stars, your aim the sky.

Daddy, I was your little star from the day I was born. I wish you could've seen this shining moment. You gave me Jesus, the light of the world (John 8:12), and He has given me the light of life, may it forever shine.

Rob, you were the light at the end of the tunnel. I am so happy and thankful it was you. You are the light that brightens each day with your unwavering love, presence, and belief in me. You always believed I could. I did.

CHAPTER 1: INTRODUCTION

Education is an evolving system that is no longer confined by the walls of a schoolhouse. There are a variety of learning platforms and programs available online to students of all grade levels worldwide. Different structures and compositions of online education exist to educate students in a variety of formats. Educators are constantly adapting to the evolution of educational systems, structures, and use of instructional strategies. American philosopher and modern constructivist educator, John Dewey, explained the importance of teachers' flexibility stating, "you cannot teach today the same way you did yesterday to prepare students for tomorrow" (Kolb, 2021, p. 1). This statement was a blast of reality for educators in 2020 when the vast majority of schools transitioned to online classes as a result of the COVID-19 pandemic (Education Week, 2020; Herold, 2020). Educators had to pivot their pedagogical practices in one day and could not teach the same way they did the day before. Furthermore, in that unprecedented time, many educators did not know how to prepare students for tomorrow in the online learning environment that was new to many educators and students.

Living and learning in the 21st century requires skills such as communication, collaboration, and problem solving. Students need to be competent in these skills and develop positive peer interactions to be able to work well with others in education and the workforce. These skills can be fostered through cooperative learning experiences in school (Burton, 2010; Johnson & Johnson, 2017). Higher-level thinking skills along with positive interactions are also developed with the use of the cooperative learning instructional method. Students who are actively engaged in this learning process have academic success and positive social experiences (Loh & Ang, 2020; Mojtaba & Mahsa, 2018). The lack of physical presence in online courses compared to in-person classes can cause students to feel isolated; however, cooperative learning

strategies are an effective way to engage students with their peers and learning (Barreto et al., 2022). Online courses in which teachers have implemented cooperative learning strategies have resulted in efficacious outcomes (Mojtaba & Mahsa, 2018). It is imperative that online educators provide students with opportunities to engage in their learning and with their peers for an optimal educational experience. Teachers must develop high levels of self-efficacy and embrace positive attitudes towards implementing cooperative learning strategies in online education to maintain relevant and modern academic integrity and success (Barreto et al., 2022).

According to Vygotsky (1978), learning is a social construct reflecting the need for community, communication, and connectedness as crucial components of the learning process. Students in online learning programs must build community with peers and establish communication to foster cooperative learning and connect with others. Building a strong cooperative learning-based educational environment is critical for 21st century learners and is necessary for developing skills such as communication, problem solving, and collaboration needed for the digitally centered world (Jacobs & Ivone, 2020; Johnson et al., 2014).

Many teachers were challenged with using a constructivist approach to learning and using digital tools in remote learning during the COVID-19 pandemic (Kolb, 2021). Further, many teachers lacked the technical self-efficacy, understanding of digital instructional tools, and the professional development necessary to engage students in effective learning in online settings (Portillo et al., 2020). Over half of early education teachers reported feeling unprepared to teach online (Newton, 2020). In this digitally interconnected world, educators need to feel confident and capable in structuring engaging and effective learning opportunities for students in online settings to equip the next generation of students to be academically successful and competent in 21st century skills (Erukulapati, 2019).

Statement of the Problem

In 2020, the initial COVID-19 pandemic caused many schools from elementary to the college level to begin online learning (Figure 1.1). Many K-college level teachers were not prepared to pivot into a new educational environment and they immediately recognized the need for online tools and activities that would engage their students in learning sessions (Eaden et al., 2022; Hodges et al., 2020; Newton, 2020; Trust & Whalen, 2020) The competency of K-12 teachers to teach in an online setting was questioned by parents, schools, media, students, and even teachers themselves (Eadens et al., 2022). This period revealed the shortcomings of the norms, patterns, and structures that existed in education (Domínguez et al., 2020). Most teachers had no prior experience or training in online instruction, and many were navigating the use of digital learning tools in order to communicate with students, provide quality instruction, and connect students with their peers. A significant variation in educators' preparedness to use technology to support students in distance learning was exposed during this time (Trust & Whalen, 2020). A digital divide emerged in remote learning between teachers for various reasons such as type of school, gender, and age (Portillo et al., 2020). Also, teachers had varying years of experience teaching overall and online which could impact their abilities and perceptions towards online instruction, specifically the use of cooperative learning strategies online.

Figure 1. 1

The COVID-19 Pandemic's Impact on Students' Education
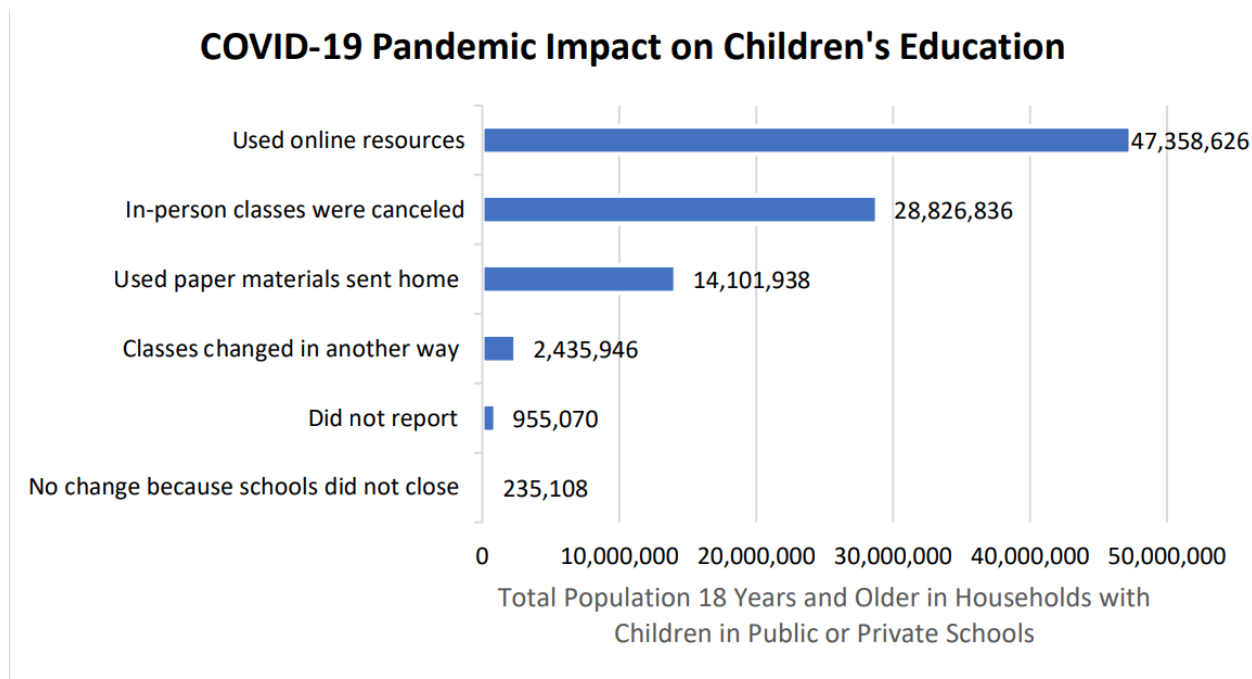
Note. From "Forum Guide to Virtual Education Data: A Resource for Education Agencies," by National Forum on Education Statistics, 2021, p. 2.

Trust and Whalen (2020) investigated lessons learned from the COVID-19 pandemic and examined if teachers should be trained in emergency remote teaching. Teachers reported feeling overwhelmed and unprepared to use effective instructional tools and strategies to teach online. Fifty-two percent of teachers reported a lack of knowledge of online instructional strategies, 61% reported feeling overwhelmed with all the online learning resources, and 44% claimed to have a lack of knowledge regarding online teaching tools. Sixty-six percent of participants believed that educators should have more training to teach online (Trust & Whalen, 2020).

Teacher preparation programs include educational technology; however, online instruction has not been the comprehensive focus of such programs (Eadens et al., 2022; Koenig, 2020). Many pre-service teaching programs focus on teaching practices and instructional

strategies that are geared towards face-to-face instruction (Eadens et al., 2022). Trust and Whalen (2020) recommend that teacher preparation programs infuse their entire curriculum and programs with high quality teaching experiences so that teachers are confident in their use of instructional strategies in online settings. Additionally, they recommended providing ample opportunities for in-service teachers to develop these competencies so that they are prepared to teach in different settings (Trust & Whalen, 2020). Educators need to be technologically savvy and well informed about current, effective instructional practices in an online setting (An et al., 2021; Harris & Jones, 2020). Teachers need to be prepared to engage students in learning using effective instructional strategies seamlessly within an online setting.

Cooperative learning needs to be a frequent and sustained instructional strategy used in online education. The lack of teacher confidence and use of technological skills and instructional strategies was exposed during the school shutdowns in 2020 when distance learning was mandated for many schools. Many students are unfamiliar with cooperative learning online and teachers are not comfortable in using this instructional strategy online (Jacobs & Ivone, 2020). Students may lack the skills necessary to participate in cooperative learning groups online and teachers need to explicitly teach these skills (Jacobs & Ivone, 2020). Sustained and frequent use of cooperative learning helps groups function more effectively. Teachers need to be confident in using cooperative learning in an online setting as a form of active learning that promotes peer interactions and develops 21st century skills (Jacobs & Ivone, 2020).

Purpose of the Study

The purpose of this mixed methods study was to understand K-college level teachers' attitudes and perceptions towards cooperative learning strategies in an online setting and how they may be influenced by teachers' self-efficacy and years of teaching experience. This study

sought to illuminate the involvements teachers have had with cooperative learning strategies and the factors that contributed to their implementation of it in an online setting. To better understand their efficacy and perceptions, teachers shared their experiences and identified the cooperative learning strategies that were used most. The results from this study will help understand how the gaps in online education can be bridged to build capacity for educators in using cooperative learning strategies. Additionally, the information gained in this study can help teachers, schools, and districts determine what supports and trainings are needed to help teachers be prepared to teach in any setting including in-person, online, or a hybrid setting.

Research Questions

The following research questions guided this study in understanding the relationship between teachers' attitudes and perceptions towards using cooperative learning strategies and their self-efficacy.

Primary Research Question

PRQ1. What is the relationship between teachers' self-efficacy and teachers' attitudes and perceptions towards using cooperative learning strategies in an online setting?

Secondary Research Questions

SRQ1. What is the relationship between teachers' attitudes and perceptions towards using cooperative learning strategies in an online setting and teachers' years of experience teaching?

SRQ2. Which cooperative learning strategies are used most frequently in an online classroom setting?

SRQ3. What are the perceptions of teachers towards cooperative learning strategies in an online setting and how are they influenced by other factors?

SRQ4. What experiences contribute to high and low levels of teachers' self-efficacy when using cooperative learning strategies in an online setting?

Theoretical Framework

There are two theoretical frameworks that frame the research in this study. Cooperative learning is strongly based on Vygotsky's (1979) theory of social constructivism and self-efficacy is based on Bandura's (1977) social cognitive theory. The researcher examined How Vygotsky's theory of social constructivism and Bandura's social cognitive theory affects teachers' perceptions and attitudes towards cooperative learning strategies and teacher self-efficacy in an online environment.

Social Constructivism - Cooperative Learning

The theory of social constructivism emphasizes students are responsible for constructing their own learning and understanding based upon previous knowledge and experiences. There are benefits of peers sharing knowledge with one another and learning from each other. Vygotsky (1978) explained this concept in the zone of proximal development theory in which one student who is strong in an area can assist a weaker student. Vygotsky proposed that there is a difference in what students independently achieve and what can be achieved with the assistance from a skilled partner. Collaborating with peers provides students opportunities to learn from one another. Peers interacting with one another contributes to knowledge construction as students help each other generate information. The social constructivist view is that when students engage in meaningful and social activities, then active learning occurs (Creswell, 2012; Loh & Ang, 2020; McMahon, 1997). Cooperative learning is a strong instructional strategy that empowers students to improve their learning, interpersonal relationships, and critical thinking skills (Huang, 2016).

Social Cognitive - Self-Efficacy

The social cognitive theory explains the positive and negative consequences that occur as a result of individuals' experiences (Bandura, 1977). The theory explains that individuals may have participatory or vicarious experiences that impact their perceptions of success and failure. The resulting cognitions directly affect behaviors, attitudes, and individuals' choices to participate in or avoid selected activities. People are more likely to engage in activities and behaviors that they believe they are successful in (Wright, 2011). Self-efficacy increases motivation and increases people's abilities to perform tasks (Bandura, 1997). Individuals are their own agents of change.

Self-efficacy plays an important role in teachers' choices of instruction in the classroom. Teaching self-efficacy specifically relates to the beliefs teachers retain regarding their ability to teach effectively, their professional knowledge, and skills (Dolighan & Owen, 2021). Teachers' self-efficacy beliefs "determine the level to which the teacher will teach in the classroom" (Garvis, 2013, p. 86). Teachers' confidence in their abilities to use specific instructional strategies could potentially influence their attitudes toward and use of cooperative learning in online classes.

The theoretical framework used to guide this study is based on the social constructivist and social cognitive theories. The relevance and connection between how individuals view themselves and how they interact with others in learning are key components to understanding teachers' self-efficacy and attitudes and perceptions towards using cooperative learning strategies in an online setting (Figure 1.2). Teachers with high levels of efficacy are more likely to take risks and use various instructional strategies (Bray-Clark & Bates, 2003).

Figure 1. 2

Diagram: Theoretical Framework

| Social Cognitive Theory | • Self-Efficacy |
| Social Constructivist Theory | • Cooperative Learning |
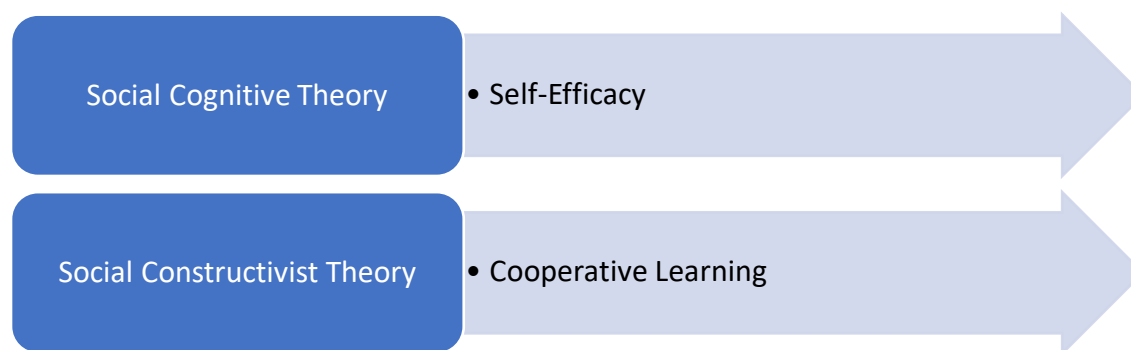
Significance of the Study

This study will contribute to the understanding of how teachers' self-efficacy and years of teaching experience relate to the use of cooperative learning strategies in online settings. The findings and conclusions may help provide more information and understanding about why teachers use or do not use cooperative learning in online settings. This study may also offer insight into the factors and experiences that contribute to teachers' decisions to use cooperative learning in an online setting. The outcomes of this study may provide information to help teachers build their capacity to use effective instructional strategies in any classroom setting.

Definition of Terms

Active learning: A student-led instructional approach that engages students in the learning process as they create a social construction of knowledge (Dewey, 1938; Rhoads et al., 2022).

Asynchronous learning: The type of learning that occurs when students are not participating and interacting at the same time. The courses are student-oriented and students can access coursework at their own pace being taught from a teacher in-person (NFES, 2021).

Cooperative learning: An instructional strategy where the teacher facilitates students

work together in small groups to maximize their own and each other's learning (Johnson & Johnson, 2017).

   Emergency remote teaching: A "temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances. It involves the use of fully remote teaching solutions for instruction or education that would otherwise be delivered face-to-face or as blended or hybrid courses and that will return to that format once the crisis or emergency has abated" (Hodges et al., 2020, para. 13).

   Online course: A course where all learning activities are done online. Online classes can be conducted asynchronously, synchronously, or a combination of both. Subject matter and learning experiences are provided in a virtual space (National Forum on Education Statistics, 2021).

   Online instruction: Instruction provided via the internet to connect students and instructors in the educational process (Ni She et al., 2019).

   Synchronous learning: The type of learning that occurs when students learn at the same time in the same virtual space. Students interact with each other and with an instructor in course content in this learning (NFES, 2021).

   Teachers' self-efficacy: Teachers' belief in their capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context (Tschannen-Moran et al., 1998).

   Traditional in-class instruction: A learning environment that takes place with students and teachers in the same location where information is shared with face-to-face interactions (NFES, 2021).

Summary

As opportunities for online education become more available and increase in popularity, it is critical for educators to be prepared and use instructional strategies that are engaging and efficacious. Teachers need to increase self-efficacy and build capacity in using effective strategies that engage students in online settings. Cooperative learning is a strategy that research shows to improve student engagement, learning, and social development (Jacobs & Ivone, 2021; Johnson & Johnson, 2017). This research study will use the social constructivist theory and the social cognitive theory to better understand teachers' self-efficacy and teachers' attitudes and perceptions towards using cooperative learning strategies in online settings.

This study will aim to explain if a relationship exists between teachers' self-efficacy and teachers' attitudes and perceptions towards using cooperative learning strategies in online settings. This study will also seek to see if a relationship exists between teachers' attitudes and perceptions towards using cooperative learning strategies and years of teaching experience. Additionally, this study will identify which cooperative learning strategies are used most frequently. This study will also attempt to explain what teachers' perceptions are towards using cooperative learning strategies and what experiences contribute to high and low levels of self-efficacy when using cooperative learning strategies in an online setting.

CHAPTER 2: REVIEW OF LITERATURE

This chapter will review research on cooperative learning, online education, and self-efficacy. It is hypothesized that there is a relationship between teachers' self-efficacy and their attitudes and perceptions towards cooperative learning strategies. First, this chapter will discuss cooperative learning including its history, components, student and teacher roles, advantages and challenges, and types of cooperative learning. The interaction between cooperative learning and online education will be discussed. The Cooperative Learning Implementation Questionnaire (CLIQ; Abrami et al., 1998) is one of the instruments used in this study which will also be identified and discussed.

The second topic in this chapter is online education. This section will identify online education including the history of online education, formats of online education, advantages and disadvantages of online instruction, and challenges for teachers and students.

The final topic in this chapter is self-efficacy. Specifically, the definition and history of self-efficacy will be explained. Teachers' self-efficacy will be discussed including teacher self-efficacy with technology, online education, and cooperative learning. The Teacher Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001) is another instrument that will be used in this study and discussed in this chapter.

Cooperative Learning

Cooperation among individuals is an integral part of the modern-day workforce. Lockdowns during the COVID-19 pandemic required more than half of the American workforce to work remotely (Brynjolfsson et al., 2020). Working remotely created new opportunities and challenges. While some felt disconnected trying to collaborate with colleagues out of the office, others felt more connected with the opportunities of working online. Regardless of where work

takes place—in the office, the field, or at home—being able to collaborate on projects and work cooperatively with others is a critical skill in today's workforce.

As teachers prepare students for education and work in the 21st century, cooperative learning is a critical teaching strategy for educators to consider incorporating into their curriculum. Our current educational system places great emphasis on teaching students to develop real-life skills, such as communication, critical thinking, problem solving, creativity, collaboration, and cooperation. It is important that students learn and practice the skills needed for the cooperative workforce of the modern day. Incorporating cooperative learning strategies in classrooms from kindergarten through college level provides students with opportunities to practice and enhance the skills that develop in this learning approach. Freitas (2022) recommended implementing cooperative learning strategies with feedback semi-regularly and believes it will impact how students collaborate with one another in the classroom.

Cooperative learning is an accepted and effective research based instructional strategy for teachers to use (Jacobs & Ivone, 2021; Johnson & Johnson, 2017; Popa & Pop, 2019). From a pedagogical perspective, cooperative learning can be complicated to plan, prepare, and implement in regular class activities (Ferguson-Patrick, 2016). Teachers need to understand how to create cooperative learning activities that are relevant to the curriculum, standards, and current lessons. Cooperative learning promotes success for individuals and the collective group of learners. This instructional strategy provides structured groups and active learning opportunities for students (Loh & Ang, 2020). Cooperative learning focuses on an overall performance by the group while individual performance is the measure in group work. According to Popa and Pop, students have higher motivation, performance, and achievement because of cooperative learning.

While students may be successful with this learning strategy, some teachers are reluctant to implement cooperative learning into their classroom. It is important to understand their reluctancy towards this instructional strategy and identify underlying reasons for lack of implementation. Many educational classes include a dominance of direct instruction and are individualistic with minimal peer interactions (Loh & Ang, 2020). There has been a shift in design and expectations of the classroom over the last two decades. Students have expectations for education to be active, engaging, and participatory (Barreto et al., 2022). The modern approach to education includes a connectivism approach in which social environments are created so that students can actively participate with one another in the learning process (Loh & Ang, 2020). The connectivism approach fosters an active learning environment where the community of learners actively interact with one another to achieve deeper learning. The pedagogical approach for connectivism is relational, contextual, and systemic as opposed to individualistic, universal, and segmented in traditional classes (Siemens, 2005). Ruey (2010) found a statistical significance of effectiveness in learning environments that were socially active. Conclusions were drawn that when students were allowed to collaborate on in-class assignments and were actively involved, their learning improved significantly (Ruey, 2010).

What is Cooperative Learning?

Johnson and Johnson (2017) defined cooperative learning as "the instructional use of small groups so that students work together to maximize their own and each other's learning" (p. 3). Cooperative learning is a student-centered approach that allows students to interact with one another and work together towards a common goal and improve their understanding of course content (Johnson & Johnson, 2017). In this approach, the role of the teacher is facilitator of students' learning and students have more choice in their learning activities. The teacher may

provide new content while the students work together to complete assignments. Each student has an objective to accomplish individually towards meeting the goal of the team's task, thus, creating a learning environment that fosters individualistic and cooperative types of learning (Johnson & Johnson, 2017). Teacher led approaches to learning are guided by teacher choice where the teacher is the instructor and provides direct instruction such as lectures (Figure 2.1)

Figure 2. 1

Diagram: Teaching Approaches
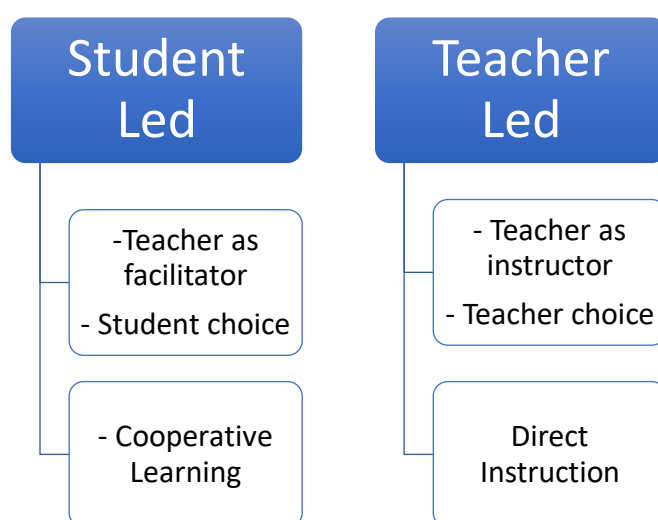
Cooperative learning is an instructional strategy where students work together in small groups and help each other understand academic concepts, develop social skills, and engage in the learning process with their peers (Johnson & Johnson, 2017). This pedagogical practice assists students in creating and maintaining social relationships while also making connections with learning. Students work towards achieving common objectives as they gain knowledge and understanding (Johnson & Johnson, 2017). The theoretical framework of social constructivism supports students engaging socially to learn concepts from each other that they may not have learned directly from an educator (Alghamdi, 2018; Loh & Ang; 2020; Vygotsky, 1978). Therefore, when students are engaged in the learning process, effective learning takes place.

Learners work for themselves and each other in the cooperative learning process.

There are five components that make up the cooperative learning strategy. The elements include (Johnson & Johnson, 2017):

1. Positive interdependence: Students recognize the need of each other to achieve the learning goal.

2. Face to face promotive interaction: Students share ideas and help each other learn and work towards the learning goal.

3. Individual accountability: Student performance and contribution to the group is frequently assessed so that results can drive further action.

4. Interpersonal and small group skills: Students use social skills to interact, communicate, problem solve, and make decisions.

5. Group processing: Group members monitor and discuss their progress towards achieving their goal.

Cooperative learning benefits students individually and collectively. When students depend on one another, opportunities are created for them to learn from each other and deepen their understanding. According to Husaini and Syarifuddin (2020), cooperative learning engages students in active learning while working with others. Cooperative learning includes students working in small, structured groups consisting of four to six students in which there are assigned roles for group members. This teamwork approach to learning is a successful research based instructional strategy where students work together in small groups to meet a common learning goal (Johnson & Johnson, 2017; Lin, 2006).

History of Cooperative Learning

Cooperative learning has been historically guided by the social cognitive theory, social

constructivist theory, and the social interdependence theory. In the early 1900s, Koffka, one of the founders of the Gestalt School of Psychology and developer of the social interdependence theory, shared the value of individuals working together in groups and developing interdependence (Johnson & Johnson, 2009). This theory explained the interdependence of group members and identified them as a dynamic whole (Johnson & Johnson, 2009). Lewin expanded the idea of the dynamic whole and proposed that group members are motivated by each other towards a common goal. The interdependence theory was advanced even further in the 1940s by Deutsch (1949), a student of Lewin's who organized social interdependence into three categories: positive interdependence supporting interaction, negative interdependence resulting in opposition, and no interdependence resulting in no interaction. This expansion of theory was a major contribution to the structure of cooperative learning (Johnson & Johnson, 2009).

In 1966, Johnson provided training for cooperative group learning at the University of Minnesota after conducting and providing significant research for cooperative group learning (Johnson & Johnson, 1999). In 1974, Johnson and Johnson conducted a research review on cooperative learning. They integrated social psychology and social constructivism theories to support the idea of students creating their own meaning in their learning rather than teachers providing content and knowledge (Davidson & Major, 2014). Johnson and Johnson disseminated the five elements of cooperative learning that make it work. The five components include interdependence, individual accountability, face-to-face interaction, social skills, and processing (Johnson & Johnson, 1994).

In 1978, Vygotsky proposed the theory of social constructivism which is supportive of cooperative learning and indicates that learning is a social activity (Alghamdi, 2018). Constructivism is the belief that students construct knowledge based upon existing information

and prior experiences. Interactions among students is a focal point of this theory. Vygotsky believed in the importance of students interacting with one another to make sense of what they learn. Vygotsky valued the interactions students made with one another and believed they solved problems more effectively in groups than individually (Henson, 2003). Cooperation and peer assistance were noted by Vygotsky to have a significant impact on the development of an individual. This approach allows students to form their own understanding of learning and knowledge rather than teachers imposing ideas upon them.

Bandura's (1977) social cognitive theory is another theory that has influenced cooperative learning. This concept is principled in the idea that people learn by observing others' behaviors within the context of their environment. This theory provides a framework for teaching where learning exists within a social context. Individuals learn by gaining understanding of the events and behaviors occurring around them and as they experience them (Mongillo, 2011). This type of learning approach has existed in education for numerous years as students in a classroom environment naturally interact with one another. The theory promotes learning as a social experience where students become active learners through discussions with one another as they learn through problem solving. According to Twani's (2021) relational learning theory, "social exposure accelerates students' learning because they learn behaviors from each other" (p. 46).

These theories are all supportive of the foundation of cooperative learning. The components of these constructs influence how students can learn together and from one another. Cooperative learning is a robust instructional strategy rooted in research and theory.

Structure of Cooperative Learning Groups

Teachers' Role

When using cooperative learning, the role of the teacher is to set the learning goals,

determine how groups will be structured, and facilitate the groups and learning once in motion (Likitrattanaporn, 2018). Teachers can provide prompts for conversation starters and language frames so that all group members can share their ideas freely while feeling accepted and respected. The teachers' role is to set the tone for the groups and model respectful communication skills for group work (Veldman et al., 2020). Students benefit from seeing teachers' model what is expected of them.

Teachers facilitate in creating well-organized and structured groups to promote active participation of each student (Loh & Ang, 2020). Teachers may structure groups homogeneously or heterogeneously based upon academic levels, communication skills, behaviors, and abilities and disabilities. Teachers can group students intentionally according to the needs of students or the content or nature of the assignment. Teachers may intentionally group students to elicit discussions or they may place them in groups using programs that randomly generate groups. Teachers may also allow students to select their own groups. One study sampling African American females from a southeastern public university who were enrolled in master's level courses, investigated the experiences participants had with online cooperative learning activities. The results indicated students prefer to work in heterogeneous groups over homogeneous groups (Du et al., 2015). The findings suggested that instructors should create heterogeneous cooperative learning groups to strengthen opportunities for communication and collaboration among group members (Du et al., 2015).

Teachers should praise and affirm the positive interactions they see among group members. Recognizing students for their cooperative skills and explaining why they are positive can help drive other students towards similar practices and outcomes. Teachers should recognize the valuable contributions each student makes. Teachers can facilitate the use of clarifying

questions to spark discussions. Negative remarks from teachers and group members should be minimized (Freitas, 2022). At the end of the cooperative learning session, teachers should facilitate group discussions that allow participants to reflect and share feedback for themselves and their group (Loh & Ang, 2020).

Students' Roles

Cooperative learning is a student-centered approach that allows students to negotiate with each other on the division of roles, responsibilities, and tasks (Johnson & Johnson, 2017). Students ought to discuss and establish group norms prior to group selection and work. Students should feel free to share their ideas and opinions, justify their reasoning, ask clarifying questions, and be able to critique and question the reasoning behind other team members' perspectives (Aghajani & Adloo, 2018). Students working cooperatively should exercise behaviors and actions that emulate respect for each other in numerous ways. It is recommended that students practice listening techniques that allow each member to share their ideas and opinions. It is important for students to empower each other in their individual roles and encourage one another towards completion of the task.

In cooperative learning, students are assigned specific roles and tasks. Johnson and Johnson (1994) suggested roles such as researcher, summarizer, editor, runner, troubleshooter, and recorder. An additional role of technology enabler has been suggested for use in online settings (Jacobs & Ivone, 2020). Students should take opportunities to experience each role and identify which are preferable. As students understand the interactions that are expected, they can actively participate in cooperative learning activities. Students should explain their ideas and strategies with one another justifying their reasoning for amounting to their answers. Group members are free to respectfully disagree and consider alternate ways to solve problems. As

students work together on problems and projects, various strategies can be shared and discussed. Students should not work individually and copy answers from each other without understanding or collaborating to get to those answers.

It is beneficial for students to provide each other constructive feedback on each other's work (Freitas, 2022). Appropriate feedback from peers and the instructor can drive action to improve practices and performance. During post lesson debriefings, students can reflect on their performance individually within the group and on the collective work and participation of the group. During this time, students should respectfully share with the intention of making improvements in the next cooperative learning activity. Students should set goals and identify something new or different they can try in a future lesson (Freitas, 2022). As students work together towards a common goal in small groups, they become active learners. Students need recurring opportunities to work in groups (Freitas, 2022). As with any skill, they will improve their interpersonal group skills with practice and frequency.

Peer Interactions

Student interactions are a critical part of the learning process (Loh & Ang, 2020). This is especially important when creating an online learning community (Jacobs & Ivone, 2020). Students developing positive rapport with each other is strongly correlated with a positive classroom environment (Frisby & Martin, 2010). Positive social experiences are impacted by the relationships developed among peers (Likitrattanaporn, 2018). The climate of the peers and the environment have the potential to impact achievement, connectedness, and academic efficacy (Johnson & Johnson, 2017; Loh & Ang, 2020; Nelson & DeBacker, 2008). When students perceive a positive interpersonal climate, they are more likely to participate in class activities (Loh & Ang, 2020; Neer & Kircher, 1989). Positive student interactions such as using kind

language, giving each other affirmation, and showing respect create a strong learning

environment and sense of community (Kaufmann & Vallade, 2020).

Challenges of Cooperative Learning

Cooperative learning may not be an effective strategy for all instructors, grade levels, and

classes because of certain challenges it presents. Implementing new or unfamiliar instructional

strategies can present challenges and a learning curve for teachers. Teachers often have

preferences for their selections and use of strategies. Often, instructional decisions are based on

the needs of the students or dynamics of the class. The composition of a class can be indicative

of the needs of students and some classes may not benefit from collaboration among pupils.

Although cooperative learning strategies can be used in any grade level, it may be more

prominently used in higher levels.

Hennessey and Dionigi (2013) found that elementary teachers were reluctant to

implement cooperative learning strategies because of the age of their students According to

Kutnick et al. (2008), early elementary students are typically not socially and emotionally ready

for cooperative learning. Cooperative learning strategies are recommended for grades three and

up (Slavin, 2014). Teachers may select strategies based on their comfort level with the strategy

and prior use of it. Teachers may also use or not use an instructional strategy based upon the

training they have received with that practice. Teachers use a variety of teaching strategies to

engage students in learning and traditional, or other instructional strategies may be preferred by

some educators. To implement cooperative learning, teachers need to believe they have the

necessary skills to do so (Abrami et al., 2004).

Students' Challenges

Like all instructional strategies, cooperative learning poses challenges along with

advantages. One of the shortcomings of this strategy is the potential lack of contribution from unmotivated or low achieving learners. These students may cause frustration to other group members who feel they are not doing their share of the work. Low performing students may then feel ashamed or discouraged which continues to impact their participation in the cooperative learning group. Another disadvantage of cooperative learning activities is that some students experience social anxieties, varying cognitive abilities, reserved social skills, shyness, and difficulty relating with others and with concepts (Rowles & Russo, 2009). As a result, these students prefer to work independently and shy away from cooperation and group work.

Another challenge may be that students who are seemingly smarter or more actively involved in the group may take a dominant role in the group and tip the scales of contribution in the other direction. Cooperative learning involves group members working together with a purpose to complete an assignment or activity (Johnson et al., 1991). Groups are structured so that each group member has a role to complete a task in the group. However, a challenge may be that not all members equally contribute to the outcome or are not perceived as contributing equally, which can be a result of habit, convenience, or lack of motivation.

Students may also experience a variety of challenges when required to interact with one another. Differences in personalities, ability to communicate effectively, and social conflicts may interfere with productive interactions. Socializing may take precedence over task progress and completion. Students can become discouraged from the task due to perceptions or opinions of other group members. Some students who are shy, introverted, or experience social anxieties may not feel comfortable participating in group discussions or sharing their ideas or opinions. Students who do not prefer collaborating with others and cooperative learning activities may experience stress and prefer passive, individualized learning (Young & Maxwell, 2007).

Participants in cooperative learning may differ in views of necessary contribution and quality of work. Some may contribute less than a fair share and rely on other members to complete the task. According to Shultz et al. (2010), some business students do not like working in groups because of the inequality of shared work and subsequent grades. Some feel that cooperative learning groups provide opportunities for some students to do less work while others carry the weight of the work. Smith-Stoner and Molle (2010) similarly found that some group members did not assume full responsibility for their role and tasks and the outcome of the project suffered as a result. Some students believe they do more than their share of the work and would rather do the work themselves.

Competition among group members in cooperative learning is another challenge for some students. Sometimes competition among members can be positive as they push each other to higher levels of achievement. Other times competition may create negative relations among group members which results in lack of motivation, progress, and achievement (Shaw, 2015). Some members may feel threatened by others rather than aligned with them, while working together for a common goal. Additionally, students may not like who they are working with in their group which may lead to conflict or lack of participation during the cooperative learning tasks. Student perceptions of group work and outcomes affect work and progress in the group as well. If students have a positive outlook, they are more adept at increasing their output of effort. Group members with a negative outlook are likely to put forth less effort towards achievement (Johnson & Johnson, 1989).

Teachers' Challenges

Successful educators are continuously trying to improve their teaching practices and sharpen their use of various strategies that may be relevant to the development of effective

lessons. Teachers' attitudes and perceptions about cooperative learning can impact the extent to which it is implemented (Abrami et al., 2004; Ruys et al., 2010). Some educators have negative perceptions of cooperative learning and other collaborative instructional strategies. Some think that the planning, preparation, and implementation of cooperative learning activities take extensive time.

Teachers may view activities with groups to be not as productive and a waste of instructional time. Using the cooperative learning strategy can be time consuming to more time to plan for, create groups, and to allow for cooperative learning interactions (Jacobs & Ivone, 2020). This instructional method may take significantly more time than conventional learning strategies and may delay the teaching of other lesson plans. Careful planning and implementation of this strategy is required (Slavin, 1995). Another challenge with cooperative learning is the misconception that it is simply group work. Students working together in groups does not constitute cooperative learning (Johnson & Johnson, 2009). It is imperative that teachers have a clear understanding of the difference between cooperative learning and group work. The socializing that needs to take place in cooperative learning groups can overshadow the academic content that needs to be digested. Some teachers believe that cooperative learning can lead to lower academic achievement and standards of learning (Rieck & Wadsworth, 2005). Some educators are reluctant to subscribe to student-led approaches as it removes control and direction from the teacher.

It is the responsibility of the teacher to prescribe the desired process for cooperative learning activities. The teacher oversees sharing and enforcing expectations at the beginning and serves as a facilitator once the process starts. Teachers need to explain and preface the expectations of each group member in the cooperative learning strategy. As the process unfolds,

it is the role of the teacher to monitor progress and provide feedback to groups and individual members as they work towards completing the task (Johnson et al., 2020; Koutselini, 2009). One of the main challenges with cooperative learning is that some teachers are not confident with implementing it in their class planning (Abrami et al., 2004; Saborit et al., 2016). Teachers typically have many instructional strategies in their repertoire of tools; however, they do not use all of them to their full potential. Even though a variety of instructional strategies are typically taught in teacher credentialing programs, teachers revert to using ones that are familiar or convenient. Teachers tend to move into routines, rhythms, and repetitive use of strategies as the school year progresses and as their career progresses.

Advantages of Cooperative Learning

Instructional strategies in the student-centered classroom are more active and engaging to students versus traditional direct instruction and lectures where students passively listen to the instructor (Loh & Ang, 2020; Oermann, 2007). Students interact with the content of the course during active student led learning as they share, discuss, and reflect while processing information with peers. (Vandeveer, 2009). Some students can translate teachers' language into a way that other students can better understand the concepts (Loh & Ang, 2020). Students think critically of academic content as they share ideas and opinions enhancing their perspectives (Loh & Ang, 2020). Cooperative learning produces many benefits in students' learning, achievement, and positive social development and interpersonal relationships (Johnson & Johnson, 2004; Loh & Ang, 2020; Springer et al., 1999; Strom & Strom, 2014; Susman, 1998).

Several researchers have produced results indicating how cooperative learning has higher student achievement and productivity (Jacobs & Ivone, 2020; Johnson & Johnson, 2017; Jolliffe & Snaith, 2017; Loh & Ang, 2020). A meta-analysis conducted by Johnson and Johnson (2002)

confirmed the reports of 117 studies indicating the strong effect cooperative learning had on student improvement academically. Cooperative learning is a successful instructional strategy and approach to learning. Johnson et al. (2000) claimed the success is due to this instructional strategy being based on theory, validated by research, and clearly operationalized so that educators can utilize the approach.

Saadamtmand and Kaviani (2018) indicate that cooperative learning had positive effects on students' emotional intelligence and attitudes. Schultz et al. (2010) found that millennial students reported learning more when working in groups and enjoying socializing opportunities. Forty percent of students preferred working with others due to the learning experience, reduced workload, and increased ideas shared among group members (Schultz et al., 2010). Murray (2014) discovered a statistically significant difference in math achievement for students who were involved in cooperative learning instructional groups and those who were using a web-based instructional program. Kandasamy and Habil (2018) additionally found that cooperative learning strategies had a positive impact on students' attitudes towards learning the English language.

Cooperative learning develops problem solving skills for students as they collaborate with other group members to solve problems (Jacobs & Ivone, 2020; Loh & Ang, 2020; Slavin, 2014; Zakaria & Iksan, 2007). Active participation leads to increased communication, decision making, and problem-solving skills (Slavin, 2014). Students must actively communicate and make decisions together to make progress towards the common goal. Another advantage is that critical thinking skills are exercised, and students have opportunities to ask questions and clarify information with their peers. According to Scheckel (2009) and Loh and Ang (2020), students think critically, develop a deeper understanding of the content, and improve retention of

information when participating in cooperative learning. Students discuss and debate within their groups while drawing their own conclusions. Students in groups receive feedback from group members and can solidify their learning among peers (Johnson et al., 2020). Students working in cooperative learning groups have more opportunities to share their ideas, participate in discussions, and ask questions versus being in large groups.

Peer connections are made, and students support each other when participating in cooperative learning (Johnson & Johnson, 2017; Loh & Ang, 2020). This instructional strategy places a large portion of the responsibility of learning in the hands of the students. This student-led approach develops positive peer interactions that can transfer into skills used in all relationships. Students learn how to be active listeners, respectfully disagree, generate solutions, and solve problems. Students learn the functionality of group work and the necessity of cohesiveness to complete goals. Students learn communication skills and the importance of being accountable to other group members (Johnson & Johnson, 2017). Cooperative learning can promote teamwork and provide motivation for students who may not be intrinsically motivated.

Cooperative learning provides a lower affective filter for some students while it may trigger anxious thoughts or feelings in others. Cooperative learning has been found to reduce anxiety levels in students who experience academic stress. Oludipe and Awokoy (2010) discovered that college-level chemistry students reported significantly reduced levels of anxiety when engaged in cooperative learning methods. In another study of college-level psychology, students reported similar conclusions and found that retention of content was also significantly improved when students participated in cooperative learning (Ioannou & Artino, 2010). Students also reported the course with cooperative learning methods to be more enjoyable (Ioannou & Artino, 2010). Working together reduced stress and increased success.

Social development is enhanced as students cultivate friendships and connections with others during cooperative learning activities (Alexander & Wyk, 2014; Loh & Ang, 2020). Interpersonal skills are developed, and students learn how to listen and socially respond to others in a social setting. Cooperative learning can reduce unnecessary competition among students that may deter their learning. According to Van Ryzin and Roseth (2018), reductions in victimization and bullying have resulted from utilizing cooperative learning methods which promote high levels of peer interactions. Cooperative learning is an effective strategy for implementing inclusion (Strom & Strom, 2014). Students learn to accept each other for their differences, strengths, and challenges. Some students feel more socially engaged and feel like active members contributing to the learning goal. Learning as a team motivates students to work together to achieve their targeted goal. Students in groups have accountability with one another which can motivate them to be more proactive in accomplishing tasks (Slavin, 2014). Cooperative learning groups teach students how to listen to each other, disagree respectfully, and work towards solving problems. The skills that are developed during cooperative learning activities can transfer over into social settings allowing students to exercise the skills they developed in real life situations.

Types of Cooperative Learning

Various types of cooperative learning methods have been developed since the inception of this learning strategy (Slavin, 1995). There are two main categories of cooperative learning methods. The first is structured team learning and involves team members working together towards a common goal in which the team success is dependent on individual learning instead of group products. According to Slavin, this approach to learning is most appropriate in subjects with clear objectives. The second type is informal group methods. These methods are more

focused on discussions, projects, social interactions, and the process of learning rather than the product.

Kagan (1968) developed a research program on cooperative learning which created new cooperative learning structures that engage learners, address a variety of multiple intelligences, provide real-life applications, use standards-based curriculum, and align with brain-based learning principles (Kagan, 2001). Some of these learning structures include strategies such as: mix-pair-share, mix-freeze-group, numbered heads together, cooperative graffiti, four corners, and rally coach (Kagan, 2001). These structures include two to four students in a group. Each student has a role and responsibility during the structured activity. The structure of these groups is based on the give components of cooperative learning as outlined by Slavin (1995).

Kagan (1989) proposed the learning structure of think-pair-share consisting of three basic steps (Figure 2.2). First, each student is assigned a reading passage or discussion question and provided questions by the teacher. Students work independently, create their own meaning of the passage, and prepare answers. Next, students are provided a partner and share their perspectives and meanings of the passage or question. This strategy promotes the skill of speaking and active listening during the discussion part. Lastly, students create collective answers and share out with the whole class. Kagan's cooperative learning structures are advantageous to teachers in that they can be used in any content area. According to Kagan (2001), students' achievement is increased in cooperative learning structures regardless of students' ability levels.

Figure 2. 2

Diagram: Think, Pair, Share

THINK-PAIR-SHARE

Round 1 – Think	Round 2 – Pair	Round 3 – Share
Have students think or write about a discussion question.	Allow students to turn to a partner and discuss their responses.	Start a group discussion by having each pair share their responses with the class.
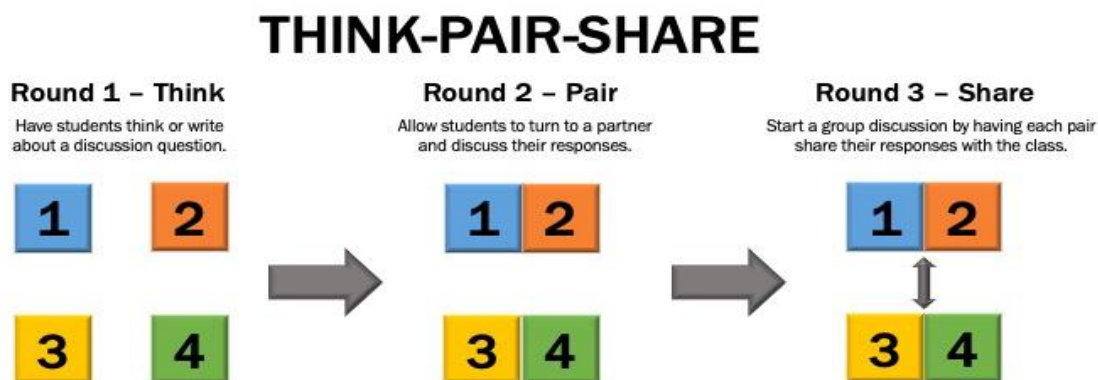
Note. Brame and Biel (2015).

Group investigation is another team learning approach to cooperative learning. This approach was developed as an organizational plan for classrooms (Sharan & Sharan, 1976). Group investigation uses cooperative inquiry, cooperative planning, group discussions, and projects. Students select topics of interest to investigate, create a plan to initiate investigation, execute the plan, and present the findings. First, the teacher presents a unit and topics to the class. Students form groups of four to six members based upon interests and develop questions for investigation. Next, students formulate a plan of what they want to investigate and develop research questions based on the topics. Students are assigned their own roles and responsibilities within the group. After completion of individual work, students write summaries of their findings. The groups plan how they will corroborate their findings and present them to the class and then groups deliver presentations of their investigations and findings. Lastly, individual and group achievement is measured by informal or formal assessments.

The jigsaw strategy was originally developed in by Aronson (1978) and later modified by Slavin (1995) as a structured cooperative learning technique. In this strategy (Figure 2.3),

learning materials are divided into four parts along with guiding questions. Students work in groups of four or five members. Individual members are assigned to read a portion of the materials. After reading, students form an expert group to discuss the materials and become experts on the topic. After group discussions, students return to their original group and share the information they have become an expert on. Students then learn information from all sections of the original reading passage as provided by their group members.

Figure 2. 3

Diagram: Jigsaw

JIGSAW

Round 1 – Focus Groups
Divide students into groups and give each group a different text to read and discuss.

Round 2 – Task Groups
Mix the groups so that students can bring their specific focus to a common task or problem.
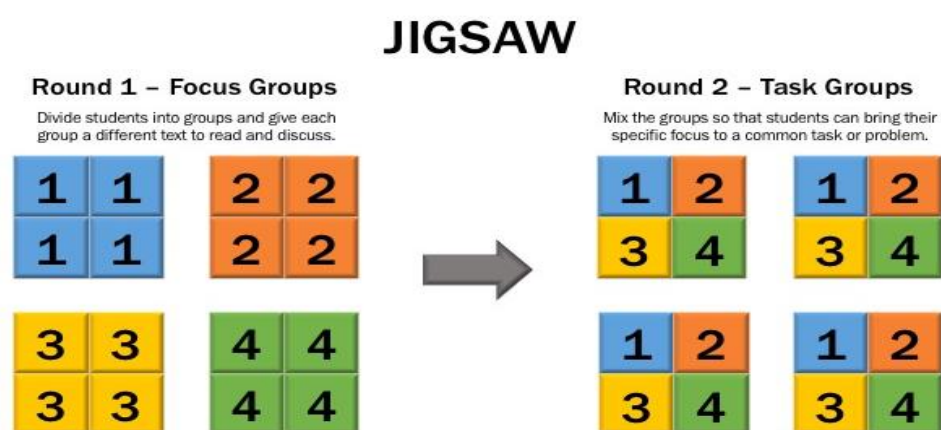
Note. Brame and Biel (2015).

The roundtable approach provides opportunities for all students to contribute orally in their cooperative learning group. According to Pedersen and Digby (2014), students sit around a table and take turns sharing in reference to the topic of the assignment and brainstorm ideas. This informal strategy provides each student an opportunity to contribute their ideas or solutions verbally. Furthermore, Harris (2014) added the use of the write-around strategy in which students are seated in a circle and each student contributes to the writing assignment by taking turns writing. Students informally share individual ideas collectively for the goal of one objective. One piece of writing is generated by each member contributing their individual ideas.

Cooperative Learning Implementation Questionnaire

The Cooperative Learning Implementation Questionnaire (CLIQ; Abrami et al., 1998) was designed to learn what factors contribute to teachers using or not using cooperative learning strategies within their classrooms. The CLIQ has 68 items with three domains including the following:

1. Professional views on cooperative learning

2. Tell us about yourself

3. Current teaching practices

The purpose of the CLIQ is to understand why teachers choose to implement, or not to implement, cooperative learning. Information gained from the CLIQ provides knowledge for teaching methods and the needs for professional development programs based on feedback from teachers. The perceptions of cooperative learning are a teacher's view on the implementation of cooperative learning in terms of expected success, perceived value, and perceived cost (Abrami et al., 2004). Teaching practices of cooperative learning are defined as the rating of extent to which cooperative learning is a teaching strategy that is utilized (Abrami et al., 2004).

Cooperative Learning in Online Education

In the last decade, as online education has increased, cooperative learning has nudged its way into the world of online education. Cooperative learning models may need to be adjusted, however, are still workable in online environments (Jacobs & Ivone, 2020). While students lack physical proximity from one another in an online class, collaboration can still take place (Barreto et al., 2022). Opportunities for communication and socialization are available in online settings (Barreto et al., 2022). Communication is a key component in online classes and various modes of communication should be used in cooperative learning experiences. An online setting can

provide opportunities for students to work together in breakout rooms, assist each other, and socially connect (Jacobs & Ivone, 2020). Implementing cooperative learning strategies in online courses can help bridge social and communication gaps resulting in positive outcomes for students (Barreto et al., 2022).

Cooperative learning becomes more complex when applied to the online setting and can present challenges for teachers and students. Managing students in small groups online is a potential challenge for teachers to achieve effective learning. Teachers' attitudes towards utilizing cooperative learning in online environments may be a major determinant of success. The attitudes of teachers may directly affect content delivery and student learning. In addition to teachers' attitudes towards cooperative learning, students can also benefit from sharing optimistic views towards this learning strategy. A study conducted at King Abdul Aziz University with Saudi students revealed that students have positive attitudes towards collaborative learning (Alghamdi, 2018). There was a statistically significant relationship between the attitudes of students and the perceived usefulness of online applications in collaborative learning (Alghamdi, 2018).

Lewis and Wang (2015) conducted a study designed to create an orientation program to assist postsecondary adjunct faculty in effectively facilitating their online courses. The authors found that adjunct faculty who were exposed to online cooperative learning activities resulted in better prepared faculty members for their online course facilitation. Lewis and Wang also reported peer interactions were promoted using the cooperative learning instructional strategy and that the cooperative learning model promoted a positive attitude toward the online learning environment. The cooperative setting created a self-directed learning environment that encouraged peer collaboration to achieve learning goals and boosted participant connectedness to

those taking the orientation course overall. The evidence provided by Lewis and Wang supports the notion that exposure to cooperative learning activities in online learning environments within education courses improves teacher preparation programs by increasing the capacity for connection among course participants.

Peterson and Roseth (2016) provided evidence that suggests the benefits of cooperative learning in online discussion forums. Their study sought to examine how cooperative learning activities in online discussion forums affect motivation, achievement, and peer relations of students. The study included 617 graduate students enrolled in a nursing course at a Midwestern university. There was a positive correlation among cooperative learning activities within online discussion forums and higher student academic achievement. Their results indicate that members are more likely to actively engage in learning when working cooperatively to compose academic posts on discussion forums (Peterson & Roseth, 2016).

Online instruction requires the use of appropriate teaching methods and instructional strategies. Cooperative learning is one instructional strategy that can be used to engage students in learning remotely (Ervin, 2019). This model promotes cooperation between students in groups. The more frequently students work cooperatively, the more confident and skilled they will be in participating in this strategy (Jacobs & Ivone, 2020). When grouped appropriately, cooperative learning can be an effective and optimal way for some students to learn from each other. Concepts are developed deeper when students discuss them with each other. Cooperative and communicative skills are developed through communication and can take place in online settings (Silalahi & Hutauruk, 2020).

Conclusion

In conclusion, cooperative learning is a strategy that can improve student engagement,

learning, achievement, and social development. Cooperative learning creates opportunities for students to develop bonds with their academic peers in the learning process. Additionally, there are many benefits for teachers who use cooperative learning as an instructional strategy in their classrooms. Utilizing this strategy can lead teachers to the importance of student-led approaches and experiencing positive social outcomes. Engaging in cooperative learning creates successful learning opportunities for students.

Online Education

The online world is unavoidable and has clearly invaded the physical world. Day by day more opportunities to participate in everyday life are becoming available online. The COVID-19 pandemic seemed to test the limits of how far living and learning could be pushed into the cyberworld. Engaging in work and learning can be done from a couch, a computer or even on a phone that fits neatly in a pocket. Life during the COVID-19 pandemic was stretched and reconfigured to include a new reality and baseline for living, much of which has become dependent on technology and the internet. Technology has occupied and settled into cars, homes, bank accounts, and grocery shopping. It is no surprise that technology has gripped our world, enabled our lives, and expanded our abilities in all aspects of life. Accessible technology is here to stay. Embracing its benevolences, along with its challenges, has become necessary and essential to our future.

Technology also serves as a gateway for modern learning. Advancements in technology have provided students and teachers with new ways of learning and teaching. These developments have provided many students with comfortable and accessible ways to utilize online tools for learning. Online education has been used in higher education for many years, however, the pandemic of 2020 bade students around the globe and of all grade levels from

preschool to college level to engage in synchronous and asynchronous education over the internet. Teachers faced multiple challenges such as delivering quality instruction, managing students in an online classroom, and shifting their pedagogical approaches to meet the needs of all learners.

History of Online Education

Reviewing the history of online education provides an understanding of how it has developed over time. In 1840, Isaac Pitman facilitated higher education courses by disseminating information through mail (Phillips, 1998). The idea spread and thus learning opportunities became present all around the world. Distance education continued to expand in the 1800s where teachers and students resided in different locations (Sun & Chen, 2016). By the early 1900s the University of Chicago had an entire department distributing coursework by mail (Matthews, 1999). The introduction of radio and television in the early 1900s provided opportunities for distance education as well.

The development of the world wide web beginning in the 1970s marked continuous and rapid development of distance education through an online platform (Casey, 2008; Sun & Chen, 2016). The National Technological University in Colorado started live broadcasts via satellite in 1982 (Casey, 2008). Some higher learning institutions began offering online courses in the 1980s and K-12 schools followed suit. In 1991 in California, Laurel Springs was the first virtual high school (Ashe & Lopez, 2021). The number of virtual schools from kindergarten to post-secondary education has increased since then. As online education became more accessible to anyone who had the internet, enrollment in courses began to increase (Casey, 2008). According to Allen and Seaman (2007), at the time, 3.94 million students in higher education had enrolled in at least one online class. In 2013, the United States Department of Education (2013)

conducted a survey reporting that 6.7 million of 20.6 enrolled in higher education courses, 6.7 million students were enrolled exclusively in online courses. Duffin (2020) found online learning grew 16.6% between 2012-2018. In 2017, 29.7% of higher education students were taking at least one course online (Seaman & Seaman, 2017). The development of online education has increased opportunities for learners all around the world and has helped reduce the overcrowding of brick-and-mortar schools (Picciano & Seaman, 2019).

In March 2020, emergency remote teaching was requested of schools across the nation (NFES, 2021). Teachers had to provide instruction, resources, and materials available to students asynchronously. Districts adopted policies that required a certain number of instructional minutes for synchronous and asynchronous learning. Most schools and districts across the country started the 2020-2021 school year using a distance learning model that included both synchronous and asynchronous sessions (NFES, 2021). In the fall of 2020, 75% of undergraduates were enrolled in at least one online course (NCES, 2021). During the pandemic, the Centers for Disease Control and Prevention (2021) recommended people in public places to keep a six-foot distance from others, which impacted districts and schools (Hodges et al., 2020; Nierenberg, 2020). As a result, teachers had to rapidly adapt to the online platform and implementing effective and engaging online learning became a top priority.

According to Ali (2020), the COVID-19 pandemic provided opportunities for education to be improved and modernized using technology and online courses. The pandemic provided a transition time for students and teachers to shift from traditional classes in brick-and-mortar buildings to the modern world of technology. This period revealed the need for teachers to be versed in educational technology and resources available to promote successful learning for all to keep pace with online education (National Center for Learning Disabilities, 2020).

Formats of Online Learning

With the development of online education over time, its definition has evolved. The terms virtual education, online learning, online teaching, online education, online instruction, distance learning, and online courses are used interchangeably. Online programs vary in scope, practice, and format (Curtis & Werth, 2015). Online education refers to courses or programs that are administered via the internet (Kurt, 2018). Some online courses have no in-person interaction or meetings between students and teachers and can take place in a variety of formats. Teachers provide assignments, activities, and content completely online (Sun & Cheng, 2016). Virtual school is defined as, "instruction during which students and teachers are separated by time or location, or both, and interact via internet-connected computers, tablets, or other electronic devices" (NFES, 2021, p. 2). Virtual schools can provide instruction to individuals while cyber schools are full time programs for an overall school experience (Barbour, 2009). These formats provide educational opportunities to students using communicative technologies (NFES, 2021).

Teachers and students working together to share knowledge at the same time is synchronous learning (Sun & Chen, 2016). This can take place via various forms of messaging or video conferencing. Students and teachers meet on designated days and times virtually for instruction (Bustamante, 2021). Asynchronous learning occurs when students are working independently of live teacher instruction. Students may participate in independent activities or discussion boards where they communicate in writing with their peers or view instructional videos. The flexibility of asynchronous learning allows students to work on their own, which is the most common form of online learning in higher education (Garrett et al., 2019).

Supplemental educational opportunities online include independent platforms with free education videos, lessons, and resources to students of all ages such as Khan Academy (Sun &

Chen, 2016). Additionally, high school students have opportunities to enrich their education in courses titled massively open online courses (MOOC) provided by universities at a distance (Sun & Chen, 2016; TEDx Talks, 2014). These courses have been offered to high school students since 2008 in an effort to provide them opportunities to take college courses.

Advantages of Online Education

Online education has many advantages for students and teachers alike. Online education reduces travel time and costs for both educators and students. It provides flexibility in work completion and students have control of their pacing and progress (Curtis & Werth, 2015). An advantage for higher education students is that they do not have to live within a proximal distance of the institution they wish to attend. Higher education students can have access to instructors worldwide. Students who may not have access to get to a college can access courses from home. Flexible access to education is the leading reason online courses and programs have been adopted by institutions (Allen & Seaman, 2007). Online education has increased enrollment without impacting their campuses and has provided access to students who may not have otherwise been able to attend school.

Another advantage of online education is that it meets the current technological needs of students and it increases the relevancy of their learning by connecting it to the technological world. Online courses can increase students' capabilities with using technology and adequately prepare them for the technological world in which they live and learn. Curtis and Werth (2015) indicated that "students who were self-motivated, accountable for their learning, and effusively engaged reported online school were pleasant and rewarding" (p. 187). Parents reported appreciation for participating in their students' learning and observing their children prosper in the online environment (Curtis & Werth, 2015).

Online education has the capability of connecting students, teachers, and families in a convenient manner. Parents may have more involvement when education is completed online and have a stronger influence on student engagement and achievement (Curtis & Werth, 2015). Parents can have access to student grades and the amount of time students have spent on their online coursework. Lessons can be recorded and replayed for parents and students to watch again for reinforcement of learning. Teachers can show parents the work students have completed or not completed in the learning management systems and meet in video conferences for meetings. Online school systems have the capability to help families, students, and teachers stay connected with coursework requirements and assignments.

Challenges for Teachers in Online Education

Along with the opportunities that online education brings, there are challenges that can impact the online learning experience. The infrastructure of technology can be a challenge for teachers in online settings. Education cannot run smoothly online with poor technological infrastructure (Alghamdi, 2018). Network instability, slow internet speed, and issues using conference tools can become barriers in online classes (Siddiquei & Kathpal, 2021). It is also challenging for information technology personnel to maintain technological equipment and software in online settings. Information technology personnel must continuously install the latest software and be available to solve technological issues for students and teachers. The infrastructure of technology needs to be intact so to not present difficulties for teachers.

Another challenge for teachers in online education is keeping up with the constant evolution of technology and technological tools to use in online settings. It can be difficult for instructors to maintain pace with the advancements in technology (Jacobs & Ivone, 2020). Teachers need to be versed in educational technology and familiar with the resources that are

available to promote student learning (National Center for Learning Disabilities, 2020).

According to Adnan (2018), teachers need professional learning opportunities consistently to feel competent and confident in their online instruction and online course design. Teachers may not have ample time to learn new platforms or tools nor the opportunities to seek professional development in the use of online instructional strategies at the pace they are developing, which was especially true during the COVID-19 pandemic when many teachers struggled to transition from in-class instruction to online teaching (Hodges et al., 2020). Many teachers who taught distance learning during the pandemic in 2020 lacked self-efficacy and struggled with using instructional strategies online (Nierenberg, 2020). Teachers without previous online teaching experience faced challenges as they needed to learn how to teach online while delivering quality instruction to students in a remote setting (Siddiquei & Kathpal, 2021).

Standards and expectations of instruction in an online learning environment can differ significantly. Providing high quality instruction, organizing collaboration and discussions, and facilitating feedback increases teachers' workload and may be challenging for teachers to balance in online classes (Jacobs & Ivone, 2020; Siddiquei & Kathpal, 2021). Online educators must collect, prepare, and present information virtually for students in an engaging and effective way, which can be challenging (Adedoyin & Soykan, 2020; Bdair, 2021). Managing communication online with students, using multimedia tools, and varying instructional practices online may be challenging for some teachers (Siddiquei & Kathpal, 2021). Teachers need adequate opportunities to build their capacity to provide quality instruction in online settings (Coman et al., 2020; Junus et al., 2021).

Challenges for Students in Online Education

Some students experience challenges in online education such as maintaining focus,

motivation, and engagement, challenges with technology, and socialization. Students in online courses are more accountable to themselves for completing assignments, participating in course activities, and developing peer connections. Self-regulation can be defined as the "ability of students to plan, monitor, and evaluate their own behavior, cognition and learning strategies" (Matuga, 2009, p. 5). Students need to be able to use self-regulatory strategies and must be intrinsically or extrinsically motivated to be successful in online learning (Matuga, 2009). Students who are not self-regulated may be less successful in achieving their learning goals (You & Kang, 2014). Due to the amount of responsibility necessary for students in online education, some schools will only recommend online classes for students who have demonstrated self-motivation and self-regulation (Curtis & Werth, 2015).

Students need equipment and internet access to participate in online courses which may be challenging for some students to acquire and may impose a financial burden on students without the monetary means (Murgatrotd, 2020; Suryaman et al., 2020). Another challenge for students is the lack of equitable access to the internet (Salemink et al., 2017). Students in online courses may vary in the technological skills and critical thinking skills necessary to be competent in online learning (Moore-Adams et al., 2018). Not all educators take the time to teach essential foundational technology skills to students needed in online courses (McNeil, 2022). Some students have reported issues with internet connectivity and lack of technical support to be some of the major challenges in online learning (Khalil et al., 2020).

In the context of the COVID-19 pandemic, students experienced online learning challenges varying in type and extent (Barreto et al., 2021). Adding the technological component to education during the mandated distance learning, broadened educational gaps for at-risk learners (Cardullo et al., 2021). Not all students had equitable access to the internet and

necessary equipment to equitably participate in online courses which exacerbated their learning deficits (Diallo, 2020). Sixty percent of low-income students regularly logged into online classes compared to 90% of high-income students (Dorn et al., 2020). Technology use and competency was one of the most common challenges students faced during distance learning in 2020-2021 (Rasheed et al., 2020).

Social development is another concerning factor for some students in online education. Students who work together in groups online are presented with new challenges. Non-verbal cues, tone, and expression can be misinterpreted causing challenges for students socializing with each other in online courses (Suryaman et al., 2020). Students may not have the types of in-person interactions that develop critical social skills such as communication in online classes (Barrot et al., 2020). Students must learn different ways to communicate and connect with one another within online settings.

During the COVID-19 pandemic, some students' social-emotional learning was impacted in distance education (Cardullo et al., 2021). The isolation caused by the lockdowns during the pandemic affected some students' behavior and emotional functioning (Copeland et al., 2021). Some students reported challenges with feelings of anxiety and depression during this time (Kapasia et al., 2020). Prior to distance learning during the pandemic, some students in online classes reported feeling isolated as a result of the lack of connections with other students that occurs in traditional classrooms. Students report higher levels of perceived loneliness in online courses compared to in-person classes (Ali & Smith, 2015). Some of the challenges students faced in online learning during the COVID-19 pandemic vary from challenges students experienced in online courses prior to the pandemic and some are similar. Adopting a flexible and growth mindset can help students overcome challenges in online education.

Conclusion

Online education is an effective way for students to engage in learning virtually. As teachers attempt to decrease the distance in distance learning, they must discover and utilize methods to reach all students in online education (Curtis & Werth, 2015). Educators have attempted to keep pace with the constant evolution of teaching methods and practices, especially the methods and practices that were found necessary to be used in online learning during the pandemic. As technological resources in education continue to advance, teachers must also run stride with the digital advancements and instructional practices that utilize technology.

<div align="center">

Self-Efficacy

</div>

What is Self-Efficacy?

Since Bandura (1977) introduced the concept of self-efficacy as part of the social learning theory in the late 1970s, it has been the foundation for subsequent researchers. Self-efficacy, according to Bandura, is a person's ability to predict how they will react to a circumstance and/or the impact they will have on the result. Bandura defined self-efficacy as "people's beliefs about their capabilities to produce efforts" (1994, p. 71). According to Bandura (1977), mastery experiences, vicarious experiences, social persuasion, and physiological variables are the four basic sources of self-efficacy. Bandura noted that people who develop competencies, self-regulation skills, and beliefs in their efficacy are more successful in meeting goals than those with less developed agency (Twani, 2021).

People make choices, exert effort, and achieve accomplishments based upon their beliefs of their efficacy (Bandura, 1997). People's choices are based upon their efficacy of a task. Individuals are more inclined to attempt tasks or activities that they believe they will accomplish or succeed at. Contrarily, if an individual has a low level of confidence in their ability to

complete an activity, they are less likely to engage in the task initially. Self-efficacy is based upon an individual's belief in their ability to accomplish tasks while human agency is one's actual ability in completing tasks. Adopting a growth mindset means one believes their abilities can improve (Dweck, 2016). If one believes they will achieve a desired outcome, they are more likely to succeed at achieving their goals. As individuals achieve successive approximations towards their goals, their efficacy builds towards mastery. According to Mongillo (2011), repeated successes lead to mastery experiences which increases self-efficacy. Mastery experiences demonstrate an individual's ability to perform a task as evidence of their abilities and builds/shapes self-efficacy.

Self-efficacy is one of the foundational aspects of the social cognitive theory. People execute actions based on their judgements of their abilities to perform (Bandura, 1986). Self-efficacy drives people to action. People choose what to do and how much effort they exert based upon what they believe they can accomplish (Bandura, 1997). Humans do not pursue activities they believe they cannot achieve (Mongillo, 2011). Agency is developed as individuals succeed at their accomplishments. Self-efficacy may be related to specific tasks, or it may generalize to other, similar tasks. Self-efficacy beliefs strengthen with time, experience, and feedback. Self-efficacy beliefs are generally weaker while they are forming (Mongillo, 2011). Repeated failures of a task reduce self-efficacy, especially with new tasks. Successive approximations and achievements of a task lead to mastery. As individuals master tasks, their efficacy increases and repeated successes result in increased beliefs in one's ability to perform the tasks.

Teachers' Self-Efficacy

Corry and Stella (2018) defined teaching self-efficacy as "a measure of the degree to which a teacher believes he/she has the ability to perform correctly the tasks suggested as best

practices for teaching" (p. 8). Teacher effectiveness is influenced by their beliefs about their

capability to create positive learning environments (Poulou et al., 2019). Teachers' capacity to

reach their pupils and make a difference in their education is influenced by factors such as

training, background, and preparation. Some argue, however, that instructors must believe they

are effective to be effective in their vocation (Corry & Stella, 2018). If teachers do not feel like

they are reaching their students, it is possible that their teaching will suffer as a result.

Both Rotter (1966) and Bandura (1977) influenced research related to teachers' self-

efficacy. In the 1970s the RAND Corporation conducted a study that first identified teachers'

efficacy (Corry & Stella, 2018). RAND, a non-profit research organization studying public

policy, hypothesized a positive reciprocal relationship between efficacious behaviors and

outcomes (Corry & Stella, 2018). The researchers were attempting to determine the factors that

impacted successful reading for students. The results indicated teacher efficacy as one of the

factors (Corry & Stella, 2018). The researchers also identified teacher's confidence in promoting

learning and the relationship to student achievement. The researchers sought to discover if

teachers believed reinforcement of their actions was in their control or in the environment

(Tschannen-Moran et al., 1998).

Tobery-Nystrom (2011) identified a key component in effective teaching to be teachers'

belief in their abilities. A teacher's self-efficacy can impact student motivation and achievement

(Mojavezi & Tamiz, 2012; Ashton & Webb, 1986; Gibson & Dembo, 1984). Teachers with

higher levels of self-efficacy are more likely to try new approaches to teaching (Bray-Clark &

Bates, 2003; Pressley & Ha, 2021; Tschannen-Moran & Woolfolk-Hoy, 2001) and tend to have

higher levels of organization and planning (Allinder, 1995; Lazarides & Warner, 2020).

Additionally, effective classroom management is more likely to occur when teachers have higher

levels of self-efficacy (Poulou et al., 2019). There are correlations between teachers' self-efficacy and their ability to instruct students and impact their achievement (Mojavezi & Tamiz, 2012; Bandura, 1986, 1997; Gibson & Dembo, 1984; Hoy & Spero, 2005; Pajares, 1992; Poulou et al., 2019; Tschannen-Moran et al., 2001). Furthermore, teachers make classroom decisions based on their sense of efficacy (Tschannen-Moran & Woolfolk-Hoy, 2001).

Teachers develop self-efficacy during teacher preparation courses, interactions with professors and colleagues, and during student teaching (Hoy & Spero, 2005). The initial establishment of efficacy is important because beliefs about one's teaching abilities are resistant to change once they are established. (Bandura, 1997; Hoy & Spero, 2005). Efficacy continues to develop as teachers encounter students in their own classrooms and interact with other teachers, administrators, and parents. These relationships may increase or decrease teachers' beliefs in their teaching based upon their experiences. Generally, teachers with more years of teaching experience have higher levels of self-efficacy (Yeo et al., 2008).

Teachers have different approaches in interacting with their students and do so on different levels. Some teachers develop positive rapport with their students and interact with them while others do not. Teachers with higher levels of efficacy tend to use multiple strategies to engage their students in learning and are more likely to follow up with students who are struggling to attain skills or concepts (Mongillo, 2011). Teachers with higher expectations of their students tend to have high-efficacy and provide less criticism to their students (Gibson & Dembo, 1984). As a result of teachers' self-efficacy, these relationships and interactions with students improve student engagement and motivation (Mongillo, 2011).

Teachers with high levels of self-efficacy tend to use more instructional strategies and are more willing to try new methods of instruction (Stein & Wang, 1988; Tschannen-Moran &

Woolfolk-Hoy, 2001). In the 21st century, teachers have assumed more of a facilitator role than an expert in content (Partnership for 21st Century Learning, 2016). Teachers are hosting and guiding students in their learning experiences rather than dispensing information to them. Teachers need to utilize instructional strategies that facilitate the student-centered approach and develop confidence in their implementation of such strategies.

In 2018, Corry and Stella provided a comprehensive evaluation of the literature on teacher self-efficacy in online education over the previous 15 years. They defined teacher self-efficacy as "a measure of the teacher's belief that he/she can affect student success" (Corry & Stella, 2018, p. 1). Several themes emerged from their research in literature including the importance of quality technology and quality in online education curriculum (Corry & Stella, 2018). Also revealed was the need for more research into how self-efficacy is defined in online education, questions about best practices in teacher education programs, and the need for correlations between teacher self-efficacy and student outcomes (Corry & Stella, 2018). Further research is suggested to examine teacher self-efficacy in online education.

Self-Efficacy and Technology

As technology continues to evolve at a rapid rate and is integrated in education at various levels, teachers need to be agents of 21st century teaching and learning (Erukulapati, 2019; Jacob & Ivone, 2020; Rhoads et al., 2022). Developments in technology and its integration into the classroom are inevitable and necessary. Teachers should be prepared to provide quality instruction that bridges curriculum with technology (Barreto et al., 2022; Rhoads et al., 2022). Digital tools may change and become outdated; however, quality instructional strategies are the foundation to student learning (Rhoads et al., 2022). It is critical to consider the self-efficacy of teachers and their use of technology in education (Clark, 2013). Exploring and understanding

teachers' comfort levels and perceptions of technology integration will allow leaders to develop means of bridging instruction and technology tools used by students daily (Gentry et al., 2014; Junus et al., 2021).

Teachers who adopt a growth mindset and are willing to try new skills and strategies with technology demonstrate commitment to their students and profession (Dweck, 2016; Tang et al., 2021). Developing professionally is critical in staying relevant within education. Teachers who believe that their self-efficacy can impact desired outcomes and improvement in student engagement and success creates positive change overall. Studies show that teachers with high levels of self-efficacy results in positive correlations with student engagement and achievement (Bandura, 1997; Goddard et al., 2000; Humphries et al., 2012; Klassen et al., 2011; McCoach & Colbert, 2010; Narvaez et al., 2008). Growth mindset interventions have shown a positive impact on self-efficacy and motivation (Rhew et al., 2018).

There are strong connections between technology use in the classroom and teacher self-efficacy (Corry & Stella, 2018; Gomez et al., 2021; Mishra & Koehler, 2006; Niederhauser & Stoddart, 2001; Vannatta & Fordham 2004). One study found a significant relationship between teachers' self-efficacy and proficiency in the use of technology as well as the level to which they implement technology (Cardullo et al., 2021). Teachers' perceptions directly impact their use of and interaction with technology in the classroom. Teachers who accept technology have higher levels of self-efficacy with using and implementing technologies in the classroom (Cardullo et al., 2021). Some teachers are reluctant to use technology within their classrooms for various reasons and barriers. Accepting technology may be impacted by internet access, proficiency in skills, and confidence in using technology. Other reasons may include the lack of necessary equipment or training. The use of technology is imperative to both teachers and students in

online education. Further investigation into technology integration and teacher self-efficacy is needed in the research field (Corry & Stella, 2018).

Teachers' Self-Efficacy and Online Education

The topic of teaching efficacy, or confidence in one's ability to influence student learning in the classroom, has been extensively researched in the domains of education and psychology. Efforts to define and quantify teachers' self-efficacy are based on Rotter's (1966) locus of control theory, which examines how much teachers believe they can control student outcomes regardless of external factors (Ashton & Webb, 1986; Gosselin, 2009). Later, via the theoretical lens of a social-cognitive viewpoint, attempts were undertaken to improve the measurement and understanding of teacher efficacy. (Bandura, 1986; Tschannen-Moran et al., 1998). Teacher effectiveness is defined in this paradigm as a rating of a teacher's perceived ability to carry out instructional objectives even while dealing with unengaged and unmotivated students (Gibson & Dembo, 1984; Gosselin, 2009). Higher efficacy beliefs are associated with several positive results when it comes to teaching self-efficacy.

Extrinsic variables, such as technology or online education, can affect teachers' efficacy (Corry & Stella, 2018; Dolighan & Owen, 2021; Lucas, 2005). Teachers reporting high levels of efficacy in in-person classes may have lower levels of efficacy in online classes and vice versa (Gosselin, 2009). Some teachers sign up to teach online and embrace technology while others who have only taught in traditional in-person classes may have not embraced the utilities of technology. Teacher perceptions and attitudes are a leading factor in their embracing of new technologies (Wright, 2011). In 1997, Bandura emphasized the importance of confidence as an indicator of success of an activity. In March 2020, most teachers were forced into online education and entered a world grounded in technology that they did not sign up for nor have the

skills for. Many teachers did not have the confidence to teach online during the COVID-19 pandemic. Their beliefs and efficacy impacted their ability to provide quality instruction to students during this transitional time.

Teachers who have had prior experience or professional development in preparation to teach online, have reported higher levels of teacher self-efficacy (Dolighan & Owens, 2021). Robertson and Al-Zahrani (2012) found that self-efficacy improved as teachers' experiences with technology increased. Receiving instruction and feedback from colleagues can build beliefs in one's abilities as teachers are guided and provided vicarious experiences (Northcote, 2015). Confidence in one area is not indicative of confidence in another. Educators who believe themselves to be highly efficacious in in-person instruction may not be as efficacious in online instruction (Northcote, 2015).

Teachers' Self-Efficacy Concerns

Various factors affect teachers' self-efficacy and concerns with using technology within the classroom. New teachers report lower levels of self-efficacy and classroom management than veteran teachers (Klassen & Chiu, 2010; Yeo, et al., 2008). Experienced teachers may be more resilient. High levels of efficacy correlates to strength in resilience (Tschannen-Moran & Hoy, 2001). Resilience is the way individuals behave when engaged with stress and is necessary for teachers. Teachers need to be able to face situations that are challenging and overcome the challenges (Tait, 2008). Highly efficacious teachers are willing to seek assistance and are willing to adjust their instruction when experiencing challenges (Lazarides & Warner, 2020). Higher levels of resilience and self-efficacy are linked to the ability to employ problem-solving skills in the classroom, reflect on classroom experiences and establish new goals, and maintain good sentiments about their work, all of which may contribute to lower rates of teachers leaving the

profession (Tait, 2008). Teachers with higher levels of self-efficacy are more satisfied with their jobs and are less likely to experience burnout in their profession (Lazarides & Warner, 2020).

Teachers' Sense of Efficacy Scale

As the familiarity of the self-efficacy concept increased, researchers began to notice substantial differences between Rotter's theories which are based on efficacious behavior and Bandura's theories which are based on efficacy expectation (Corry & Stella, 2018). Several instruments and scales have been developed to measure teacher self-efficacy. Some are grounded in Rotter's and Bandura's frameworks, and some are not. There is an agreement among researchers that the self-efficacy of teachers in the contexts of online education and in-person education deserve precise examination (Corry & Stella, 2018). Context is critical to the measurement of self-efficacy. Bandura (1997) cautioned against using generalized scales that do not include domains specific to accurately assess teacher efficacy.

Tschannen-Moran and Hoy (2001) developed the Teachers' Sense of Efficacy Scale (TSES), to measure teachers' self-efficacy and is considered by other researchers to be a strong and reliable tool (Poulou et al., 2019; Yada et al., 2022). This instrument was designed to measure teachers' evaluation of their success in teaching and captures the context of teachers within their role. The TSES is a 12-item scale using a 5-point Likert scale ranging from 1-5, where "1" indicates "none at all" and "5" indicates "a great deal." These questions provide a broad picture of how teachers feel about their capacity to carry out their duties as teachers. The TSES provides understanding of the difficulties teachers experience including student engagement, classroom management, and instructional strategies.

Teachers' Self-Efficacy and Cooperative Learning

Positive relationships between teachers' self-efficacy and cooperative learning have been

reported in several studies (Abrami et al., 2004; Chan et al., 2021; Saborit et al., 2016). Chan et al. examined the effects of cooperative learning on teacher self-efficacy of English Foreign Language (EFL) pre-service teachers. This experimental study revealed that EFL pre-service teachers in the experimental group who were exposed to cooperative learning strategies had higher levels of self-efficacy than the control group. Additionally, this study emphasized the need for applying cooperative learning in pre-service instruction (Chan et al., 2021).

Saborit et al. (2016) aimed to understand teachers' attitudes and perceptions of implementing cooperative learning in educational contexts. There were 990 teachers from 60 schools who participated in the study. The results of the study showed that teacher training in cooperative learning was a strong predictor for successful implementation of cooperative learning in educational settings (Saborit et al., 2016). Kirik and Markic (2012) examined pre-service elementary teachers' self-efficacy and their use of cooperative learning in science classes. This study included 363 teachers-in-training and the researchers used the Cooperative Learning in Science Education Questionnaire (CLSEQ) as the instrument to measure participants use of cooperative learning strategies. The findings of this study resulted in 90% of pre-service teachers who believed they were confident in implementing the cooperative learning strategy in science instruction (Kirik & Markic, 2012).

Teacher self-efficacy is one of the traits that accurately predicts teaching practices (Woolfolk & Hoy, 1990; Zee et al., 2016). Dupuis et al. (2020) used the TSES to examine the relationship between teachers' self-efficacy and participation in professional development school activities. The TSES short form was administered to teachers at 19 schools with 310 teachers participating in the study. The results showed that in-service teachers with higher levels of self-efficacy were more likely to participate in professional development sponsored activities (Dupuis

et al., 2020). Fenn (2019) used the TSES to examine if there was a relationship between teachers' self-efficacy in using technology and their level of integrating technology into their classroo. This study surveyed 150 middle school teachers collecting data to measure their perceived levels of efficacy. The results showed there was no relationship between teacher self-efficacy and their level of integrating technology. However, the findings revealed a difference between White teachers and teachers of color in their self-efficacy in using technology and level of integration of technology (Fenn, 2019).

Hulewicz (2020) examined teachers' perceptions and practices of cooperative learning among third through fifth grade teachers. Hulewicz used the CLIQ (Abrami et al., 1998) to survey 80 teachers in Florida and Georgia. The results indicated that there was no statistically significant difference among third, fourth, and fifth grade teachers and that all had similar perceptions of using cooperative learning. Additionally, the study revealed that teachers were more likely to implement cooperative learning if they had prior training in that instructional strategy (Hulewicz, 2020). Fausnaugh (2016) analyzed the differences between elementary, middle, and secondary teachers' perceptions and implementation of cooperative learning strategies. Fausnaugh used the CLIQ to survey 60 elementary teachers, 44 middle school teachers, and 45 secondary teachers in Ohio public schools. The results of the study showed that the elementary, middle, and secondary teachers all had similar perceptions towards using cooperative learning strategies.

Cooperative learning, online education, and teacher self-efficacy are each substantial and developing topics within educational literature. Effective and engaging instructional strategies used in online education has been of particular interest since the mandated distance learning during the COVID-19 pandemic (Loh & Ang, 2020). Teachers' feelings, perspectives,

experiences, and efficacy to teach in online settings have also been a significant topic of investigation (An et al., 2021). However, there is minimal research that integrates teacher self-efficacy and teachers' attitudes and perceptions towards cooperative learning specifically in an online setting. Further research of teachers' attitudes and perceptions towards using cooperative learning in online settings is needed to bridge this gap in order to help teachers build capacity and increase their sense of self-efficacy to be successful instructors in online settings.

Conclusion

Understanding teachers' self-efficacy and teachers' attitudes and perceptions towards the use of cooperative learning strategies have shown to have significant impact on students and their learning experiences. Students need to be equipped with 21st century skills such as interpersonal communication and cooperation with peers (Barreto et al., 2022; Rhoads et al.., 2022). Students need to actively participate in their learning experiences regardless of the classroom setting (Loh & Ang, 2020; Rhoads et al., 2022).

Students benefit intellectually and socially from cooperative learning, which is an active instructional approach to student-centered learning (Likitrattanaporn, 2018). Implementation of cooperative learning strategies in online classes provides students opportunities to collaborate with their peers and engage in relevant learning using technology (Aghajani & Adloo, 2018; Jacob & Ivone, 2020). Frequent use of cooperative learning in online settings builds community among students and results in positive outcomes (Barreto et al., 2022; Jacob & Ivone, 2020).

Teachers' self-efficacy plays a key role in online education. A teachers' beliefs about their abilities directly affects student learning and academic outcomes. Teachers' self-efficacy is a driving force in the design and development of classrooms and instruction (Lazarides & Warner, 2020). It is important for teachers to have high levels of self-efficacy to incorporate

engaging instructional strategies, such as cooperative learning, in online courses. Teachers with high self-efficacy construct meaningful instruction and incorporate engaging activities to enhance student learning experiences (Lazarides & Warner, 2020; Woolfolk et al. 1990). Likewise, using cooperative learning models can increase teachers' levels of self-efficacy (Aslan, 2022; Chan et al., 2021).

Summary

In review, this chapter evaluated the literature regarding cooperative learning, online education, and teacher self-efficacy. Online education is a growing field and educators need to be confident in their use of instructional practices in this type of setting. Additionally, educators need to incorporate cooperative learning strategies in online settings to increase student learning, promote social development, and foster peer interactions. Ultimately, studies have shown that teachers with higher levels of self-efficacy are more likely to implement new and various instructional strategies in online classes (Jolliffe & Snaithe, 2017; Kirik & Markic, 2012). Further research can explore teacher self-efficacy and perceptions towards implementing the specific instructional strategy of cooperative learning.

CHAPTER 3: METHODOLOGY

This study was designed to determine if a relationship exists between teachers' self-efficacy and teachers' attitudes and perceptions towards using cooperative learning strategies in an online class setting. Additionally, the study aimed to examine what experiences contribute to the high and low levels of educators' self-efficacy towards cooperative learning strategies in an online setting. Also, teachers' specific attitudes and perceptions towards cooperative learning were explored. Finally, this study sought to determine the frequency of specific cooperative learning strategies used in online class settings. This mixed methods study utilized quantitative and qualitative research methods. The quantitative research method used a correlational research design while the qualitative analysis used thematic coding. This chapter will include details on the following components of this study: research design, participants, instrumentation, data collection, and data analysis.

Research Design and Rationale

This convergent parallel mixed methods study design relied on quantitative and qualitative data collected from the implementation of a cross-sectional e-survey consisting of validated scales for testing correlations between variables of interest, as described below. The quantitative and qualitative data were collected to produce a valid, reliable, and trustworthy mixed methods study (Decuir-Gunby & Schutz, 2017). The convergent parallel design allowed quantitative and qualitative data to be collected at the same time so that components of either did not impact each other (Decuir-Gunby & Schutz, 2017). After the data were collected, the information was analyzed separately and then merged (Decuir-Gunby & Schutz, 2017).

The qualitative portion of this study relied solely on thematic analysis of data garnered from open-ended questions included in the survey. The qualitative data were intended for two

purposes: 1) for explaining and interpreting trends and relationships between variables observed in the quantitative phase, and 2) broadening understanding of the main study variables of interest (Decuir-Gunby & Schutz, 2017). The researcher used open-ended questions with descriptive analysis for the qualitative component (Table 3.1). The qualitative research design enabled the researcher to collect in-depth and more detailed data from the participants.

The dominant research method used in this study was the correlational research design, which according to Creswell (2015), provides an assessment of the strength and direction of a relationship between two quantitative variables. A limitation of correlational research is that causal inferences cannot be made by merely examining statistical relationships between variables that are measured at a single time-point (Creswell, 2012). The researcher administered the Teachers' Sense of Self Efficacy Scale (TSES; Tschannen-Moran & Hoy, 2001) questionnaire to participants to assess their overall self-efficacy in the areas of instructional strategies, student engagement, and classroom management in an online setting. The Cooperative Learning Implementation Questionnaire (CLIQ; Abrami et al., 1998) was administered to assess teachers' attitudes towards using cooperative learning strategies in an online setting.

Table 3. 1

Summary of Research: A Mixed-Methods Study

Quantitative	Qualitative
• Correlational research design • Frequency scale • 3 Research Questions • Determining relationships among two variables • Conclusions drawn from the quantitative findings may support and improve qualitative findings	• Qualitative research design with qualitative analysis • 2 Research Questions • Relationships and themes determined by thematic coding of data • Conclusions drawn from the qualitative findings may support and improve quantitative findings

Setting and Participants

Participants in this study included teachers from kindergarten to college level who have taught or are currently teaching in an online setting. Participants included educators from both the public and private school sectors. Participants were selected based on their identified role as an educator and experience teaching in an online setting. Participants were recruited via social media on Facebook and Twitter. Additionally, respondents convenient to the researcher such as colleagues, peers, and acquaintances were recruited. The researcher presented the research topic and survey to teachers at a professional development meeting at a public K-8 school. The researcher requested participants in the convenience sample to recommend others via snowball sampling (Creswell, 2015). Recruitment emails including the consent form and survey were sent to participants (Appendix A). This research recruited 123 participants.

Sampling Procedures

For this study, a convenience snowball sample was used to select participants for the study. First, the convenience sample included participants who were available and willing to be studied (Creswell & Poth, 2018). Initial participants were recruited at a K-8 school during a professional development meeting where the survey was explained and shared with teachers. Additional participants were recruited through social media platforms on Facebook and Twitter. Recruitment emails including the consent form and survey were sent to potential participants known by the researcher who fit the selection criteria. The researcher requested participants in the convenience sample to nominate or recommend others who fit the profile for potential participants. In this type of sampling, the researcher recruited additional participants from current study participants who shared the survey with their peers or people within their professional networks (Creswell & Poth, 2018).

Participants received an email, link, or QR code as an invitation to participate in the study. The email and QR code included the link to the survey in a Google Form. Once participants followed the link, they were to read the consent and decide to agree to the terms or not. Once participants agreed to consent and acknowledged the terms of the study, they were provided the survey including the TSES, CLIQ, and qualitative questions. Participants answered the questions and submitted the survey to the researcher. Participant names and places of employment were not collected. Participant information was stored in a password protected computer. Codes were given to participants in order to protect their confidentiality. The survey did not include any questions that could link a participant with particular responses. Respondents were not obligated to identify themselves by name nor provide the name of the institution or school they are employed with. Data will be stored in password protected computer files and cloud storage for three years after completion of the study and then will be deleted. The minimum data necessary for the research was collected. The researcher attempted to recruit a broad and diverse body of participants through snowball sampling in effort to increase the study's validity (Creswell & Poth, 2018).

Instrumentation and Measures

This study used various instruments in order to gather data for the quantitative and qualitative components and fulfill the purpose of this study. The TSES gathered quantitative data and determined teachers' levels of self-efficacy in an online setting. The CLIQ gathered quantitative data to determine teachers' attitudes and perceptions towards cooperative learning in an online setting. Two open-ended questions were included to obtain qualitative data.

Self-Efficacy

Self-efficacy was measured using a short-form version of the TSES questionnaire. The

TSES uses a 9-point Likert scale which was modified to a 5-point Likert scale for this study. There is a long form that includes a 24-item scale and is recommended for use with preservice teachers. There is also a 12-item short form that includes four questions for each of the three constructs and is recommended for use with in-service teachers. The short form was used in this study because participants were in-service teachers. The TSES is an established questionnaire designed and validated by Tschannen-Moran and Woolfolk Hoy (2001). This instrument was designed from their extensive analysis of previous research and existing measures of self-efficacy. Tschannen-Moran and Woolfolk Hoy deemed the use of the scale to be "reasonably valid and reliable" as a measure of teacher self-efficacy (2001, p. 799). Permission to use the TSES has been granted to the researcher (Appendix B).

Cooperative Learning

The CLIQ was used in this study as a source to measure the attitudes and perceptions of teachers towards the use and nonuse of cooperative learning strategies. Permission to use the CLIQ has been granted to the researcher (Appendix C). This instrument, developed by Abrami, Poulsen, and Chambers (1998), consists of 68 items that are segmented into three sections including demographics (Section 1), professional views (Section 2), and current teaching practices (Section 3). The authors use 48 of the 68 items in the analysis for reliability and validity, while the remaining items include demographic information and teaching practices (Abrami et al., 1998). The CLIQ uses a 5-point Likert scale in which participants rate their responses in Sections 2 and 3. Section 2 is subdivided into three motivational categories: expectancy of success, perceived value of innovation, and cost concerns (Abrami et al., 2004). Expectancy of success is based on the teacher's confidence and efficacy toward cooperative learning. Perceived value is based on the teacher's perceptions of the value of cooperative

learning. Cost concerns focus on the degree of impact to a teacher when implementing

cooperative learning. The results of the CLIQ questionnaire were compared with the results of

the TSES questionnaire.

Qualitative data were collected via two additional open-ended questions in the survey to

gain a broader understanding of teachers' attitudes and perceptions towards using cooperative

learning strategies in an online setting. The first question requested respondents to describe

specific experiences that explained or contributed to their high and low levels self-efficacy when

using cooperative learning strategies in an online setting. The second question was designed to

capture the specific perceptions of educators towards using cooperative learning strategies in an

online setting.

Survey Scale Modifications

Modifications to the CLIQ and TSES were made by the researcher. Both surveys

included a qualifier to address the context of the survey questions pertaining to online settings.

The rationale for modifying the questionnaires was to address the online education setting. The

TSES 9-point Likert scale was adjusted to a 5-point Likert scale to provide participants with a

smaller range of choices. The demographic questions in the TSES were omitted so as to not be

redundant because similar questions were included in the CLIQ.

<div align="center">

Validity and Reliability

</div>

Validity and reliability checks were implemented throughout the research and upon

completion of data collection and analysis. Reliability is the degree to which a specific research

method or instrument is capable of producing results from one test to another (Creswell & Poth,

2018). Validity is synonymous with accuracy or the degree to which an instrument measures

what it purports to measure (Creswell & Poth, 2018).

Quantitative

The TSES was originally named the Ohio State Teacher Efficacy Scale that consisted of 24 questions and a short form of 12 questions. The TSES was developed by Tschannen-Moran and Woolfolk Hoy (2001) to measure the general self-efficacy of teachers. This instrument was validated by the authors after three individual studies. There were 224 teachers in the first study, 217 teachers in the second study, and 410 teachers in the third study (Tschannen-Moran & Woolfolk Hoy, 2001). All participants had varying years of preservice and in-service experience (Tschannen-Moran & Woolfolk Hoy, 2001). There were high levels of reliability for the subscales of management, instruction, and engagement during testing resulting in these factors being a final part of the self-efficacy questionnaire (Tschannen-Moran & Woolfolk Hoy, 2001). It is recommended the long form of the TSES be used for measuring preservice teachers and the short form to be used for in-service teachers (Tschannen-Moran & Woolfolk Hoy, 2001).

The CLIQ initially included 933 participants in the study, Participants responded to 11 demographic questions and 48 items which used a 5-point Likert scale. In this self-reported questionnaire, the 48 items accounted for 42.3% of the total variance (Abrami et al., 2004). The results of the factor analysis and internal consistency indicated the CLIQ to be a valid instrument (Abrami et al., 2004). Cronbach alpha tests were used to test validity and reliability and were reported high in both surveys.

Qualitative

The second method used in this study was a qualitative research design. Information and perspective gathered from the participants was used to strengthen and inform the study (Creswell & Poth, 2018). The researcher collected data from the two open ended questions in the survey. Themes that emerged were analyzed for plausibility by assessing the validity, reliability, and

meaningfulness of the responses (McMillan, 2012). The researcher corroborated evidence

through triangulation. Triangulation is a technique that compares and cross validates the findings

of various sources (McMillan, 2012). Using different techniques in this strategy expands the

opportunity for validity and reliability as information is solidified by the support of evidence

gathered with the literature review, quantitative survey, and qualitative questions (Creswell &

Poth, 2018).

According to McMillan (2012), triangulation is the most frequently employed method to

establish reliable results. Qualitative research with credible triangulation can reveal new ideas

and variables (Thomson, 2011). The researcher used thematic coding to construct themes from

the data to draw conclusions of the relationships and themes that emerged from the data

(Creswell & Poth, 2018). The derived themes informed the quantitative data and triangulated the

research in the literature in order to provide a greater perspective relating to teachers' self-

efficacy and teachers' attitudes and perceptions towards using cooperative learning strategies

within an online setting.

Data Collection

Data were collected by distributing the survey to teachers as available through the

recruitment process of convenient snowball sampling. Participants were recruited during a

professional development meeting at a K-8 school. Also, participants were recruited via social

media on Facebook and Twitter. Additional respondents convenient to the researcher such as

colleagues, peers, and acquaintances were recruited. The researcher requested participants in the

convenience sample to nominate or recommend others who fit the inclusion criteria for potential

participants to begin snowball sampling (Creswell & Poth, 2015). Quantitative and qualitative

data were collected from participants who agreed to consent to the survey and agreed to

complete the survey scales.

The researcher sought approval from Concordia University, Irvine's Institutional Review Board (IRB) for this study (Appendix D). The researcher ensured that university and IRB protocols were followed throughout the study. A brief description of the study and its purpose along with the survey was provided to participants. The survey questions were included in a Google Form and presented to participants. The Google Form included three sections including the summary of the survey and consent form in the first section and questions from the TSES and CLIQ questionnaire in the second and third section. Participant names and places of employment were not collected. Participants received an informed consent form with specific information about their participation in the study including confidentiality, risks, benefits, and the opportunity to withdraw from the study at any time. All 123 participants provided consent to participate in the survey.

A Google Form was selected purposefully as it is a common and easy to use format. An email and link to the survey was shared with participants and the researcher requested participants to share the survey with other eligible participants as part of the snowball sampling. The intent of this method was to increase the sample size of the study. Results from the surveys were compiled and organized into Microsoft Excel in preparation for analysis.

Ethical Considerations

Ethical considerations were at the forefront of data collection (Creswell & Poth, 2018). The researcher provided an informed consent for participants to agree to and sign. The informed consent explained the purpose of the study, why they are being asked to participate, study procedures, the voluntary nature of the study, participant rights, and benefits. The researcher obtained IRB approval to support conducting research of this study in an ethical manner. The

researcher considered confidentiality of the respondents a priority in the study as it inquired about experiences of the educators in their workplace. The survey did not include any questions that could link a participant with particular responses. Respondents were not obligated to identify themselves by name and places of employment were not collected. Email addresses were not collected unless participants elected to provide an email address to be entered in a raffle to receive an Amazon gift card for participation in the study. Codes were given to participants in order to protect their anonymity.

The researcher was aware of potential threats to validity and reliability and was prepared to respond to any ethical issues that may have impacted the study (Creswell & Poth, 2018). Bias is one threat that is common to research studies as researchers are often biased based on their interests or expectations of outcomes (Maxwell, 2013). Bias is any kind of negative influence that can affect the researcher's knowledge of the study (McMillan, 2012). The researcher distributed a pilot survey to peers and peer debriefing that was used to glean input from other people to help reduce researcher bias. The researcher was careful not to include any influential assumptions in the design, analysis, or sampling strategy to preserve validity.

Participants' perspectives, dispositions, experiences, and accessibility towards technology may have had a significant impact on their responses and were considered. Also, the meaning of self-efficacy may have been interpreted differently by participants. Definitions of terms were provided to dismantle misinterpretations. It was also considered that some participants may be partial to the use of technology and online learning while others may not. Biases one way or the other may have seeped into responses from the participants and affected the results. Another consideration is that participants may have experienced fatigue while completing the survey due to the length. The researcher was aware of the potential biases, considerate of how the questions

were written, and mindful of the way in which responses were interpreted and conclusions were drawn (Creswell, 2017).

Data Analysis

Data were analyzed using descriptive analysis, correlation analysis, and qualitative analysis to address the research questions. The researcher used the Stats Plus add-on program in Microsoft Excel to analyze the quantitative data collected. The researcher used thematic coding to derive themes and draw conclusions of the relationships that emerged from the qualitative data collected (Creswell & Poth, 2018). To address qualitative research questions, open coding and axial coding were used to identify emerging themes. The derived themes from the qualitative data were used to interpret the quantitative data and were triangulated with the research in the literature in order to provide a greater perspective relating to teachers' self-efficacy, attitudes, and perceptions towards using cooperative learning strategies within an online classroom setting.

Quantitative

One type of quantitative analysis used by the researcher in this study was correlational analysis. Another analysis used a frequency scale to identify which cooperative learning strategies are used most frequently in online settings. The quantitative data were analyzed using the Stats Plus add-on program in Microsoft Excel. Figure 3.1 provides an outline of the quantitative data analysis including data sources, variables operationalized from data sources, and proposed correlations.

Figure 3. 1

Summary of Quantitative Data Analysis
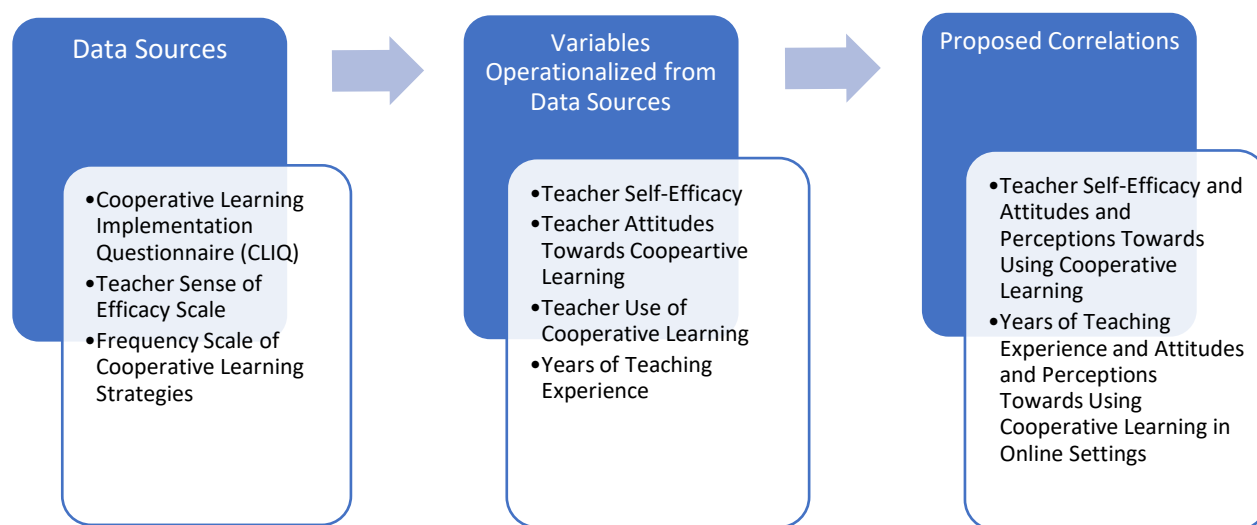
(PRQ 1) The research questions indicated a need to determine if there is a significant relationship between teachers' attitudes and perceptions towards using cooperative learning strategies and teachers' levels of self-efficacy. Using the CLIQ, perceptions of cooperative learning scores were divided into three subscales: expectancy of success, perceived value, and perceived cost. The scores from each section were summed and used for analysis and correlation. The scores from the TSES were also summed and used for analysis and correlation using a Pearson's *r* to determine relationships between the variables.

(SRQ 2) The study also sought to determine if there is a significant relationship between teachers' attitudes and perceptions towards using cooperative learning strategies in an online setting and teachers' years of experience teaching. The researcher used Spearman's rho correlation to determine relationships between variables.

(SRQ 3) The researcher used descriptive statistics to determine the frequency of cooperative learning strategies that are used most frequently in an online classroom setting. An analysis of the results was provided.

Descriptive Statistics

Data were collected from the CLIQ and TSES surveys and analyzed. The CLIQ utilizes a standardized scale which was administered and scored similarly across all participants. The CLIQ includes three main sections. Section 1 gathered participants' demographic information. Section 2 analyzed professional views which was subdivided into three subcategories of expectancy of success, perceived value, and perceived cost. Section 3 analyzed current teaching practices. With this instrument, the researcher added up each participants' responses to the items in the survey in order to sum a total score for each respondent for each section. The TSES yielded the overall self-efficacy of the participant completing the questionnaire. A comparison of overall averages from the TSES survey ratings were examined. Using descriptive statistical analysis, the researcher determined a range of values for teacher self-efficacy from none at all to a great deal based on the scoring criteria of the TSES. The results from the CLIQ and TSES surveys were compared and analyzed to determine if a relationship exists between the levels of teachers' self-efficacy and their attitudes and perceptions towards cooperative learning strategies in online classes.

Correlational Analysis

The operationalization of variables, the suggested correlations, and the methodology for calculating the correlation coefficients are covered in the correlation analysis section of this study. This study examined variables that correlate with and predict teacher self-efficacy and teacher attitudes and perceptions towards cooperative learning strategies. Scores from the CLIQ including each of the three subcategories were correlated with high and low levels of teacher self-efficacy. Scores from the CLIQ were also associated with teachers' years of teaching experience.

Operationalization of the Proposed Correlations

The proposed correlations that can be operationalized for this investigation are indicated (Table 3.2). The first proposed correlation is that teachers' levels of self-efficacy will be indicative of their attitudes and perceptions towards using cooperative learning in online classroom settings. The second proposed correlation is that teachers' years of teaching experience will be indicative of their attitudes and perceptions towards teachers' use of cooperative learning strategies in an online setting.

Proposed Correlations. Below are the proposed correlations that were computed for this study. The correlations computed from the following variables will help answer research question one and sub-research question two.

1. Teacher Self-Efficacy and Attitudes and Perceptions Towards Using Cooperative Learning in Online Settings.

2. Teacher Years of Teaching Experience and Attitudes and Perceptions Towards Using Cooperative Learning in Online Settings.

Table 3. 2

Operationalization of Proposed Correlations

Proposed Correlations	Dependent Variable 1	Dependent Variable 2
Correlation 1	Teacher attitudes and perceptions towards using cooperative learning	Teacher self-efficacy
Correlation 2	Teacher attitudes and perceptions towards cooperative learning	Years of teaching experience

Computing Correlations. A Pearson's *r* correlation and a Spearman's rho correlation were used to compute the proposed correlations. Results with a coefficient greater than 0 indicated a positive correlation whereas coefficients below 0 were indicated a negative

association. Additionally, the correlation coefficients helped determine the strength of the relationship of the variables in question. Weak relationships are denoted by coefficients between 0.10 and 0.30 (-0.10 and -0.30), moderately strong relationships between 0.30 and 0.50 (-0.30 and -0.50), and strong relationships between 0.50 and 1.0 (-0.50 and 1.0).

Qualitative

Qualitative research design was the second method used in this study. The qualitative approach used descriptive analysis in the form of open coding, axial coding, and selective coding to identify themes that emerged from the collected data (Figure 3.2). The researcher used Dedoose software and Microsoft Excel with formulas to tally the totals and percentages of each code and theme. The themes were categorized and lead the researcher to information to support the quantitative findings regarding teachers' self-efficacy and teachers' attitudes and perceptions towards using cooperative learning strategies in an online classroom setting.

The researcher conducted an initial read of the data collected in the qualitative questions to gain a general sense of the information. The researcher took notes, journaled, identified major themes, noted pertinent information, and used Dedoose software for coding and analyzing data. The software program helped categorize codes and themes. In open coding, the researcher used a color-coding system highlighting and labeling codes and keywords. In axial coding, the researcher combined codes, organized categories, and identified themes and patterns as they appeared (Maxwell, 2013). Throughout the process, the researcher used memoing to note emerging themes (Creswell & Poth, 2018). Nex, the data were represented and interpreted. With selective coding, the researcher connected preliminary theoretical ideas to the text. Conclusions were drawn from the findings of patterns, themes, and categories that surfaced. The researcher indicated relationships between codes, research questions, and the literature (Maxwell, 2013).

Figure 3. 2

Diagram: Qualitative Data Analysis

Step 1
Data Collection

Step 2
Open Coding

Step 3
Axial Coding

Step 4
Selective Coding
Final Themes
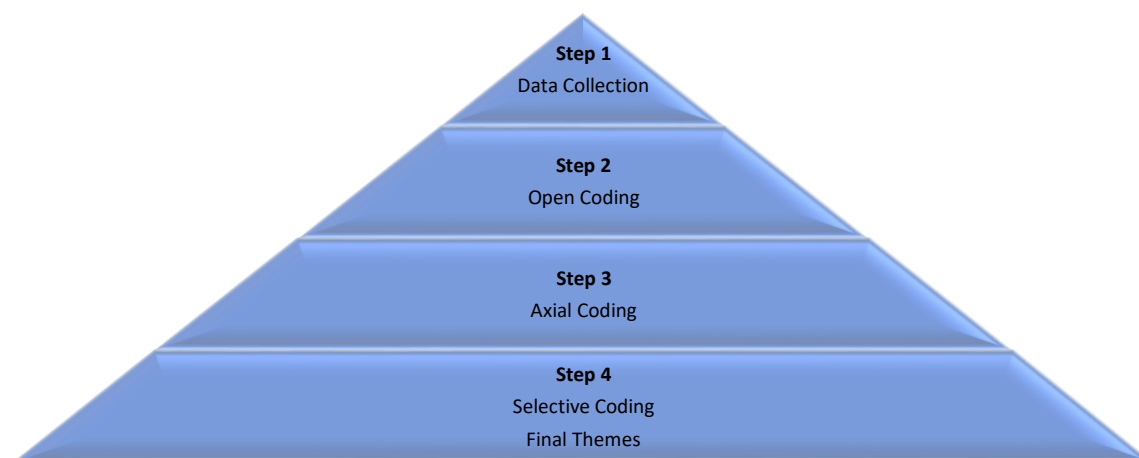
Triangulation

Triangulation is the means of collecting multiple sources of data using two or more

methods to address the research questions (Creswell & Poth, 2018). Qualitative research with

triangulation can reveal new ideas and variables (Thomson, 2011). This quantitative correlation

study with a qualitative triangulation was used to understand teachers' self-efficacy, attitudes,

and perceptions towards using cooperative learning strategies in an online setting. Quantitative

data from the CLIQ and TSES surveys provided a measure of teachers' self-efficacy, attitudes,

and perceptions towards using cooperative learning strategies in an online setting.

Qualitative data were gathered from the open-ended questions in the survey to understand

what the specific attitudes and perceptions teachers are towards using cooperative learning

strategies in an online setting. Combining the correlational comparison of the surveys, analysis

of qualitative data, and research from the literature review in a triangulated mixed methods

approach provide comprehensive understanding of teachers' self-efficacy, attitudes, and

perceptions toward cooperative learning (Creswell & Poth, 2018). Triangulation enriches the

confidence in results of a study and ensures the results are not solely dependent on a single

method and was used in the final phase of this study (Creswell & Poth, 2018).

Figure 3. 3

Diagram: Triangulation
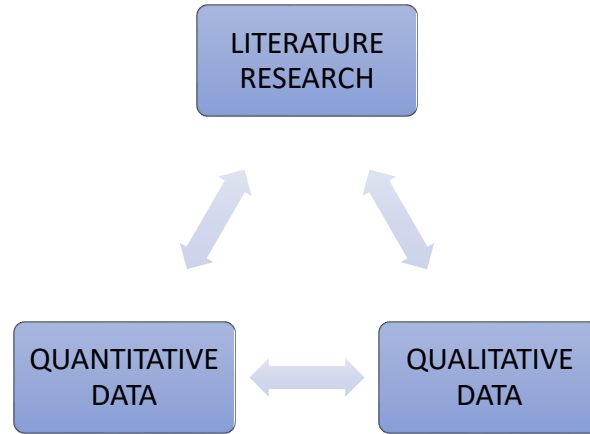
Summary

This chapter discussed the mixed methods research design that will be used for this study. This mixed methods study consists of descriptive analysis and correlational research design along with a qualitative research design. This chapter also discussed the instrumentation of two surveys. Finally, data analysis for the quantitative and qualitative procedures were also discussed.

CHAPTER 4: FINDINGS

The purpose of this study was to determine if there was a relationship between teachers'

attitudes and perceptions towards cooperative learning strategies and teachers' self-efficacy in an

online setting. A secondary purpose was to understand the relationship between teachers'

specific attitudes and perceptions towards cooperative learning and teachers' years of teaching

experience. A final purpose of this study was to understand what experiences contributed to

teachers' high and low levels of efficacy in an online setting and what the specific attitudes and

perceptions of teachers are towards cooperative learning in an online setting. A survey was used

to collect quantitative data and two open-ended questions were included in the survey to collect

qualitative data. An overview of the mixed-methods research is shown in Figure 4.1. This

chapter provides a summation of the participants' responses and the results of the data which

answered the following research questions:

Research Questions

Quantitative

1. What is the relationship between teachers' self-efficacy and teachers' attitudes and

   perceptions towards using cooperative learning strategies in an online setting?

2. What is the relationship between teachers' attitudes and perceptions towards using

   cooperative learning strategies in an online setting and teachers' years of experience

   teaching?

3. Which cooperative learning strategies are used most frequently in an online

   classroom setting?

Qualitative

4. What are the perceptions of teachers towards using cooperative learning strategies in

an online setting and how are they influenced by other factors?

5. What experiences contribute to high and low levels of teachers' self-efficacy towards using cooperative learning strategies in an online setting?

This chapter consists of four sections including the demographic profile, descriptive statistics, scores, and qualitative findings. In the first section, the demographic profile of the participants sampled in this study will be discussed. The second section will include the descriptive statistics of the individual survey scales. The final section will review the quantitative and qualitative research questions.

Figure 4. 1

Overview of the Mixed-methods Research

Demographic Profile
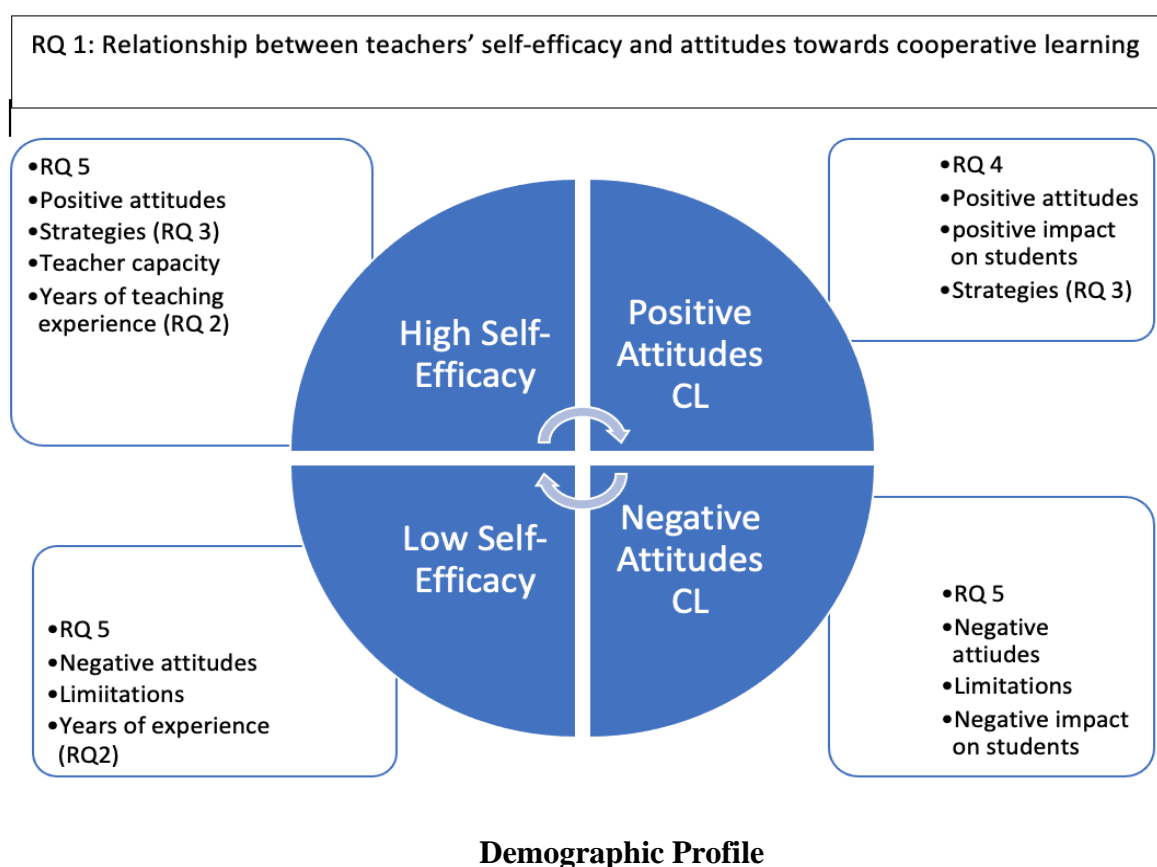
Survey scales were distributed to teachers throughout the United States in an effort to

collect quantitative and qualitative data for this study. Participants were recruited with convenience sampling and included the following 11 demographic variables: gender, years of teaching completed overall, years of teaching in an online setting, language of instruction during online teaching, teaching position online, ability of composition of classes online, typical class size online, number of years implementing cooperative learning online, amount of workshop training in cooperative learning, methods trained in cooperative learning, and type of follow-up support in cooperative learning received. Demographic data is provided in Table 4.1 showing the frequencies and percentages provided for each item and is described in the following section.

The gender of participants included females (83.61%) and males (16.39%). One participant left this response blank. The overall years of teaching experience was the second item reported. The largest percentage (38.21%) of participants indicated 16 to 24 years of experience. The second largest group (22.76%) of participants have completed 6 to 15 years of teaching. Participants teaching 25 years, or more were the third largest group resulting in 21.95% of the group. The fourth largest group was teachers with 2 to 5 years' experience at (16.26%). Lastly, 0.81% of participants reported 1 to 2 years of overall teaching experience. Additionally, participants identified their years of teaching in an online setting. The majority of participants (61.16%) taught 1 to 2 years online. The next largest group (20.66%) taught 0 to 1 year. The third largest group (11.57%) taught 2 to 5 years. The smallest group (6.61%) have taught 6 or more years in an online setting.

The frequency distribution of participants' language of instruction is represented. The majority of responses (55.28%) by participants indicated that most of their students speak the language of instruction as their first language. The next largest group (26.83%) stated that all of their students speak the language of instruction as their first language. The third largest group

(11.38%) reported that a few of their students speak the language of instruction as their first language. The fourth largest group (5.69%) indicated that some of their students speak the language of instruction as their first language and the smallest group (0.81%) reported that none of their students speak the language of instruction.

Teaching positions and levels of grades taught by participants were included in this study. Classroom teachers grades 4-6 represented the largest percentage (20.17%) of participants. The second largest group (12.61%) were classroom teachers in grades 1-3. The third largest group (7.56%) were classroom teachers grades 7-12. Classroom teachers, pre-k to kindergarten, were the fourth largest group (5.04%) and the smallest group (4.20%) reported were college level classroom teachers. In addition to grade levels, teachers also reported the subjects taught including mathematics (0%), science (5.88%), second language (2.52%), language arts (0%), physical education (1.68%), social science (1.68%), and creative arts (0%). Other teaching positions reported included special education (8.40%), vocational (5.04%), and other (mix of subjects) (25.21%).

The ability composition of classes is also indicated in the demographics information. The largest group of participants (39.84%) claimed to have mixed ability levels of students in their class. The second largest group (29.27%) declared their students were of mostly average ability. The next largest group (25.20%) reported their students to be of mostly below average ability. The smallest group (5.69%) in this category claimed to have mostly above average ability students. Participants also shared the typical size of their classes online. The leading group (34.96%) had 25 to 29 students. The next largest group (29.27%) had class sizes of 18 to 24 students. The third group (19.51%) had less than 18 students. The fourth group (8.13%) shared having 30 to 34 students and the smallest group (8.13%) had more than 34 students.

The number of years participants have been implementing cooperative learning was also indicated in the frequency distribution. The majority of participants (59.35%) reported less than 2 years of implementation of cooperative learning. The second largest group (13.01%) declared to have been implementing cooperative learning for between 2 and 4 years while the same percentage (13.01%) claimed to have been implementing this strategy for more than 8 years. The next largest group (12.20%) stated to never have implemented cooperative learning. The smallest group (2.44%) reported implementing cooperative learning between 4 and 8 years.

Participants reported the amount of workshop training in cooperative learning they had received. The largest group of participants (26.23%) reported having no training. Having between 1 and 2 days of training was indicated by 24.59% of participants. The next group (18.03%) reported having more than 6 days of training. Less than a full day of training and between 3 and 6 days were each equally reported by 15.57% of the participants. Additionally, participants shared the methods of cooperative learning they had been trained in. The largest group (29.51%) reported being trained in none of the cooperative learning strategies and the same percentage (29.51%) indicated training in Student Teams Achievement Divisions and Teams Games Tournament (Slavin, 2014). The next largest group (16.39%) stated having had training in the Structural Approach (Kagan, 1989). Being trained in other methods of cooperative learning training was stated by 15.57% of participants. Those with training in Learning Together (Johnson & Johnson, 2002) was reported by 9.02% of participants. Zero participants were listed in the response of name of method not given or does not remember the name of the method.

Participants were asked to indicate the type of follow-up support in cooperative learning that they have received. The largest group of participants (39.02%) claimed to have no follow up support. The next largest group (27.64%) specified having follow up support with a fellow

teacher. The third largest group (16.26%) reported having follow up support with a trainer. The fourth largest group (15.45%) reported having other follow up support and 1.63% of participants indicated having follow up support with an administrator. All demographic data collected from participants is represented in Table 4.1.

Table 4. 1

Frequencies and Percentages of Demographic Data

Demographics	*n*	%
Gender		
Male	20	16.39
Female	102	83.61
Years of Teaching Completed		
0 to 1 year	1	0.81
2 to 5 years	20	16.26
6 to 15 years	28	22.76
16 to 24 years	47	38.21
25 years or more	27	21.95
Years of Teaching in an Online Setting		
0 to 1 year	25	20.66
1 to 2 years	74	61.16
2 to 5 years	14	11.57
6 years or more	8	6.61
Language Instruction		
None of my students speak…	1	0.81
A few of my students speak…	14	11.38
Some of my students speak…	7	5.69
Most of my students speak…	68	55.28
All of my students speak…	33	26.83
Teaching Position		
Classroom teacher, Pre-K to Kindergarten	6	5.04
Classroom teacher, Grades 1 to 3	15	12.61
Classroom teacher, Grades 4 to 6	24	20.17
Classroom teacher, Grades 7 to 12	9	7.56

Demographics	*n*	%
Classroom teacher, College Level	5	4.20
Mathematics	0	0.00
Science	7	5.88
Second language	3	2.52
Language arts	0	0.0
Physical education	2	1.68
Social science	2	1.68
Creative arts	0	0.0
Special education	10	8.40
Vocational	6	5.04
Other (mix of subjects)	30	25.21
Ability Composition of Class(es)		
Mixed (all ability levels)	49	39.84
Mostly below average	31	25.20
Mostly average ability	36	29.27
Mostly above average	7	5.69
Typical Class Size (online)		
Less than 18 students	24	19.51
18 to 24 students	36	29.27
25 to 29 students	43	34.96
30 to 34 students	10	8.13
More than 34 students	10	8.13
Number of Years Implementing Cooperative Learning		
None	15	12.20
Less than 2 years	73	59.35
Between 2 and 4 years	16	13.01
Between 4 and 8 years	3	2.44
More than 8 years	16	13.01
Amount of Workshop Training in Cooperative Learning		
None	32	26.23
Less than a full day	19	15.57
Between 1 and 2 days	30	24.59
Between 3 and 6 days	19	15.57
More than 6 days	22	18.03
Method Trained		
None	36	29.51

Demographics	*n*	%
Learning Together (Johnson & Johnson, 2002)	11	9.02
Structural Approach (Kagan, 1989)	20	16.39
STAD and TGT (Slavin, 2014)	36	29.51
Name of method not given/don't remember	0	0.0
Other methods of cooperative learning	19	15.57
Type of Follow-up Support		
None	48	39.02
With trainer	20	16.26
With fellow teacher(s)	34	27.64
With administrator(s)	2	1.63
Other	19	15.45

Note. This table reports demographic information reflecting the frequencies and percentages of

participants who contributed information to each response item.

Quantitative Data Analysis

Descriptive Statistics of Survey Scale Results

This section will provide the findings yielded from the two survey scales that were used

in this study. The correlations were computed by using a Pearson's correlation and a Spearman's

rho correlation in which coefficients greater than 0 are a positive correlation and coefficients

below 0 are a negative association. Weak relationships are denoted by coefficients between 0.10

and 0.30 (-0.10 and -0.30), moderately strong relationships between 0.30 and 0.50 (-0.30 and -

0.50), and strong relationships between 0.50 and 1.0 (-0.50 and 1.0). The results of the Pearson's

r correlations will primarily provide insight into the relationship between teachers' attitudes and

perceptions towards cooperative learning in an online setting and teachers' self-efficacy. The

Spearman's rho correlation will show associations between teachers' attitudes and perceptions

towards cooperative learning in an online setting and teachers' overall years of teaching

experience. Overall, the study indicated there was a statistically significant relationship, $r(121) =$

$0.38, p < 0.01$ between the results from the Teachers' Sense of Self Efficacy Scale (TSES;

Tschannen-Moran & Hoy, 2001) and Cooperative Learning Implementation Questionnaire

(CLIQ; Abrami et al., 1998). The Pearson's coefficient was 0.38 indicating a moderate positive relationship between the variables. This indicates that as TSES scores increased, the scores for the CLIQ also increased. There was also a significant relationship, $R_s(123) = 0.19$, $p < 0.05$, between teachers' attitudes and perceptions towards cooperative learning in an online setting and teachers' overall years of teaching experience. The Spearman's rho coefficient was 0.19 suggesting a weak positive relationship. This means that as teachers' years of teaching experience increased, teachers' attitudes and perceptions towards cooperative learning slightly increased.

The Teacher Sense of Efficacy Scale

The TSES is a 12-item survey used to gain an overall understanding of teachers' beliefs in their abilities as teachers (Tschannen-Moran & Woolfolk Hoy, 2001). This survey examines three constructs of teachers' sense of efficacy in student engagement, instructional practices, and classroom management (Tscahnnen-Moran & Woolfolk Hoy, 2001). The overall average and standard deviation of the sense of efficacy scores for the teachers who participated in this study are represented in Table 4.2. The scores of each participant were calculated then averaged to provide an overall sense of efficacy score for the teachers who participated in this study (Figure 4.2). There were 123 participants who provided data for the TSES.

Table 4. 2

Overall Teacher Sense of Efficacy Scores of Participants

Scale	*M*	*SD*	Range	Cronbach's *a*
Teacher Sense of Efficacy Scale	44.64	8.19	28 - 60	.91

Note. N = 123. A measure is deemed reliable if the Cronbach's alpha score is above .70 (Frankfort-Nachmias & Nachmias, 2008).

The outliers of the scores in this survey were inspected and found to be in normal range. Figure 4.2 represents the Teacher Sense of Efficacy Scale showing normal distribution of scores and the standard deviation (*SD* = 8.19) within normal range.

Figure 4. 2

Teacher Sense of Efficacy Average Scores
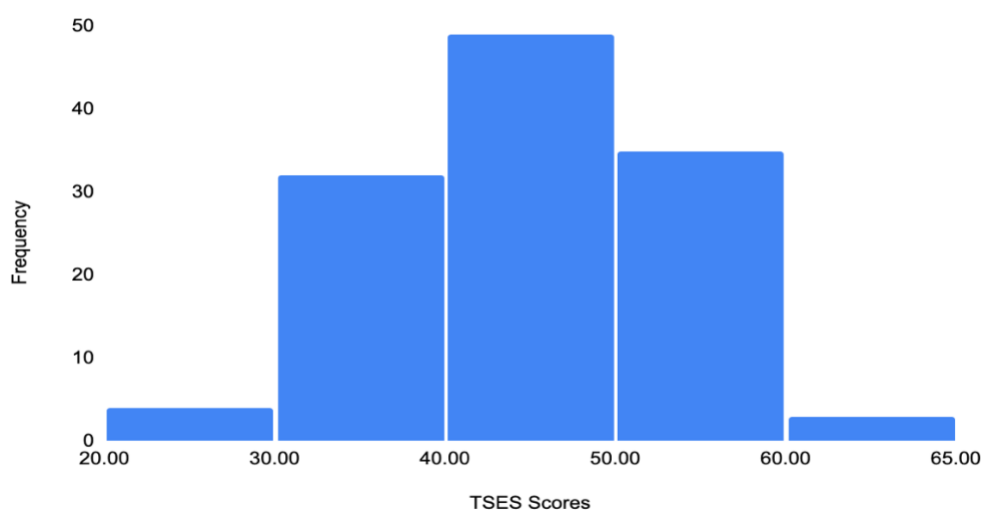
The Teacher Sense of Efficacy Scale Scores of Participants

The TSES uses a 5-point Likert scale which participants indicated responses ranging from (1) "none at all" to (5) "a great deal." The frequencies and percentages of each question are shown in Table 4.3. The totals from the scaled survey items were then calculated and reported in Table 4.4 based upon the levels of self-efficacy ranging from "none at all" to "a great deal."

Table 4. 3

Frequencies and Percentages for Teacher Sense of Efficacy Survey Scale Items (N = 123)

Question	1 None at All Frequency (%)	2 Very Little Frequency (%)	3 Some Degree Frequency (%)	4 Quite a Bit Frequency (%)	5 A Great Deal Frequency (%)
How much can you do to control disruptive behavior in the classroom?	1 (0.81%)	17 (13.82%)	34 (27.64%)	42 (34.15%)	29 (23.58%)
How much can you do to motivate students who show low interest in schoolwork?	2 (1.63%)	22 (17.89%)	46 (37.40%)	36 (29.27%)	17 (13.82%)
How much can you do to calm a student who is disruptive or noisy?	3 (2.44%)	26 (21.14%)	33 (26.83%)	39 (31.71%)	22 (17.89%)
How much can you do to help your students value learning?	2 (1.63%)	9 (7.32%)	37 (30.08%)	47 (38.21%)	28 (22.76%)
To what extent can you craft good questions for your students?	0 (0%)	1 (0.81%)	18 (14.63%)	57 (46.34%)	47 (38.21%)
How much can you do to get children to follow classroom rules?	3 (2.44%)	6 (4.88%)	42 (34.15%)	46 (37.40%)	26 (21.14%)

Question	1 None at All Frequency (%)	2 Very Little Frequency (%)	3 Some Degree Frequency (%)	4 Quite a Bit Frequency (%)	5 A Great Deal Frequency (%)
How much can you do to get students to believe they can do well in schoolwork?	2 (1.63%)	5 (4.07%)	30 (24.39%)	55 (44.72%)	31 (25.20%)
How well can you establish a classroom management system with each group of students?	1 (0.81%)	11 (8.94%)	21 (17.07%)	34 (27.64%)	56 (45.53%)
To what extent can you use a variety of assessment strategies?	3 (2.44%)	15 (12.20%)	25 (20.33%)	41 (33.33%)	39 (31.71%)
To what extent can you provide an alternative explanation or example when students are confused?	1 (0.81%)	6 (4.88%)	24 (19.51%)	45 (36.59%)	47 (38.21%)
How much can you assist families in helping their children do well in school?	5 (4.07%)	16 (13.01%)	45 (36.59%)	38 (30.89%)	18 (14.63%)
How well can you implement alternative teaching strategies in your classroom?	4 (3.25%)	18 (14.63%)	34 (27.64%)	33 (26.83%)	34 (27.64%)

While the most frequently reported group (43.09%) (Table 4.4) of teachers in this study believed they had a great deal of efficacy, as indicated by the TSES scale, the average number of teachers ($M = 44.64$; Table 4.2) believed they had quite a bit of self-efficacy. This means participants overall had high beliefs regarding their abilities as teachers.

Table 4. 4

Teacher Sense of Efficacy Participant Score Distribution

Teacher Sense of Efficacy Scores	Frequency ($N = 123$)	%
48 - 60 A great deal	53	43.09
36 – 47 Quite a bit	47	38.21
24 - 35 Some degree	23	18.70
12 – 23 Very little	0	0.00
0 – 11 None at all	0	0.00

The Cooperative Learning Implementation Questionnaire

The CLIQ was used to analyze data collected from participants regarding their attitudes and perceptions towards using cooperative learning in an online setting. This instrument is divided into three domains including demographic information (Section 1), professional views on cooperative learning (Section 2), and cooperative learning current practices (Section 3) (Abrami et al., 1998). Section two, the professional views domain, is used to gain an accurate understanding of teachers' attitudes towards cooperative learning and choice to implement this instructional strategy or not. This construct of 48 questions provides an overall picture of teachers' attitudes and perceptions towards cooperative learning. Section 2 is divided to address three categories; perceived value of the innovation, expectancy of success, and perceived cost (Abrami et al., 2004). The response scale ranged in responses from (1) "strongly disagree" to (5) "strongly agree." The current practices domain, Section 3, uses eight questions to explore the extent to which teachers implement cooperative learning and their purpose for using this

strategy. The response scale for this section ranged in responses from (1) "not at all" to (5)

"entirely." Thirty participants did not complete Section 3, current teaching practices, because

they do not currently use or have not used cooperative learning strategies in the past which

resulted in a total of 93 participants contributing data to Section 3. The mean scores for Section 2

and 3 of the CLIQ are recorded in Table 4.5. The scores for each participant were computed and

then averaged to find an overall score for each section of the Cooperative Learning

Implementation Questionnaire.

Table 4. 5

Overall Scores of the Cooperative Learning Implementation Questionnaire

Scale	*N*	Range	*M*	*SD*
CLIQ (S2)	121	129-221	179.93	20.07
CLIQ (E)	121	39-94	71.00	10.91
CLIQ (V)	121	48-104	79.53	11.28
CLIQ (C)	119	11-35	25.39	5.21
CLIQ (S3)	91	7-35	31.27	6.31

Note. Sections of the CLIQ were simplified to S2 - Section 2, E – Expectancy of Success, V –

Perceived Value, C – Perceived Cost, S3 – Section 3.

The boxplot (Figure 4.3) for the CLIQ Section 2 shows there are outlier cases, however,

these are not considered extreme outliers, so they remain part of the dataset. The CLIQ Section 3

had outlier cases including one extreme case which was deleted. After deleting this case, the

kurtosis coefficient was 1.38, meaning it is within normal range.

Figure 4. 3

CLIQ Section 2: Professional Views
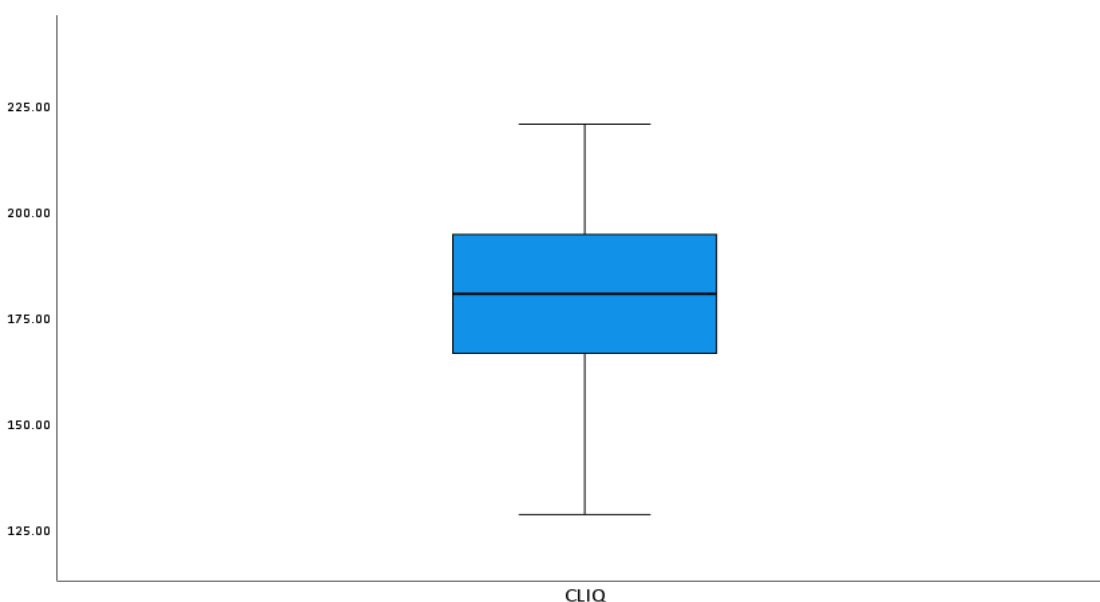
Reliability Analysis of Survey Scales

A Cronbach's alpha was computed to assess reliability for each survey. A measure is deemed reliable if the Cronbach's alpha score is above 0.70 (Frankfort-Nachmias & Nachmias, 2008). The subscales of the TSES and CLIQ exceeded Cronbach's alpha of 0.70 ranging from 0.80 to 0.91 (Table 4.6). The alpha scores for subscales in this study were consistent with the original TSES (Tschannen-Moran & Woolfolk Hoy, 2001) and the CLIQ (Abrami et al., 2004). According to the analysis, this survey is reliable and the subscales are valid measures.

Table 4. 6

Reliability Calculations of Each Section of Survey Scale

Survey Scale	Teacher Sense of Efficacy Scale	Cooperative Learning Implementation Questionnaire Scale: Professional Views on Cooperative Learning	Cooperative Learning Implementation Questionnaire Scale: Current Teaching Practices
No. of Items	12	48	7
Cronbach's Alpha	0.91	0.80	0.90

Missing Data

The TSES was missing one case. The mean score was used to replace the missing case as this is the acceptable procedure for treating missing data (Frankfort-Nachmias & Nachmias, 2008). A total of 123 full cases are reported for the TSES. The Cooperative Learning Implementation Questionnaire (CLIQ), Section 2, was missing five cases. The mean score of participants was used to replace three of the cases and two cases were deleted because the majority of their responses were blank (Frankfort-Nachmias & Nachmias, 2008). Section 2 of the CLIQ has a total of 121 cases. The CLIQ, Section 3, was missing one case. This case was eliminated and not replaced because there are only seven items in this section and one missing item (14%) would exceed the rules of sampling replacement (Frankfort-Nachmias & Nachmias, 2008). Missing data in the demographic section was not adjusted to fill in the missing information.

<div align="center">

Research Question Findings

</div>

Data were collected from the TSES and CLIQ in order to fulfill the purpose of this study. Data were gathered from these two survey scales along with responses from two open-ended questions and analyzed in effort to answer the five research questions in this study. The survey provided insight into the relationships between teachers' self-efficacy in an online setting and teachers' attitudes and perceptions towards using cooperative learning in an online setting. The results of the data analyses are provided in the following sections.

The number of participants for research questions one, two, four, and five differs from the number of participants for question three. Question three is pertinent only to participants who have used or currently use cooperative learning and requests information about their usage. There was a total of 123 participants in this study. The data from the 123 participants was used

for the demographic profile and for research question two. Of the 123 participants, 121 provided

data for the CLIQ Section 2, and 91 participants provided data for the CLIQ Section 3 which

were used for research questions one and two. For research question three, 93 participants

provided data required to calculate the frequency of the types of cooperative learning strategies

used by participants.

Research Questions 1 to 3

Research questions one through three will be outlined and discussed. The calculations of

each variable, Pearson's r coefficient (Figure 4.4), and Spearman's rho correlation are provided

(Figure 4.5) and described in the following sections.

Figure 4. 4

Path Model: R-Value Correlations Between Teacher Self-Efficacy and Cooperative Learning
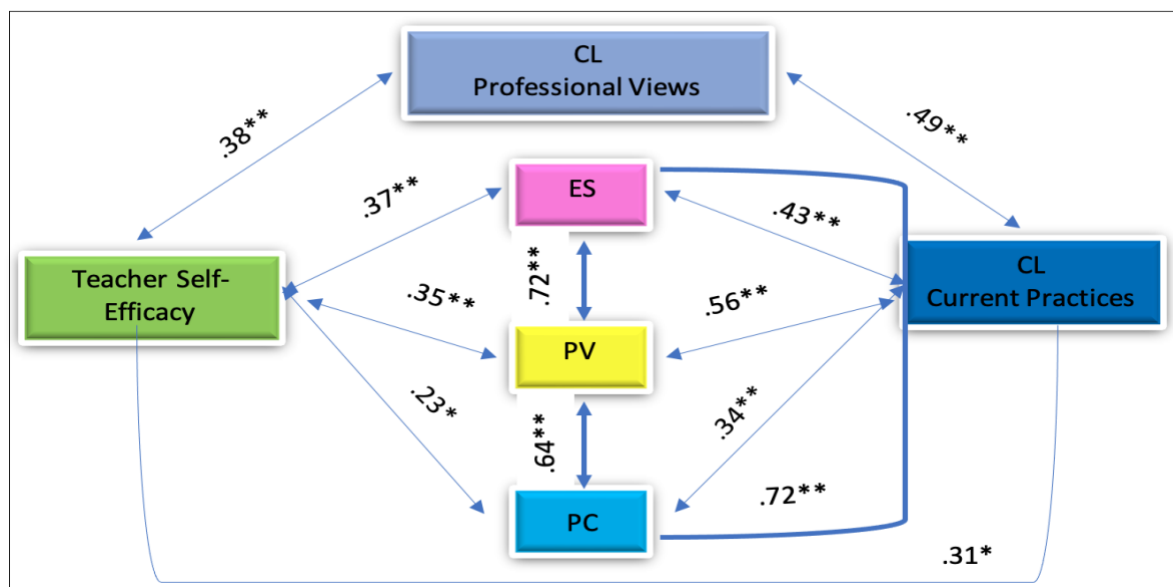
Note. The path analysis shows associations between the TSES and CLIQ. **$p < 0.01$ (2-tailed),

*$p < 0.05$ (2-tailed); Pearson's r coefficients reported between all ratio variables; Subsections of

the CLIQ were simplified to ES – Expectancy of Success, PV – Perceived Value, PC – Perceived

Cost

Research Question 1: What is the relationship between teachers' self-efficacy and teachers'
attitudes and perceptions towards using cooperative learning strategies in an online setting?

The variable of teachers' attitudes and perceptions towards cooperative learning was
calculated by averaging the mean scores ($M = 179.93$, $SD = 20.07$) of all participants in Section
2, including the subcategories of expectancy, value, and cost, of the CLIQ as shown in Table 4.5.
The variable of teachers' self-efficacy was calculated by averaging the mean scores ($M = 44.64$,
$SD = 8.19$) of participants in the TSES (Table 4.2). To assess the relationship between teachers'
attitudes and perceptions towards cooperative learning and teachers' self-efficacy, Pearson's r
was calculated. The result of this analysis, as shown in Table 4.7, indicates there is a significant,
moderate, positive relationship between the variables of teachers' self-efficacy and the CLIQ
Section 2, $r(121) = 0.38$, $p < 0.01$.

Also represented are the correlations between teachers' self-efficacy and the subsections
of the CLIQ Section 2. Participants who expected cooperative learning to be successful were
positively and moderately correlated with teachers' self-efficacy, $r(121) = 0.37$, $p < 0.01$.
Teachers who perceived the value of cooperative learning were positively and moderately
correlated with teachers' self-efficacy, $r(121) = 0.35$, $p < 0.01$. There was a significant and weak
correlation, $r(119) = 0.23$, $p < 0.01$, among participants' perceived cost of using cooperative
learning and teachers' self-efficacy. Teachers who reported being active or past users of
cooperative learning in an online setting were positively and moderately correlated, $r(91) = 0.31$,
$p < 0.01$, with teachers' self-efficacy.

Table 4. 7

Correlation: Teachers' Sense of Efficacy Scale (TSES) vs. Cooperative Learning Implementation

Questionnaire (CLIQ)

Variable	N	M	SD	1	2	3	4	5	6
1. TSES	123	44.64	8.19	-					
2. CLIQ (S2)	121	179.93	20.07	.38**	-				
3. CLIQ (ES)	121	70.95	10.91	.37**	.90**	-			
4. CLIQ (PV)	121	79.53	11.28	.35**	.92**	.72**	-		
5. CLIQ (PC)	119	25.39	5.21	.23*	.81**	.72**	.64**	-	
6. CLIQ (S3)	91	31.27	6.31	.31**	.49**	.43**	.56**	.34**	-
7. YOT	123	3.64	1.03	.19*	.19*	.23*	.15	.09	.08

Note. **p < 0.01 (2-tailed), *p < 0.05 (2-tailed); Pearson's *r* coefficients reported between all

ratio variables; Spearman rho correlation coefficient calculated for ordinal variables (YOT);

Sections of the CLIQ were simplified to S2 – CLIQ Section 2, ES – Expectancy of Success, PV

– Perceived Value, PC – Perceived Cost, S3 – CLIQ Section 3 and YOT – Years of Teaching

experience from the demographic information.

Research Question 2: What is the relationship between teachers' attitudes and perceptions

towards using cooperative learning strategies in an online setting and teachers' years of

experience teaching?

The variable of teachers' attitudes and perceptions towards cooperative learning was

calculated by averaging the mean scores (*M* = 179.93, SD = 20.07) of all participants in Section

2 of the CLIQ (Table 4.7). Most participants (*n* = 47) in this study reported having 16 to 24 years

of teaching experience (Table 4.1). The average scores of participants', based on the ordinal

number of years of teaching experience, were reported in the following subsections of the CLIQ:

expectancy of success (*M* = 70.95, *SD* = 10.91)*,* perceived value (*M* = 79.53, *SD* = 11.28),

perceived cost (*M* = 25.39, *SD* = 5.21), and CLIQ Section 3 (*M* = 31.27, *SD* = 6.31).

A Spearman's rho was used to calculate the relationship between teachers' attitudes and

perceptions towards cooperative learning strategies and their years of teaching experience (Table 4.7). The results of this analysis indicate there was a weak positive yet statistically significant relationship between the two variables, $r_s(123) = 0.19$, $p < 0.05$ (Table 4.7). There was also a significant and weak positive relationship, $r_s(123) = 0.23$, $p < 0.05$ between teachers' years of experience and expectancy of success with implementing cooperative learning. This shows that teachers' attitudes and perceptions towards cooperative learning in an online setting are positively correlated with teachers' years of overall teaching experience. However, there are only slight differences between the years of teaching experience and each section of the CLIQ which explains the weak correlation between the variables. Additionally, non-significant correlations were observed between teachers' years of experience and perceived cost, perceived value, and current teaching practices (Figure 4.5).

Figure 4. 5

Correlations Between Teachers' Years of Experience and CLIQ Sections 2 and 3
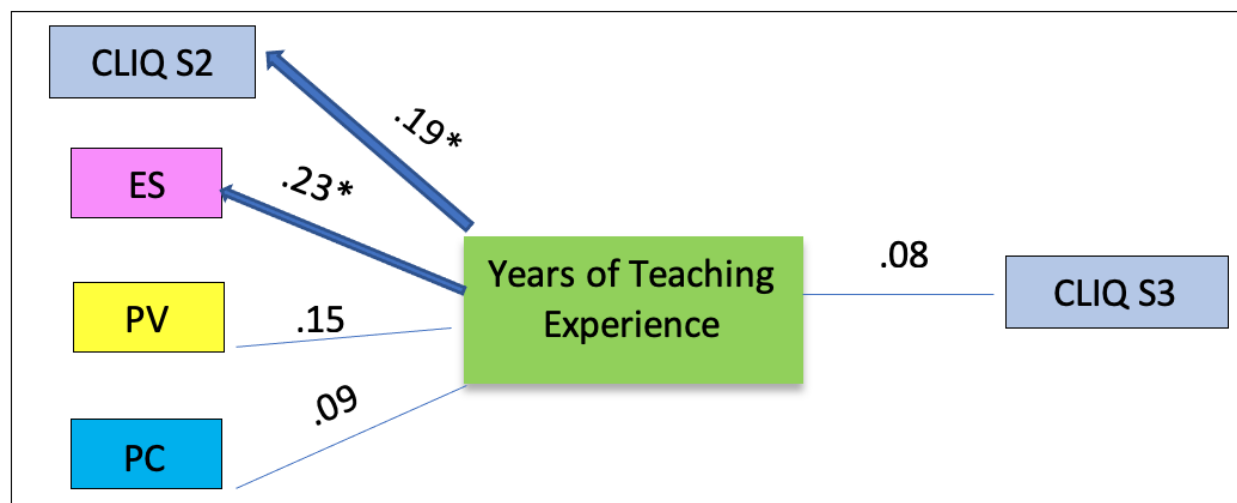
Note. *$p < 0.05$ (2-tailed); Sections of the CLIQ were simplified to S2 - Section 2, ES – Expectancy of Success, PV – Perceived Value, PC – Perceived Cost, S3 – Section 3

Research Question 3: Which cooperative learning strategies are used most frequently in an

online classroom setting?

Table 4.8 shows the frequencies and percentages of cooperative learning strategies used

as identified by participants in this study. The most frequently used strategy was think-pair-share

($n = 77$, 23.62%). The second most frequent strategy identified was group investigation ($n = 58$,

17.80%). Third in frequency was the roundtable strategy ($n = 38$, 11.66%). The fourth most

frequently used strategy was four corners ($n = 31$, 9.51%). The jigsaw strategy is the fifth most

frequently used strategy ($n = 29$, 8.90%).

Table 4. 8

Cooperative Learning Strategies Used

Cooperative Learning Strategies	Frequency (n)	Percentage (%)
Think, Pair Share	77	23.62
Group Investigation	58	17.80
Roundtable	38	11.66
Four Corners	31	9.51
Jigsaw	29	8.90
Round Robin	25	7.67
Write-around	21	6.44
Numbered Heads Together	13	3.99
Cooperative Graffiti	12	3.68
Rally Coach	11	3.37
Other	11	3.37
Total	326	100

Figure 4.6 shows the number of strategies used by the participants. The largest

percentage (22%) of participants reported using two cooperative learning strategies in an online

setting. The next largest (20%) of participants claimed to use four cooperative learning strategies

in their online class. The third largest number (19%) of participants stated using three

cooperative learning strategies in an online setting.

Figure 4. 6

Number of Cooperative Learning Strategies Used
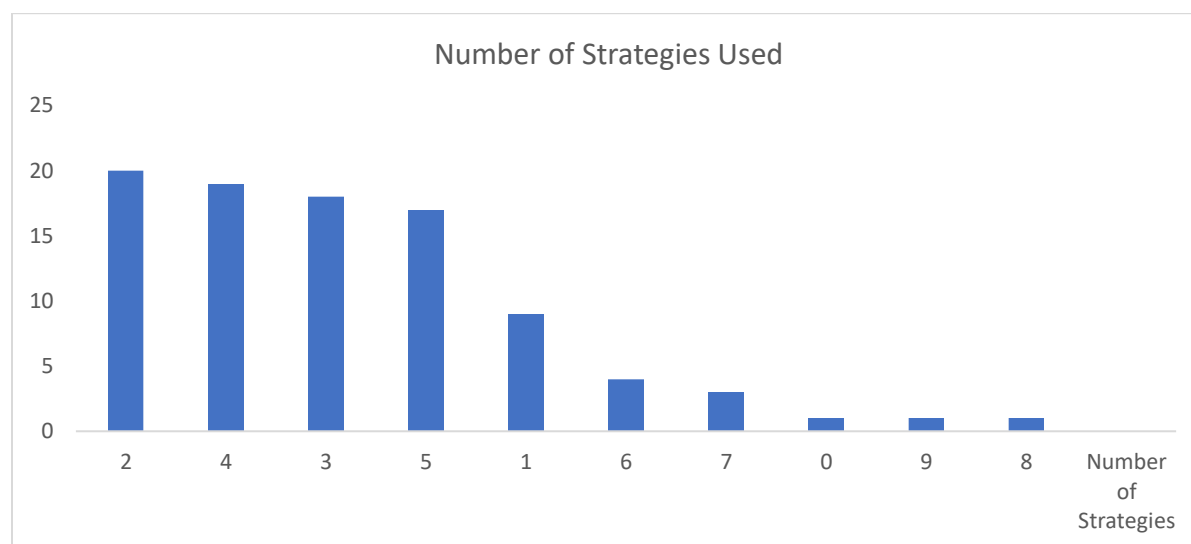
Research Questions 4 to 5

Qualitative data analysis was conducted to analyze research questions four and five that were addressed by the two open-ended questions included in the survey scale. These two questions were devised to capture the specific attitudes and perceptions of teachers towards cooperative learning in an online setting as well as the detailed experiences that contributed to teachers' levels of self-efficacy in an online setting. There were 93 out of 123 participants who responded to the question regarding teachers' specific attitudes and perceptions towards using cooperative learning in an online classroom. Ninety-two of 123 participants responded to the question regarding teachers' specific experiences contributing to their high and low levels of self-efficacy when using cooperative learning strategies in an online setting. Tables 4.9 and 4.11 outline the codes used for each of the two qualitative questions and their frequencies.

The researcher used a hybrid approach of inductive and deductive coding. During open coding, the researcher first read through the data several times. The researcher started to create preliminary labels for chunks of data that were occurring in the data. An initial set of codes was

used to capture key ideas for an overall structure to align with the research questions. Next, in axial coding, the researcher used Dedoose software to identify patterns and relationships between the codes and to develop themes with supporting data. Interpretations were made based on patterns, categories, and themes that emerged and will be elaborated in the following sections. Codes were collected and organized in a codebook using Dedoose and Microsoft Excel. The results of the coded qualitative data analysis will be provided, and the major themes will be presented in the following sections.

Research Question 4: What are the perceptions of teachers towards using cooperative learning strategies in an online setting and how are they influenced by other factors?

Participants' responses were initially coded as positive, negative, or neutral indicating their overall sentiment towards cooperative learning (Appendix E). The frequencies and averages of the initial codes are displayed in Table 4.9. Of the 93 participants who responded to this question, 42 (45%) had an overall positive sentiment towards cooperative learning (Figure 4.7). Negative sentiments towards cooperative learning were reported by 37 (40%) participants. Fourteen participants (15%) posed an overall neutral sentiment towards cooperative learning.

Figure 4. 7

Teachers' Attitudes Towards Cooperative Learning Strategies
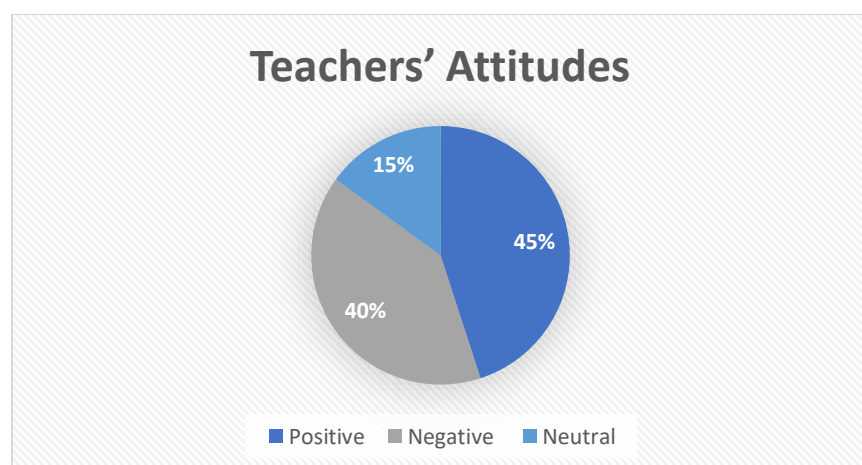
Dedoose software was used in axial coding to categorize codes used to describe participants' perceptions towards cooperative learning in an online setting and the factors that contributed to their perceptions (Appendix F). Ensuing codes and categories that influenced the final selective codes are displayed in Table 4.9. The final selective codes produced the following themes of (a) attitudes, (b) limitations, (c) impact on students, and (d) strategies. These themes are indicated in Table 4.9 showing the frequencies and percentages of participant responses. They have been placed in order from most prevalent to least prevalent according to the number of participant responses that were coded and contributed to the themes. Examples of participants' comments for each theme are provided in Table 4.12. The first theme of attitudes developed from the individual comments that were coded as positive, negative, or neutral. Of the total 126 comments coded, 61 (48%) were negative, 51(41%) were positive, and 14 (11%) were neutral as shown in Table 4.9. In regard to the negative codes, 27 (44%) of the comments were in relation to difficulties implementing cooperative learning in an online setting. The largest group of positive codes (20%) regarding cooperative learning online related to student benefits.

The second theme, limitations, developed out of the difficulties and challenges participants shared of their experiences in an online setting. There was a total of 51 comments coded as limitations. The most prevalent code (53%) contributing to this theme of limitations was difficulties implementing cooperative learning in an online setting. The third theme, perceptions of impact on students, emerged from the experiences teachers had with students in online classes and their perceptions of impact on students. The perceived impact on students resulted from a total of 50 codes. The largest group of comments coded for this theme was student benefits (20%).

The final theme, strategies, was derived from the specific instructional strategies teachers

used including breakout rooms and small groups and resources used such as shared applications.

A total of 31 comments were coded for strategies. The largest group of codes in this category

related to the use of effective instructional strategies (32%) and the use of breakout rooms (32%)

in an online setting.

Table 4. 9

Coded Categories of Teachers' Attitudes and Perceptions Towards Cooperative Learning

(N = 126)

Categories	Codes	Frequency (n)	Percentage (%)
1. Attitudes			
Negative		61	48
	Difficult to implement online	27	44
	Difficult with grade level or class	8	13
	Negative student engagement	6	10
	Technological difficulties	5	8
	Difficult for classroom management	5	8
	Lack of training for teachers	3	5
	Negative academically for students	3	5
	Parent opposition or challenges	3	5
	Negative socially for students	1	2
Positive		51	41
	Student benefits	10	20
	Effective instructional strategies	9	18
	Social advantages for students	8	16
	Specific helpful strategies	7	14
	Increased student engagement	6	12
	Increase in student responsibility	4	8
	Positive academically for students	4	8
	Improved technology skills for students	3	6
Neutral		14	11
2. Limitations		51	41
	Difficult to implement online	27	53
	Difficult with grade level or class	8	15
	Difficult for classroom management	5	10
	Technological difficulties	5	10

Categories	Codes	Frequency (*n*)	Percentage (%)
	Parent opposition or challenges	3	6
	Lack of training	3	6
3. Perceptions of impact on students		50	40
	Student benefits	10	20
	Social advantages for students	8	16
	Increased student engagement	6	12
	Negative socially	6	12
	Decrease in student engagement	6	12
	Increase in student responsibility	4	8
	Positive academically	4	8
	Improved technology skills	3	6
	Negative academically	3	6
4. Strategies		31	24
	Effective instructional strategie	10	32
	Breakout rooms	10	32
	Small groups	8	26
	Google applications (shared documents, slides etc.)	3	10

Research question four was designed to capture the dispositions of teachers towards cooperative learning. The comments provided in Table 4.10 reveal the sentiments of teachers during their online teaching experiences. All comments coded by participants in this study regarding teachers' attitudes and perceptions towards cooperative learning are in Appendix C.

Table 4. 10

Comments Coded on Participants Perceptions Towards Cooperative Learning

Themes	Example Quotes
Attitudes	*Positive:* "Cooperative learning in an online classroom setting is imperative. Children need time and space to clarify their thinking and communicate their ideas clearly. Cooperative learning provides the necessary parameters to accomplish these goals."
	Negative: "Cooperative learning in an online setting is hard; getting them to engage in online learning, in general, was tough; getting them to engage and follow through with cooperative learning while online was near impossible;

Themes	Example Quotes
	lower turn in and success rate when teaching online."
Limitations	"Online learning makes it challenging because of the Internet quality, background noise, varying attendance and time it takes to set up breakout rooms."
Impact on students	*Positive:* "Positive perception of cooperative learning and online settings. Cooperative learning helps to alleviate the concerns of isolation within online learning; creates an opportunity for students to engage with different students they may otherwise choose not to; Cooperative leaning allows you grow another aspect of a student and introduce another entity within a learning modality."
	Negative: "Low level learners do not progress. reliant on higher level learners to accomplish tasks."
Strategies	"Cooperative learning strategies and collaborative activities are essential to online learning. Break Out rooms, cooperative learning strategies and collaborative activities can be easily implemented."

Research Question 5: What experiences contribute to high and low levels of teachers' self-efficacy towards using cooperative learning strategies in an online setting?

Participants' experiences were initially coded as positive, negative, or neutral indicating their overall experiences that contributed to their levels of self-efficacy towards using cooperative learning strategies in an online setting (Appendix G). Sixty-eight participants responded to this question including 38 (56%) who expressed positive experiences contributing to their self-efficacy. Twenty-five (37%) participants were deemed to have overall negative experiences contributing to their self-efficacy and five (7%) participants were considered having neutral experiences (Figure 4.8).

Figure 4. 8

Teacher Experiences Contributing to Self-Efficacy
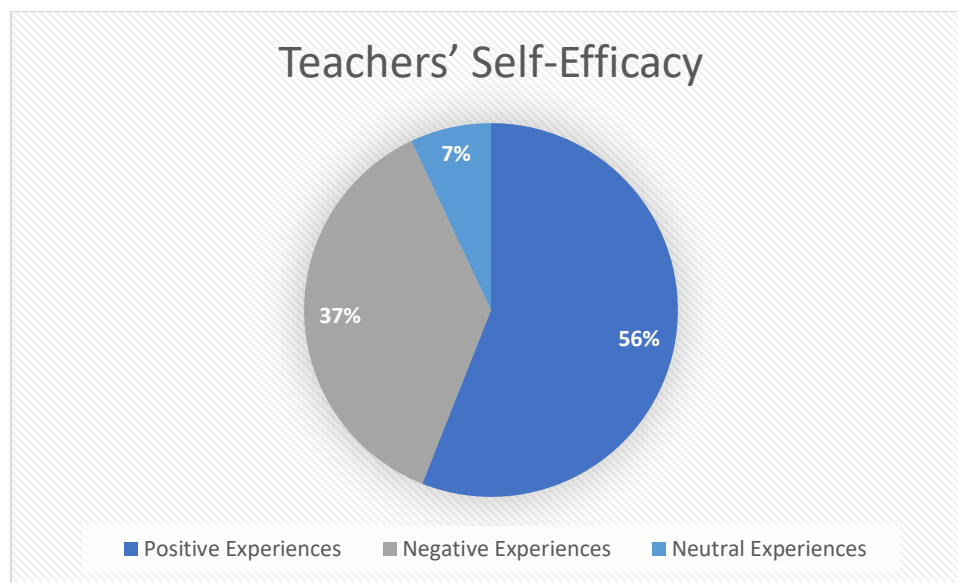
Axial codes were identified and categorized using Dedoose coding software (Appendix H). This software program calculated the number of codes that were identified in each category. Subsequent axial coded categories that contributed to the final selective codes are displayed in Table 4.11. The final selective codes produced the following themes of (a) experiences, (b) strategies, (c) limitations, and (d) teacher capacity. These themes are indicated in Table 4.11 showing the frequencies and percentages of participant responses that were coded into each theme and have been ordered from most prevalent to least prevalent. Examples of participants' comments related to each theme are displayed in Table 4.12.

The first theme of experiences was derived from 118 positive, negative, and neutral experiences that were coded from experiences participants had contributing to their self-efficacy. The majority ($n = 69$, 59%) of participants reported overall experiences that were positive. Negative experiences contributing to self-efficacy were claimed by 44 (37%) participants. Five participants (4%) had overall neutral experiences contributing to their self-efficacy.

The second theme, strategies, materialized from the examples that were provided of specific instructional strategies, training and practice with strategies, and groupings of students. Of the total 61 comments contributing to this theme, 20 (33%) were related to the experiences teachers had with the strategies used that contributed to their self-efficacy. The structuring and use of groups was the second largest contributor (25%) and teacher training and practice with cooperative learning (16%) was the third largest contributor to the theme.

The third theme of limitations emerged from the lack of capacity teachers had or experienced including, but not limited to, lack of training and support, and challenges with students and technology. Forty-five comments were coded that contributed to this theme. The largest group of comments (29%) were in regard to lack of student participation in an online setting that contributed to teachers' limitations. Fifteen percent of the comments contributing to limitations was the lack of training and support in cooperative learning strategies. Teachers also reported difficulty motivating students as 13% of the comments led to limitations.

The final theme, teacher capacity, had a total of 42 axial codes and resulted from the abilities and experiences teachers described that built their capacity and self-efficacy towards cooperative learning in an online setting. The strategies teachers used (48%) reflected most of the coded comments contributing to the experiences teachers had that positively impacted their capacity and self-efficacy in online settings. Training and practice with cooperative learning (24%) contributed to the theme of teachers' capacity. Classroom management was the third largest group contributing to 10% of the coded comments in the theme of teacher capacity.

Table 4. 11

Coded Categories of Experiences Contributing to Teacher Self-Efficacy

Categories	Codes	Frequency (*n*)	Percentage (%)
1. Experiences		118	
Positive		69	59
	Strategies used	20	29
	Groups	15	22
	Teacher training / practice	10	15
	Parental support	5	7
	Classroom management	4	6
	Rapport with students	3	4
	Selection of topics	3	4
	Teacher flexibility	3	4
	Office hours	2	3
	Student participation	2	3
	Years of teaching experience	2	3
Negative		44	37
	Lack of student participation	13	30
	Lack of training / support	7	16
	Difficult to motivate students	6	13
	Lack of parent support	4	9
	Classroom management	4	9
	Difficult to implement in online setting	4	9
	Grade level / student abilities	3	7
	Lack of strategies to use online	3	7
Neutral Experiences		5	4
2. Strategies		61	
	Strategies used	20	33
	Groups	15	25
	Teacher training / practice	10	16
	Breakout rooms	8	13
	Teacher flexibility	3	5
	Selection of topics	3	5
	Years of teaching experience	2	3
3. Limitations		45	
	Lack of student participation	13	29
	Lack of training / support	7	15

Categories	Codes	Frequency (*n*)	Percentage (%)
	Difficult to motivate students	6	13
	Lack of parent support	4	9
	Lack of class control	4	9
	Difficult to implement in online setting	4	9
	Grade level / student abilities	3	7
	Lack of strategies to use in online setting	3	7
	Grading	1	2
4. Teacher Capacity		42	
	Strategies used	20	48
	Teacher training / practice	10	24
	Classroom management	4	10
	Teacher flexibility	3	7
	Selection of topics	3	7
	Years of teaching experience	2	4

Participants in this study commented on their specific experiences in an online setting that contributed to their self-efficacy towards cooperative learning. The following examples in Table 4.12 are provided to illustrate the sentiments of teachers during their online teaching experiences.

Table 4. 12

Example Quotes Supporting Themes of Self-Efficacy

Theme	Example Quotes
Attitudes	*Positive:* "Extensive teaching experience online and in-person across a variety of class subjects. Regularly attend trainings and workshops." *Negative:* "Thrown into online learning, no online training or experience. Class was too young to begin using Google Classroom; relied heavily on parent support. Relied heavily on colleagues, long days, self-training, trial and error, frustration, and self-doubt."
Strategies	"Small group instruction; think pair share, break out rooms"
Limitations	"No experience and lack of training for online learning equals low levels of self-efficacy."
Teacher Capacity	"Training I received and personal experiences, I have confidence in what I do. I have been teaching for over 20 years, so I know how to deal with certain behaviors within the classroom and motivate students by instilling value within them."

Summary

The findings of the three quantitative and two qualitative research questions were presented in this chapter. The outcomes of the three quantitative questions were outlined and the findings of the two qualitative questions were reviewed and discussed. Additionally, the results of the survey and the demographic descriptive statistics were presented. Moreover, the standard scores and reliability of the survey scales were analyzed. The findings presented in chapter four will be discussed further in chapter five.

CHAPTER 5: SUMMARY AND DISCUSSION

This study intended to determine if there was a relationship between teachers' attitudes and perceptions towards cooperative learning strategies and teachers' self-efficacy in an online setting. Chapter five will further explain and discuss the findings revealed in Chapter four. Furthermore, the results from Chapter four will be connected to relevant research from the literature review in Chapter two. The findings from this study will be connected to existing research and provide recommendations for further research surrounding this topic. Finally, the limitations and delimitations of this study will be reviewed.

Summary of the Study

This study was guided by the following quantitative and qualitative research questions:

Quantitative Research Questions

1. What is the relationship between teachers' self-efficacy and teachers' attitudes and perceptions towards using cooperative learning strategies in an online setting?

2. What is the relationship between teachers' attitudes and perceptions towards using cooperative learning strategies in an online setting and teachers' years of experience teaching?

3. Which cooperative learning strategies are used most frequently in an online classroom setting?

Qualitative Research Questions

4. What are the perceptions of teachers towards using cooperative learning strategies in an online setting and how are they influenced by other factors?

5. What experiences contribute to high and low levels of teachers' self-efficacy towards using cooperative learning strategies in an online setting?

The purpose of this study was to better understand the relationship between teachers' self-efficacy and teachers' attitudes and perceptions towards cooperative learning in an online setting. This study utilized a mixed-methods research methodology to answer the research questions. A survey was created compiling the Teachers' Sense of Efficacy Scale (TSES; Tscahnnen-Moran & Woolfolk Hoy, 2001), the Cooperative Learning Implementation Questionnaire (CLIQ; Abrami et al., 1998), and two free response questions. Demographic information about participants was also gathered.

The quantitative data gathered for the correlational research design of this study primarily focused on the variables of teachers' self-efficacy, teachers' attitudes and perceptions towards cooperative learning strategies, and teachers' years of teaching experience. First, the TSES provided an overall picture of teachers' sense of their abilities to complete their teaching tasks. Second, the CLIQ depicted teachers' dispositions towards cooperative learning strategies. Descriptive statistics were conducted on the survey scales (TSES and CLIQ) and the demographic profile are explained in Chapter four. The frequencies and percentages of items in the scales were used for data analysis. The overall scores of the three variables, teachers' self-efficacy, teachers' attitudes and perceptions towards cooperative learning, and teachers' years of teaching experience were used for correlational computations. The results of these correlations contributed to the quantitative findings of research questions one and two.

The qualitative research design of this study collected information about the two variables addressed in this study. The qualitative data concentrated on the specific attitudes and perceptions of teachers towards cooperative learning strategies in an online setting and the factors that influenced their perceptions. Also examined were teachers' experiences that contributed to their levels of self-efficacy as a teacher in an online setting. Open, axial, and

selective coding were used to identify the themes that emerged from the data. The coded data and themes that were derived were reviewed and discussed to provide a broader understanding of the research variables. The results from the quantitative data and interpretations from the qualitative data were triangulated with the literature research to draw conclusions and implications for this study.

<div align="center">**Quantitative Research Question Summary**</div>

Research Questions 1 to 3

Research Question 1: What is the relationship between teachers' self-efficacy and teachers' attitudes and perceptions towards using cooperative learning strategies in an online setting?

Research question one was addressed and answered by the use of the TSES and the CLIQ, which provided scores for each participant in the study. The results of the descriptive statistics regarding the TSES showed the average number of the participants had quite a bit of self-efficacy. Overall participants' scores for the CLIQ Section 2, professional views, demonstrated teachers having positive perceptions of cooperative learning. To assess the relationship between the two variables, a Pearson's r was calculated. The results of this analysis indicated that there was a moderate positive correlation between teachers' sense of efficacy and the CLIQ Section 2, teachers' professional views towards cooperative learning, $r(123) = 0.38$, $p < 0.01$. This suggests that teachers with higher levels of self-efficacy also have positive attitudes towards cooperative learning in an online setting.

Furthermore, the individual subsections of the CLIQ Section 2 were correlated with teachers' sense of efficacy. The results from these sections will provide a closer look into teachers' perceptions towards cooperative learning. The first subsection, expectancy of success, focused on teachers' beliefs in their abilities to implement cooperative learning (Abrami et al.,

2004). The items included in this section explore teachers' perceptions of the factors contributing to the desired outcomes (Abrami et al., 2004). In this case, the average score for expectancy of success ($M = 70.95$, $SD = 10.91$) indicated that teachers felt strongly towards their ability to implement cooperative learning. These results reflected that teachers believed they could be successful implementing cooperative learning. Next, a correlation test was conducted between teachers' sense of efficacy and expectancy of success resulting in a moderate and positive correlation of $r(121) = 0.37$, $p < 0.01$ implying that teachers with higher levels of self-efficacy expected cooperative learning to be a successful strategy. Previous studies have found that teachers who feel an ease of use with cooperative learning tend to have a high expectancy of success towards using this strategy (Jolliffe & Snaith, 2017; Ruys et al., 2010). The inference that can be made from these results is that teachers who are comfortable using cooperative learning and have high expectations for implementing it also have high levels of belief in their capacity to execute it in an online setting.

Another perspective from teachers regarding cooperative learning is explained in the perceived cost subsection of the CLIQ. This section provides insight into the challenges for teachers that may be involved with implementing cooperative learning such as time preparing lessons, aligning lessons with the curriculum, gathering materials needed for the lessons, structuring groups, and the amount of class time cooperative learning lessons take to be successfully implemented (Abrami et al., 2004; Buchs et al., 2017). There was a moderately positive correlation, $r(119) = 0.23$, $p < 0.01$, between teachers' sense of efficacy and the perceived cost of cooperative learning. This would suggest teachers understand the costs involved with using cooperative learning, however, still feel strongly in their abilities to implement it successfully. Moreover, there was a strong positive correlation, $r(119) = 0.72$, $p <$

0.01, between teachers' perceived cost and teachers' expectancy of success. This correlation suggests that teachers had a strong recognition of the costs involved in implementing cooperative learning. Costs that may be involved with using cooperative learning in an online setting include challenges with classroom management, decreased student participation, properly structuring groups, and overseeing the groups. Despite the potential costs involved, there was a moderately positive correlation $r(91) = 0.34$, $p < 0.01$ between teachers' perceptions of cost involved and current teaching practices. This may suggest that regardless of teachers' acknowledgement of the potential difficulties they may encounter with cooperative learning, those factors do not significantly impact their use of this practice.

The third subsection, perceived value, relates to teachers' opinions regarding how much the outcomes of the strategy will be beneficial and worthwhile (Abrami et al., 2004). When implementing instructional strategies, teachers must consider the benefits of using the strategy in their class. Teachers might ask themselves how using the strategy improves their teaching practices, aligns with their teaching philosophy, or could advance their career (Abrami et al., 2004). Benefits to the students such as increased academic achievement, social interactions, positive attitudes, and improved social skills should also be considered by teachers (Abrami et al, 2004). If students and teachers are benefitting from their learning experiences, then teachers may consider those instructional practices valuable.

The average perceived value reported by participants in this study suggest that teachers strongly believe in the value of cooperative learning and the benefits it provides students and teachers. The results show a moderate and positive relationship, $r(121) = 0.35$, $p < 0.01$, between perceived value and teachers' sense of efficacy indicating that teachers' beliefs in their efficacy correlates with their perceived value of cooperative learning. Teachers may be highly efficacious

because they choose to use instructional strategies that are valuable such as cooperative learning. Likewise, there was a strong positive correlation, $r(121) = 0.72$, $p < 0.01$, between perceived value and expectancy of success. The implication of this correlation is that teachers believe cooperative learning is a valuable instructional strategy and that they will be successful implementing it in an online setting. Finally, there was also a strong positive correlation between teachers' perceptions of value and perceptions of cost, $r(119) = 0.64$, $p < 0.01$, which implies that while teachers perceive there to be a significant cost involved with cooperative learning, the costs are outweighed by the benefits of this strategy. When correlated with current teaching practices, the relationship with perceived value is positive and strong, $r(91) = 0.56$, $p < 0.01$. This result suggests that teachers' perceptions of the value of cooperative learning impacts their likelihood of implementation of this strategy. Overall, teachers appear to believe in their abilities to use cooperative learning successfully in an online setting. The high levels of self-efficacy and positive attitudes of teachers towards cooperative learning suggest that teachers believe there are both benefits and successes from using cooperative learning strategies in an online setting.

The findings of other studies regarding teachers' sense of self-efficacy and teachers' attitudes and perceptions towards cooperative learning correspond with research question one. Positive relationships between teachers' self-efficacy and cooperative learning have been reported in several studies (Abrami et al., 2004; Chan et al., 2021; Saborit et al., 2016). Hulewicz (2020) found that teacher efficacy towards cooperative learning was a moderate predictor of using this strategy. Kirik and Markic (2012) assessed pre-service elementary teachers' self-efficacy and their use of cooperative learning in science classes. The conclusions of the study by Kirik and Markic showed 90% of pre-service teachers believed they were confident in implementing the cooperative learning strategy in science instruction. Teachers' self-efficacy is

one of the traits that accurately predicts teaching practices (Zee et al., 2016). Two recent studies

found the inverse to be true as well; cooperative learning can increase teachers' levels of self-

efficacy (Aslan, 2022; Chan et al., 2021). This makes sense because research has shown

cooperative learning to be a successful instructional strategy, therefore, if teachers are using a

strategy that is producing results, then their efficacy as a teacher will likely increase.

Subsequently, it becomes a cycle as the more frequently teachers use cooperative learning, the

more comfortable they will become with implementing it and their levels of efficacy will

improve as a result.

Teachers in this study seemingly affiliate their beliefs with Bandura's (1977) social

cognitive theory in that peoples' beliefs in what they can accomplish impacts what they choose

to do and how much effort they exert to do it. Teachers with higher levels of self-efficacy believe

they are capable of using cooperative learning and therefore use it as a reliable and valuable

instructional practice (Hulewicz, 2020). Teachers must believe they are effective in order to be

effective in their role as a teacher (Corry & Stella, 2018). Participants in this study appeared to

agree with the findings of other studies in that cooperative learning is an effective social learning

strategy for students and using this strategy is based on their beliefs in their abilities to

effectively implement it.

Research Question 2: What is the relationship between teachers' self-efficacy and teachers'
attitudes and perceptions towards using cooperative learning strategies in an online setting?

Research question two was addressed and answered by the use of the Cooperative

Learning Implementation Questionnaire and teachers' years of teaching experience. The reported

number of years teachers in this study have been teaching varied from less than one year to over

25 years (Table 4.1). Of the 123 participants, the largest group 38% ($n = 47$), had 16 to 24 years

of teaching experience. The next largest group 23% ($n = 28$) had 6 to 15 years of experience. Similar in numbers, teachers with 25 or more years of experience represented 22% ($n = 27$). Teachers with two to five years of experience was reported by 16% ($n = 20$). The smallest group 1% ($n = 1$) had zero to one year of teaching experience.

A Spearman's rho was used to assess if there was a correlation between the variable of teachers' years of teaching experience and teachers' attitudes and perceptions towards cooperative learning in an online setting. The results showed a significant and weak, positive relationship, $r_s(123) = 0.19$, $p < 0.05$, between teachers' attitudes and perceptions towards cooperative learning strategies and their years of teaching experience. Because the largest group of participants in this study had 16 to 24 years of experience, it is suggested that teachers with more years of teaching experience have more positive attitudes and perceptions towards cooperative learning (Figure 5.1). This is also supported by teachers' years of experience and the number of positive coded experiences expressed in research question four (Figure 4.6). A stronger, yet still weak relationship, $r_s(123) = 0.23$, $p < 0.05$, occurred when teachers' expectancy of success and teachers' years of teaching experience were correlated. A similar inference can be made that teachers who have taught more years expect the cooperative learning strategy to be successful. Teachers with more years of teaching experience are likely to understand which instructional practices are successful and which are not. A positive weak correlation, $r_s(123) = .15$, $p < 0.01$ existed between teachers' years of teaching experience and teachers' perceived value of cooperative as well as between teachers' years of teaching experience and perceived cost of cooperating learning $r_s (123) = 0.09$, $p < 0.01$.

These results were surprising considering teachers' overall perceptions and expectancy of success towards cooperative learning and teachers' years of experience had significant

correlations. It could be implied that although teachers have positive dispositions towards cooperative learning and believe it to be a successful instructional strategy, they also believe the costs of using it outweigh the value of it. Teachers have a variety of reasons for their selection of instructional strategies to use and they must weigh the costs and rewards involved with applying them. These decisions are challenging for many teachers who provide instruction in an online setting. In this case, it is suggested that teachers in this study with more years of teaching experience believed cooperative learning to be a successful strategy, however, had concerns regarding the cost and value of it being implemented in an online setting.

Figure 5. 1

Teachers' Years of Teaching Experience and Positive Coded Attitudes Towards Cooperative
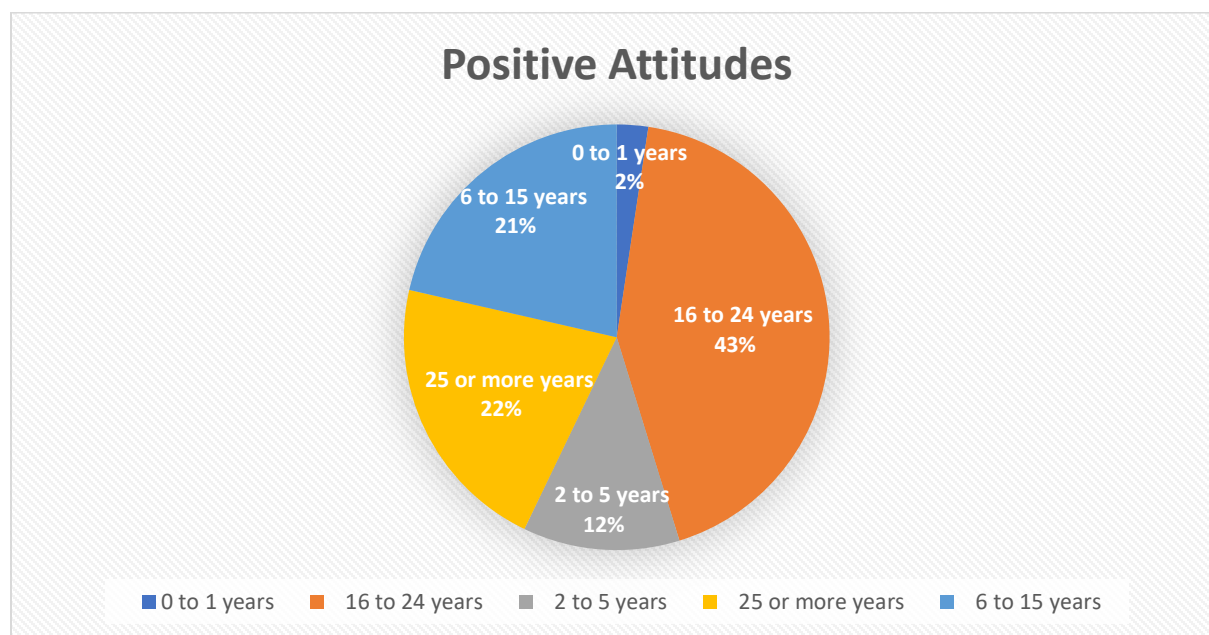
Learning

The results of this study align with the findings of previous studies that teachers' years of teaching experience affects their attitudes and perceptions towards cooperative learning. Teachers with more experience had higher levels of self-efficacy and had higher expectancies of

success with implementing cooperative learning strategies (Hulewicz, 2020; Ruys et al., 2010; Saborit et al.., 2016). Hulewicz (2020), found that teachers with 25 years or more teaching experience to be the most active in using cooperative learning. This supports the findings in this study that there is a relationship between years of teaching experience and their ability to implement cooperative learning in an online setting which makes sense because teachers who have been teaching longer likely will have more experiences using various types of instructional strategies. It is probable that seasoned teachers know how to create and organize groups for students to work in. They are likely to know which strategies and groupings may work for their class and which may not work because they have had repeated experiences over the years with grouping students.

Other studies have found that experienced teachers with training were comfortable with implementing cooperative learning and had a higher expectancy of success because they believed in their own self-efficacy as teachers (Gillies, 2016; Hulewicz, 2020; Ruys et al., 2010; Saborit et al., 2016). The results of this study indicated that teachers with more teaching experience have more positive attitudes towards cooperative learning, whereas teachers with fewer years of teaching experience had a weaker relationship with attitudes and perceptions towards cooperative learning. This could be because teachers new to the profession may be overwhelmed with other duties such as grading, lesson planning, and classroom management (Veldman et al., 2020). New teachers may also be unfamiliar or inexperienced with cooperative learning (Ruys et al., 2010). These factors may explain why some teachers with less teaching experience may have negative dispositions towards cooperative learning or choose not to implement it.

Research Question 3: Which cooperative learning strategies are used most frequently in an online classroom setting?

Research question three was addressed and answered by one of the questions on the

CLIQ. Participants indicated the types of cooperative learning strategies they used in an online

setting (Figure 5.2). The results showed the think-pair-share strategy to be the dominant strategy

used by participants. This strategy was reported being used in an online setting by 77 (23.62%)

participants. Think-pair-share is a cooperative learning technique that offers students, in pairs or

groups, a structured method engagement and collaboration (Hamden, 2017; Kwok & Lau, 2015;

Rhoads, 2022). A recent study indicates the importance of peer collaboration and shows that

think-pair-share increases student participation (Mundelsee & Jurkowski, 2021). This strategy

allows students to learn new information then synthesize their learning through conversations

with a peer. This verbal sharing of context allows students an opportunity to affirm or correct

their understanding of the information. This strategy is simple to implement because it does not

require preparation and the time of sharing can be as short or long as the teacher decides. The

ease of use and lack of necessary training for this strategy is likely the reason it was most

frequently used among participants in this study.

The next most used strategy was group investigation by 58 (17.80%) participants. Group

investigation is another strategy that can be easy for teachers and students to use. This strategy

entails students working together to solve a problem or research a topic. Teachers may provide

the problems or topics or students may have agency with selecting the topics of investigation.

Group investigation can be used in any content area and in most all grade levels (Sharan &

Sharan, 2013). The third most commonly used strategy among participants is the roundtable

strategy, ($n = 38$, 11.66%). This student-led strategy creates an opportunity for students to take

turns writing their own responses about a topic on a shared document. This chain activity allows

students to read what has been written by their peers then contribute their own ideas creating a

cooperative writing passage. The fourth most common cooperative learning strategy reportedly used was four corners ($n = 31$, 9.51%). In this strategy, the teacher selects four topics and corresponds them with four locations that students can choose to join and participate. In an online setting, teachers could use breakout rooms as the four locations where students would join to discuss the topic and work on a follow-up activity. This is yet another strategy that requires very little preparation on the teacher's part as the students lead the conversations once in the groups.

The final strategy in the top five most frequently used strategies is jigsaw with 29 (8.90%) participants reporting its use. The jigsaw strategy allows students to become experts on a topic and then share the information with their peers in a group (Slavin, 2014). This strategy is structured in a way that empowers students to take responsibility for their own learning (Rhoads et al., 2022). In this strategy, students learn the information with one set of group members and then they teach the information to other group members. This student-led approach allows students to develop positive interdependence as they learn together. Each of these five strategies promote active learning experiences for students where they can engage in conversations with their peers, think critically, and strengthen their learning. It is likely that these strategies were identified by participants as the most frequently used because they engage students in learning and are easy for teachers to plan and implement.

Figure 5. 2

Types of Cooperative Learning Strategies Used

Cooperative Learning Strategies

Research question three provided information on the number of strategies that participants reported using in an online setting. This information is valuable to better understand the bandwidth teachers have for using cooperative learning strategies and which strategies are most frequently used in an online class. The results from this question correspond with information collected in the qualitative data and provide a broader understanding of teachers' use of cooperative learning strategies in an online setting. The largest group of participants (22%) reported using two strategies in an online setting. Similarly, teachers sometimes claim to be knowledgeable with the cooperative learning principles; however, they reported implementing a limited number of cooperative learning strategies (Abramczyk & Jurkowski, 2020).

The implementation of types of learning strategies varies significantly among teachers (Saborit et al., 2016). Reachers with higher levels of self-efficacy are more likely to implement new and various instructional strategies in online classes (Kirik & Markic, 2012; Pressley & Ha, 2021; Sabori et al., 2016). Similarly, participants in this study had higher levels of self-efficacy

and reported using various types of cooperative learning strategies as shown in Table 4.8.

The results of research question three indicate that teachers could benefit from more training, experience, and confidence with using a variety of cooperative learning strategies in an online setting. Teachers need to be trained in different types of strategies so that they are prepared to implement them based upon the needs of the class (Moges, 2019). Teachers benefit from experience and familiarity with various cooperative learning strategies; however, they must be strategic with the implementation of them in their classes. Implementing two to three strategies at a time is recommended to not overload students and teachers with integration of numerous strategies at once (Rhoads et al., 2022). It is important for teachers to know and use strategies that actively engage students in their learning. There is an abundance of educational technology tools available for teachers to use to enhance learning experiences for students.

Figure 5.3 displays a comprehensive list of edtech tools that can be used in both online and in-person classes (Rhoads, 2020). Some of the items in Figure 5.3 were highlighted, indicating they could be used with cooperative learning strategies. It is not necessary for teachers to use all or even most of these tools (Rhoads, 2020); however, the more frequently cooperative learning strategies are used, the more likely students and teachers will feel more efficacious in using them. Communication, taking turns, and problem solving are skills that if exercised in one type of cooperative learning strategy can be transferred when using another type of cooperative learning strategy. For example, if students participate in think, pair, share activities often, they are likely to learn how to listen to their partner, share information with their partner, and present information to the class. These same skills are exercised in the jigsaw strategy in a different format and process. Ultimately, using edtech tools and practicing cooperative learning strategies frequently increases teachers' and students' self-efficacy towards using them.

Figure 5. 3

Types of EdTech Tools

Types of Edtech Tools – Mainstream Tools for K-12 Education Available for Secondary Educators		
Assessment • Google Forms • Formative • EdPuzzle • b.socrativ • Kahoot • Quizziz • Common Lit	**Active Engagement** • Pear Deck • Geoguesser • Poll Everywhere • Yo Teach! • Flipgrid	**Student Work Creation** • Google G-Suite (i.e., Docs, Slides, Sheets, Sites, Drive, and Draw) • Microsoft 365 • Padlet • Canva • Storyboardthat • Wiki's
Adaptive EdTech • Achieve 3000 • Read 180 • Moby Max • Freckle • Readtheory • Lexia • Dreambox • iReady • Reflex	**Modeling Instruction** • Screencastify • Loom • Screencast-O-Matic • Whiteboard Fox	**Learning Management Systems** • Google Classroom • Seesaw • Powerschool • Canvas • Blackboard • Schoology
Synchronous Session Platform • Google Meet • Microsoft Teams • Adobe Connect • Zoom	**Misc** • GroupMaker • Rewordify • Word Cloud Generator • Nod	**Tutorial** • Khan Academy • Desmos

Note. Adapted from "Navigating the toggled term," by M. Rhoads, 2020, (n.p.), p. 29. Items

highlighted indicate tools that can be used with cooperative learning strategies.

Qualitative Research Question Summary

Research Questions 4 to 5

Research Question 4: What are the perceptions of teachers towards using cooperative learning

strategies in an online setting and how are they influenced by other factors?

Research question four was answered by participants providing examples of their specific

attitudes and perceptions towards cooperative learning in an online setting. First, open coding was used by the researcher to conduct several initial reads of the data collected from the open-ended response question. The researcher used deductive coding to identify initial themes of positive and negative perceptions towards cooperative learning in an online setting. These codes were further expanded in axial coding to specific categories. Finally, broad themes emerged in selective coding and included: (a) attitudes, (b) limitations, (c) impact on students, and (d) strategies. Words that were most often to describe teachers' attitudes and perceptions towards cooperative learning in the coded comments were generated by Dedoose into a word cloud, as seen in Figure 5.4. A word cloud displays words from largest to smallest based upon the number of times the words appeared in the coded comments.

Figure 5. 4

Words Most Often Used for Teachers' Attitudes and Perceptions Towards Cooperative Learning

First, the theme of attitude was derived from the overall positive, negative, and neutral attitude codes that were yielded from participants. Overall, there were more negative than positive responses from participants. The largest group (44%) of negatively coded comments revealed the difficulties involved with implementing cooperative learning strategies in an online setting. Researchers support this viewpoint in that teachers' attitudes and perceptions towards cooperative learning can impact the extent in which it is implemented (Abrami et al., 2004; Ruys et al., 2010). According to Nierenberg (2020), many teachers who taught in distance learning during the pandemic in 2020 lacked self-efficacy and struggled with the use of instructional strategies online. Teachers without previous online teaching experience faced great challenges as they needed to learn how to teach online while delivering quality instruction to students in a remote setting (Siddiquei & Kathpal, 2021). Additionally, juggling communication online with students, using multimedia tools, and varying instructional practices online were other challenges for some teachers (Siddiquei & Kathpal, 2021). Teachers need adequate opportunities through training and experiences to build their capacity to provide quality instruction in online settings (Coman et al., 2020; Junus et al., 2021).

A recent study indicated that many instructors and students have positive attitudes towards cooperative learning, and they prefer this student-led approach to a teacher-led approach (Moges, 2019). The results of this study reported that 68% of teachers and 60% of students were very positive about this instructional strategy (Moges, 2019). This study also found that students enjoyed the social and interactive approach to learning rather than passively listening to the teacher (Moges, 2019). According to Husaini and Syarifuddin (2020), cooperative learning engages students in active learning while working with other students. Active participation leads to increased communication, decision making, and problem-solving skills (Zakaria & Iksan,

2007; Jacobs & Ivone, 2020; Loh & Ang, 2020; Slavin, 2014;). Studies have also found that leveraging cooperative learning produces higher student achievement and productivity (Jacobs & Ivone, 2020; Johnson & Johnson, 2017; Jolliffe & Snaith, 2017; Loh & Ang, 2020). Popa and Pop (2019) discovered that students had higher motivation to participate in activities and interact with their peers after implementing cooperative learning. These studies support the attitudes of participants in this study believing that cooperative learning is an effective instructional strategy.

The second emerging theme was the limitations involved with using cooperative learning in an online setting. Participants in this study acknowledged numerous challenges and difficulties that influenced their attitudes and perceptions towards cooperative learning in an online setting. Fifty-three percent of codes contributing to this theme materialized from comments regarding the difficulties associated with using cooperative learning in an online setting. Teachers and students need to have technological skills to work in an online setting. The rapid shift to online education during the COVID-19 pandemic required students and teachers to use technology including the use of learning management systems and digital tools. Competent use of technology was one of the most common challenges students faced during distance learning in 2020-2021 (Rasheed et al., 2020).

While some students are familiar with using technology, they may not have been competent in using the learning management systems, video-conferencing or other digital tools needed to be successful in an online setting. Participants in this study also described the difficulty of managing the class and groups in an online setting. Some of the participants claimed this was due to the grade or ability levels of their class. In conjunction with the literature, Jacobs and Ivone (2020) believed that using the cooperative learning strategy can be time consuming from start to finish. Teachers must take time to plan the lessons, create appropriate heterogenous

or homogenous groups for the lesson, and allow time for social learning interactions to take place, which may be challenging for some teachers to carve out the time and space for.

Another limitation reported by teachers in this study was the lack of training to use cooperative learning online. During the COVID-19 pandemic, many teachers did not feel prepared to teach online (Newton, 2020; Pressley & Ha, 2021; Trust & Walen, 2020). Some teachers felt inadequate in their technological abilities and struggled with the basics of online teaching such as organizing and facilitating synchronous classes (Trust & Walen, 2020). Providing quality and engaging instruction was secondary to coordinating a synchronous class session for many teachers who had to make this quick transition. Teachers expressed the need for training in how to use learning platforms and instructional strategies effectively. In alignment with the results in this study, a similar explanation was presented by Jolliffe and Smith (2017) who concluded teachers realize the value of cooperative learning and have a desire to use it, but without sustained training the cost is too great, which may limit the expectancy of success.

The perceived impact on students was the third theme that emerged from teachers' attitudes and perceptions towards cooperative learning in an online setting. This theme included both positive and negative perceptions of the impact cooperative learning may have on students. Some participants perceived there to be negative impacts on students socially and academically. Some of the perceived negative impacts included social disadvantages for students, decreased student engagement, and academic decline for students. These negative perceptions are supported by literature in recent research. During the context of the COVID-19 pandemic, one of the main challenges for students was the use of technology in the online setting (Barreto et al., 2021). The inequitable access of internet and equipment may have been a cause for students not being able to participate in online activities (Diallo, 2020). Social connections with peers online

can be a challenge for some students as they have to learn different ways to communicate with each other (Barrot et al., 2020). This lack of connection and engagement could be the reason for social and academic decline.

From another perspective, the majority of comments from participants alleged that students benefited from cooperative learning in an online setting. Many participants believed there to be social advantages for students working together in an online setting. Some students may feel more comfortable socializing and engaging with their peers in an environment that may feel is less threatening than an in-person setting. Other participants in this study believe cooperative learning increases student engagement. There are many digital collaborative tools such as Pear Deck, Flipgrid, Microsoft Teams, and the chat box that provide students opportunities to engage in learning activities (Rhoads, 2021). Students can communicate with each other and their teachers by using the chat box feature, joining in breakout rooms, or using other collaborative digital tools, as previously mentioned (Silalahi & Hutauruk, 2020). Students can engage in interactive lessons online or collaborate with peers on shared assignments. These types of social and academic learning experiences correlate with the theoretical framework of the social constructivist theory which supports cooperative learning as a social activity where students can construct knowledge amidst their interactions with peers (Alghamdi, 2018; Loh & Ang, 2020; Vygotsky, 1978). Finding and implementing the appropriate and engaging strategies have a positive impact on students' online learning experiences. The results of the quantitative data in this study suggested that teachers believed cooperative learning was a valuable strategy to use and it had a positive impact on their students. The attitudes and perceptions towards cooperative learning, as revealed by participants in this study, imply that teachers believe in and support social interactive learning experiences for their students.

The final theme that emerged from the data collected surrounding teachers' attitudes and perceptions towards cooperative learning in an online setting was strategies used. Participants reported the strategies they used to be a major contributing factor to their use of cooperative learning online. Thirty-two percent of the coded comments represented the view that effective instructional strategies contributed to the attitudes and perceptions towards cooperative learning. An additional 32% of the coded comments credited breakout rooms and 26% attributed small groups to being effective ways to implement cooperative learning in an online setting. Ten percent of the comments mentioned specific digital tools as instructional strategies that enhanced the use of cooperative learning in an online setting. Loh and Ang (2020) agreed with these outcomes by claiming positive opportunities for students are created by the use of effective instructional strategies, structured groups, and active learning activities.

The research in the literature asserts that cooperative learning may need to be adjusted, however, it is still an effective strategy in online settings (Jacobs & Ivone, 2020; Loh & Ang, 2020). Modifying lessons and being flexible with the implementation of instructional strategies is seemingly what many participants did as described in their comments regarding strategies used. A specific example of adapting cooperative learning to be used in an online setting is through the use of breakout rooms as a way to structure groups. Breakout rooms are a vehicle for cooperative learning strategies that allow students to work together, assist each other, and connect socially and academically in a separate space within an online class (Jacobs & Ivone, 2020). Social skills and communication skills can be bridged by cooperative learning in an online setting and result in positive outcomes (Barreto et al., 2022). There are numerous digital tools that can be utilized as a vehicle for instructional strategies in an online setting (Rhoads et al., 2022). It is inevitable that digital tools will continue to evolve; nonetheless, instructional

strategies are the foundation for effective education within any classroom (Rhoads et al., 2022).

Research Question 5: What experiences contribute to high and low levels of teachers' self-efficacy towards using cooperative learning strategies in an online setting?

Research question five was answered by participants providing examples of their experiences in an online setting that contributed to their self-efficacy towards cooperative learning. First, in open coding the researcher conducted initial reads of the data collected from the open-ended response question several times. Initial themes of positive and negative experiences contributing to levels of self-efficacy learning in an online setting were identified by the researcher using deductive coding. The researcher used axial coding to expand codes into categories. In selective coding general themes emerged and included: (a) experiences, (b) strategies, (c) limitations, and (d) teacher capacity. A word cloud was generated to display the words most often used for experiences contributing to teachers' self-efficacy (Figure 5.5). The larger words in the word cloud indicate they were used more frequently than the smaller words.

Figure 5. 5

Words Most Often used for Experiences Contributing to Teachers' Self-Efficacy
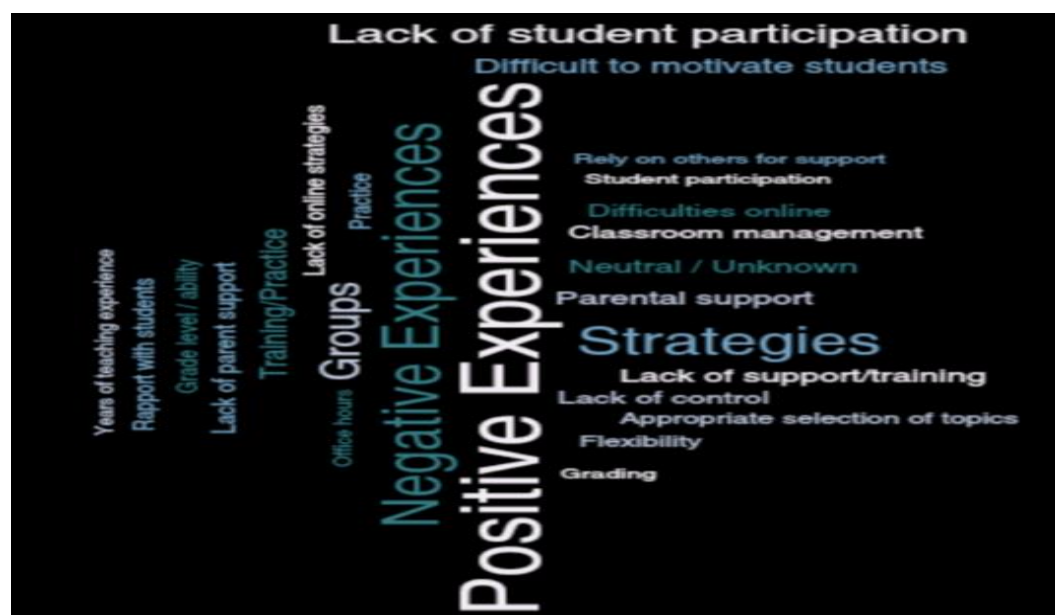
The first and most prevalent theme that emerged in the context of teachers' levels of self-efficacy was experiences. The majority (56%) of experiences described by participants were positive while 37% were negative experiences and 7% were neutral. The positive experiences teachers described related to their use of instructional strategies. It can be inferred that teachers who successfully implemented instructional practices had higher levels of self-efficacy. This inference corresponds with Bandura's social cognitive theory which is centered around the notion that people's beliefs about their abilities impacts their attitudes and efforts (Bandura, 1997). As teachers' self-efficacy increases, their attitudes towards effective instructional strategies such as cooperative learning may become more positive. The research in literature also supports the findings in this study in that teachers with higher levels of self-efficacy are more likely to try venture out and try new instructional strategies (Bray-Clark & Bates, 2003; Kirik & Markic, 2012; Tschannen-Moran & Woolfolk-Hoy, 2001).

Teachers also provided examples of the negative experiences they had in an online setting that contributed to their levels of self-efficacy. Most of these negative experiences concerned the lack of student participation in class sessions. There are many reasons students may not be active participants in online class settings. According to Siddiquei and Kathpal (2021), the main barriers that impacted student participation in online classes included network stability, internet speed, and use of digital tools. Without a stable network connection, students cannot receive the information presented in a lesson, they may miss assignments, and they may not be able to communicate with their teacher and peers. Also, students may not have learned how to use digital tools in an online setting. It is also possible, as mentioned by many participants in this study, that students may have difficulty participating in online classes because of their grade level or abilities. Engagement is likely challenging for younger students and

requires the assistance of someone older or more competent to help them navigate and participate in online class activities. The need for parental support was another factor that contributed to teachers' levels of efficacy. It can be inferred that teachers expected parents to be available to help students with lesser abilities or in lower grades. If parents were able to be involved in helping their students participate in activities, then teachers could continue to provide engaging lessons for students. If they were not, then students were either not able to participate or teachers could not use cooperative learning strategies.

Participants in this study also reported lack of training and support as an influence of their negative experiences. Figure 5.6 shows 42% of participants reported not having any training in cooperative learning and 25% stated having one to two days of training. These statistics indicate why teachers reported feeling like they did not have adequate training to implement cooperative learning. It makes sense that if teachers have not received training in an instructional practice, then they would not feel qualified to use it. These sentiments and experiences regarding training and support align with the social cognitive theory in that if people have not had opportunities of repeated successes leading to mastery experiences, they will not have the self-efficacy needed to be effective (Corry & Stella, 2018).

During the COVID-19 pandemic, many teachers lacked self-efficacy because they did not have the training or previous experience needed to deliver instruction in an online setting (Nierenberg, 2020; Siddiquei & Kathpal, 2021). At the same time, teachers who had training in cooperative learning reported had higher levels of efficacy, which strengthens the idea that the more successful experiences someone has to develop a skill, the more confident they are in using that skill. The comments regarding participants' lack of training or involvement in training connects this theme of self-efficacy with having an impact on teachers' actions and choices.

Figure 5. 6

Number of Days of Cooperative Learning Training
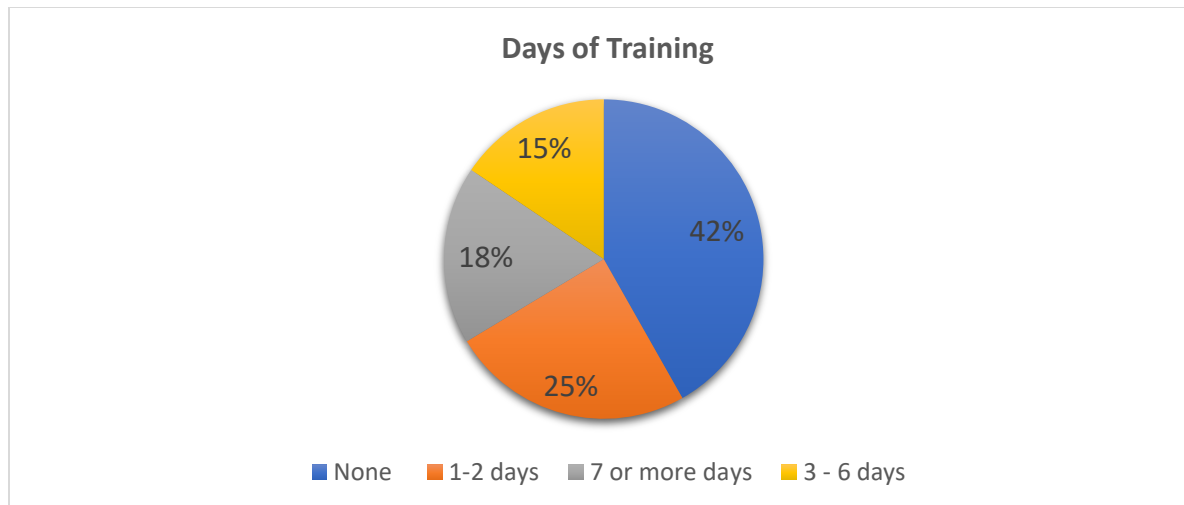
The second theme that emerged as a contributor to teachers' self-efficacy was strategies used in an online setting. In response to this research question, participants described specific strategies that were advantageous in an online setting. Many participants reported the structuring and functioning of groups for strategies used was a main factor that contributed to their self-efficacy. Another influence of teachers' self-efficacy was their prior training or experiences with specific strategies. Participants who had previous training in cooperative learning also had strong beliefs in their abilities to use cooperative learning in an online setting. Research supports this belief that knowledge of strategies gained in professional development courses and trainings may enhance teachers' confidence in their ability to deliver instruction effectively (Jolliffe & Snaith, 2017).

Additionally, teachers with a growth mindset are more willing to try new skills and strategies (Dweck, 2016; Tang et al., 2021). For example, teachers who believed they could overcome the challenges of teaching online during the COVID-19 pandemic broadened their abilities as a teacher by learning new instructional practices that were effective in an online

setting. Teachers with a growth mindset are more likely to seek training and opportunities to learn how to provide students with quality instruction in that environment. The more training in effective instructional strategies that teachers receive, the more confident they are in their abilities to influence student learning. Being open to learning new practices can expand teachers' capacities to teach in any classroom setting.

The third theme to emerge regarding the experiences teachers had that contributed to their self-efficacy was limitations. Some participants believed they were limited in their abilities to implement cooperative learning online which negatively impacted their self-efficacy. These limitations were a result of numerous factors such as lack of student participation, lack of training, difficulty motivating students, lack of class control, and difficulty implementing cooperative learning in an online setting. One study revealed effective classroom management Is more likely to occur when teachers perceive greater efficacy in their own skills (Poulou et al., 2019). Thus, if teachers have lower levels of self-efficacy, they may be limited in their abilities to control their class. Similarly, if students are creating difficulties for teachers that they cannot overcome, then the teachers' self-efficacy may be negatively affected. Teachers need to be confident in their abilities to manage a class so they can provide instruction to their students. If teachers are limited in their abilities to manage a class, their efficacy may suffer as a result.

Teacher capacity was the final theme that emerged from the axial codes in relation to teachers' self-efficacy. Teachers' abilities and experiences help build teachers' capacity to be effective instructors in their classrooms. Participants described classroom management, teacher flexibility, selection of topics, and years of teaching experience to be significant influences of their capacity. Participants credited their effective use of strategies as the dominant contributing factor to their capacity. Teachers with high levels of self-efficacy tend to use more instructional

strategies and are willing to try new methods of instruction (Kirik & Markic, 2012; Pressley & Ha, 2021). The second major contributing factor to teachers' capacity was training and practice. The social cognitive theory asserts that people develop their competencies and skills by exerting efforts based upon their efficacy which can be dependent on capacity (Bandura, 1997). Therefore, if teachers believe in their abilities and have capacity, they will likely expand upon their skills with successive practices. Teachers with prior experiences or professional development in preparation to teach online, report higher levels of self-efficacy (Dolighan & Owens, 2021). Teachers are more likely to implement cooperative learning if they have prior training with that instructional strategy (Hulewicz, 2020). These comments, along with the social cognitive theory, indicate that teachers with higher levels of self-efficacy are also more likely to have built their capacity to effectively teach in an online setting,

Conclusions and Discussion

The purpose of this study was to investigate potential relationships between teachers' self-efficacy and teachers' attitudes and perceptions towards cooperative learning in an online setting. Overall, several relationships were determined between teachers' self-efficacy, attitudes, and perceptions towards cooperative learning, and teachers' years of teaching experience. The results of this study may provide information to help build capacity and efficacy among pre-service and in-service teachers to be prepared to use effective and engaging instructional strategies in any classroom setting. These conclusions may help teacher preparation programs improve the efficacy of their programs and increase the abilities of pre-service teachers. Also, these results may help in-service teachers acquire the training they need to build capacity to use effective instructional strategies with high levels of self-efficacy in online, hybrid, or in-person class settings.

Equipping and upskilling teachers with the tools and training they need to be successful in any setting better prepares them and their students for diversity of skills used in the 21st century. These skill sets need to be developed and utilized in both settings. Students need to be able to collaborate and communicate with others online and face to face. Teachers should be prepared to pivot between online and in-person instruction. The COVID-19 pandemic polarized the educational landscape as it went from completely in-person to completely online. Emerging out of the pandemic provided teachers and students an opportunity to take what they learned during distance learning and use those skills and digital tools back in the classroom. With a growth mindset and high levels of efficacy, teachers can enhance those skills and implement them into their class structure.

It would benefit students, teachers, and families for a user guide to be created that outlines expectations, form, and function of online learning in each school district. This guide could indicate the roles and responsibilities of students and teachers who are engaging in online activities. Furthermore, a guide specific to the use of cooperative learning online could be developed that summarizes different types of cooperative learning strategies and how they will be used in online courses. This guide could be provided in a video or slides presentation that shows examples of how the activities should run and what students' roles are in each type of cooperative learning exercise. Providing such guides would better prepare and build efficacy in students and teachers for effective use of cooperative learning in an online setting.

Finally, the results from this study reveal the need for policymakers and school district leaders to develop contingency plans for online education in the event that in-person instruction cannot be provided. This may occur when schools close for unexpected reasons such as weather, road closures, or snow days. Remote learning plans should be in place so that schools can

transition to online education in order to preserve continuity of instruction and not lose instructional time.

 The conclusions of this study are outlined in the following section and discussed along with their connections to the literature surrounding this topic.

Conclusions

- Participants believed that self-efficacy impacts attitudes towards cooperative learning in an online setting as indicated by the relationship found between the two variables.

- Participant responses indicated a moderate, positive relationship between teachers' self-efficacy and teachers' attitudes and perceptions towards cooperative learning in an online setting.

- Participants believed they had quite a bit of self-efficacy teaching in an online setting.

- Participants believed they had positive attitudes towards using cooperative learning strategies in an online setting.

- Participants believed the expected value of cooperative learning strategies outweighed the cost.

- Participants' years of teaching experience significantly correlated with attitudes and perceptions towards cooperative learning in an online setting as exemplified by the relationship reported between the two variables.

- Participants use between 1 and 9 types of cooperative learning strategies in an online setting.

- The majority of participants used two types of cooperative learning strategies.

- Participants had positive experiences contributing to their self-efficacy in an online setting.

- Participants believed it to be difficult to implement cooperative learning strategies online.

- Participants perceived having a lack of training, practice, and support in implementing cooperative learning strategies online.

Discussion

The results derived from this study align with conclusions drawn from other studies. The results in this study from the TSES showed that participants in this study believed they had high levels of self-efficacy. Results from the CLIQ showed that teachers had positive attitudes towards cooperative learning including the segments of perceived value and expectancy of success. This study found a significant and moderately positive correlation between teachers' self-efficacy and teachers' attitudes and perceptions towards cooperative learning. This supports the findings of previous studies that determined relationships between teachers' self-efficacy and teachers' attitudes and perceptions towards cooperative learning exist (Abrami et al., 2004; Hulewicz, 2020; Kirik & Markic, 2012 Saborit et al., 2016).

Additionally, this study found a strong correlation between the expectancy of success and perceived cost of cooperative learning which affirms a strong relationship between these two variables found by Hulewicz (2020). Ivone (2020) revealed similar results indicating teachers still expected cooperative learning to be successful despite their recognition of the costs involved with cooperative learning such as time spent planning, difficulties with implementation, classroom management, and yielding to student-led practices. These correlational findings between teacher self-efficacy and cooperative learning correspond with the results in a recent study that showed cooperative learning to be a significant contributor to teacher self-efficacy (Chan et al., 2021). The implications from these correlational results demonstrate that teacher

self-efficacy and cooperative learning pair together powerfully and building capacity in one will directly strengthen the other.

Next, this study evaluated the relationship between teachers' years of teaching experience and teachers' attitudes and perceptions towards using cooperative learning. A weak positive correlation between these two variables was found in this study. Hulewicz (2020) also used the CLIQ to assess a relationship between teachers' years of teaching experience and teachers' attitudes and perceptions towards cooperative learning and found that teachers with more years of teaching experience tend to have stronger relationships with cooperative learning. This study also found that teachers with the most years of experience also reported having the highest usage of cooperative learning (Hulewicz, 2020).

Other scholars have found teachers with more experience also have higher expectancies of success due to their levels of self-efficacy (Gillies, 2016; Ruys et al., 2010; Saborit et al., 2016). Conversely, teachers with less years of teaching experience may not have had time to learn or become comfortable using cooperative learning strategies or perhaps they are preoccupied with establishing classroom management and consequently do not have positive attitudes towards cooperative learning practices (Veldman et al., 2020). In addition, a recent study used the TSES to determine levels of teachers' self-efficacy during the COVID-19 pandemic (Pressley & Ha, 2021). This study found no correlation between teachers' years of teaching and teachers' self-efficacy; however, they believe the lower levels of efficacy were a result of teaching online during the pandemic (Pressley & Ha, 2021). The implications from these results and studies are such that teachers with more years of teaching experience have had time to build their self-efficacy which contributes to their attitudes and perceptions towards cooperative learning.

The qualitative portion of this study intended to capture the specific mood and sentiments described by teachers as they shared their experiences. Teachers expressed both positive and negative perceptions towards cooperative learning. One of the dominant perspectives shared was in regard to training in cooperative learning practices. Teachers who had prior training in cooperative learning expressed positive sentiments towards this practice while other teachers explained the lack of training to be a contributing factor to their negative sentiment. Previous training in cooperative learning has been a predictor of its implementation in other studies (Abrami et al., 2004; Fausnaugh, 2016; Hulewicz, 2020; Ruys et al., 2010; Saborit et al., 2016).

Teachers' use of cooperative learning increases as a result of the knowledge gained at cooperative learning professional development trainings (Abramczyk & Jurkowski, 2020), which makes sense because teachers who have received training in cooperative learning also likely have more self-efficacy towards cooperative learning because they have been trained in that technique (Jolliffe & Snaith, 2017). In fact, in a recent study, teachers with previous experiences, practices, or training with cooperative learning reported having higher levels of teacher self-efficacy (Dolighan & Owens, 2021). Although not directly focusing on self-efficacy, another study determined that teachers had a stronger sense of success teaching online if they had received professional development that supported online instruction (Kraft et al., 2020). The overall implication is teachers who have built their teaching capacity with training and professional development have increased their self-efficacy resulting in positive attitudes and perceptions towards cooperative learning. Furthermore, teacher preparation programs must help pre-service teachers build their capacity and self-efficacy by structuring programs to provide them content knowledge and practice with cooperative learning strategies (Chan et al., 2021).

The conclusions in this study add to the findings of previous studies. Teachers' self-

efficacy and years of teaching experience impact their attitudes and perceptions towards cooperative learning (Hulewicz, 2020; Jolliffe & Snaithe, 2017). This study affirms numerous previous studies' findings that teachers believe cooperative learning is a successful instructional strategy that benefits students' social skills and academic achievement (Jacobs & Ivone, 2020; Johnson & Johnson, 2017; Jolliffe & Snaith, 2017; Loh & Ang, 2020; Popa & Pop, 2019). This study provides new information to the field because this study pertained specifically to an online setting. Furthermore, the implications of this study have potential to transcend a single classroom setting and become relevant to all teachers in any setting encouraging them to build self-efficacy and develop positive attitudes towards cooperative learning strategies.

Implications

The findings of this study imply that teachers have high levels of self-efficacy and have positive attitudes towards cooperative learning in an online setting. The quantitative and qualitative results support this implication, however, with deeper analysis of the qualitative data, broader perspectives appeared. Teachers described numerous challenges, limitations, and lack of capacity towards using cooperative learning in an online setting. Attention to teachers' self-efficacy is critical in understanding the factors that contribute to their high and low levels and the impact it has on their attitudes towards cooperative learning.

Even though the majority of teachers expressed positive sentiments towards cooperative learning strategies, not all participants reported being current or past users of it. Seventy-four percent of participants reported currently or previously using cooperative learning strategies in an online setting. The information collected in the qualitative data revealed these findings are in alignment with prior studies which indicate previous training in cooperative learning to be a predictor of its implementation (Abrami et al., 2004; Fausnaugh, 2016; Hulewicz, 2020; Ruys et

al., 2010; Saborit et al., 2016). Many teachers believe they have not received adequate training specific to the use of cooperative learning in an online setting. Pre-service and in-service teachers need explicit training and on-going coaching in cooperative learning in order to increase their efficacy with using this strategy online.

Moges (2019) suggested that it is important for instructors to be well trained in cooperative learning in order to implement it. In-service teachers could benefit from professional development that focuses on how to use cooperative learning efficiently and effectively in an online, hybrid, or in-person setting (Kraft et al., 2020; Van Ryzin, 2020). For example, teachers can construct learning opportunities where students can use Edtech tools (Figure 5.3) and cooperate on assignments via collaborative technologies such as shared documents in Google Suite or Office 365 (Rhoads et al., 2022). There is a wide range of effective and relevant digital tools that can be utilized within any classroom setting (Rhoads et al., 2022). When teachers are suitably trained, they can integrate these tools with effective instructional strategies to continue the momentum of technology embedded in education which directly prepares students for readiness in a world that is becoming more digitally based in the post K-12 education space and workforce.

Additionally, teachers could use training, exposure, and practice with various types of cooperative learning strategies in order to differentiate their instruction. Results from the demographic section of the survey show that 26.23% of participants reported having no amount of workshop training in cooperative learning. Moreover, 29.51% of participants have received no training in any specific cooperative learning methods. The think-pair-share was the strategy most frequently used as reported by participants in this study. There are numerous cooperative learning strategies that are beneficial to students and enrich their educational experiences.

Teachers can use a variety of strategies to differentiate their instruction to meet the needs of all learners. Teachers value cooperative learning because of its academic and social potential to enrich the learning experiences of students preparing them with 21st century skills such as communication, critical thinking, and problem solving (Abramczyk & Jurkowski, 2020).

Providing teachers explicit training and opportunities to see others use cooperative learning successfully can help increase perceptions of the value of this strategy and create communities of support for teachers (Abrami et al., 2004). Schools that provide teachers training, coaching, and support often see increases in teacher self-efficacy (Pressley & Ha, 2021). Teachers need to be trained and prepared to rapidly shift to the online setting. This should be an easier transition if teachers are already implementing online instructional practices in their in-person classrooms. For example, if EdTech tools, such as the ones listed in Figure 5.3, are previously embedded into in-person classes and students are comfortable using them, then precipitously shifting to an online setting could be seamless. Thus, teachers need to feel efficacious implementing engaging instructional practices, such as cooperative learning, regardless of the online or in-person setting (Rhoads et al., 2022).

The data collected in this study can be used to fill in the gaps regarding online education and inform policy makers, researchers, teachers, and administrators as they consider developing comprehensive plans for integrating online education. The nostalgia of the traditional school model is fading away and new approaches to online education are emerging. Districts need to be prepared with plans that combine in-person and online instruction as well as fully online programs that may be necessary for various reasons such as virtual academies, future health crises, school safety concerns, and unprecedented school closures. Federal, state, and local agencies need to prioritize providing consistency in students' education.

First, school districts should have plans that include using online education for various reasons. Virtual academies should be an option for students who choose to attend school online. These programs should be infused with cooperative learning so that students have peer interactions and active learning opportunities. Some students, such as those with social anxieties, ADD, introversion, mild disabilities, or chronic illnesses may prefer online education to in-person classes where such issues may interfere with their learning.

Another part of online education plans may include classes made available to students who are on home-hospital, independent study, or Saturday and summer school classes. Participating in online courses will help promote peer interactions and help students stay connected with their grade level learning in these scenarios. Additionally, educators who would teach these courses should receive specific training in cooperative learning strategies in order to provide quality, engaging instruction for students in these online settings. Teachers should also receive ongoing training and practice with Edtech tools that can be used incongruence with cooperative learning strategies. Due to the format of online classes, they could potentially host higher teacher to student ratios. With enlarged class sizes, cooperative learning could be implemented as a regular practice where students meet in groups online. These groups could even be facilitated by instructional aides or online facilitators. It is important for school districts to have plans to support these types of remote learning.

Next, state policymakers need to consider passing laws that require school districts to adopt emergency remote learning plans. Emergencies happen out of people's control; however, responses take place because of people's control. Schools need to be prepared to toggle to an online setting at a moment's notice (Rhoads, 2020). To avoid further regression of student learning, ongoing education should be at the forefront of emergency response plans for school

districts. The wellness and safety of students should first be considered, followed by a plan that allows students to resume their learning as soon as possible. While some school closures are due to high-risk situations, others may close for less perilous circumstances. For example, schools may shut down due to weather or road closures that would impede students from attending school in-person. Emergency situations are unfortunate and unavoidable; however, the education system's response can be predictable and ready to provide students with continuing quality and engaging instruction. In 2020, the Governor of New Jersey issued an executive order and passed a law requiring school districts to develop an emergency remote learning plan that allows continuity in instruction should schools have to transition to online learning due to health-related school closures (New Jersey School Boards Association, 2022). The purpose of this law was for local educational agencies to be prepared with a plan to continue providing high quality, standards-based instruction and to meet the 180-days of school requirement in New Jersey (New Jersey School Boards Association, 2022). Emergency remote learning plans should be codesigned with all stakeholders who will be supporting and implementing it. Details regarding staffing, scheduling, academics, social-emotional learning, mental health support, and technology needs should be included in emergency remote learning plans. Teachers should receive proper training to be prepared to teach in online settings. Using technology based cooperative learning practices in in-person classes could easily transfer over to being used in online settings if students and teachers have had previous practice.

Policymakers and leaders in districts that embed snow days into their school calendars should consider developing remote learning contingency plans. In lieu of canceling school due to weather and hazardous road conditions, schools could be prepared to transition to online learning in such circumstances where schools close due to weather. This would help preserve the

continuity of instruction, learning, and connections between students and teachers. School districts in Utah announced in February 2023 that they would be extending virtual learning after a major snowstorm (Winn, 2023). These districts have plans in place that allow learning to continue while schools are closed. Contrarily, some school districts in California do not have emergency remote learning plans and school closures due to weather and road closures have impacted student learning. Unprecedented school closures occurred in February to March 2023 during a massive snowstorm in Southern California that crippled the mountain communities' infrastructures. While agencies worked to clear the nearly eight feet of snow for the roads to be safe, schools in one district were closed for almost 30 days. With no immediate or present danger to students who were at home, schooling could have potentially continued in an online setting. In the future, if adequately prepared with an emergency remote learning plan, schools could continue to operate and provide instruction to students in similar situations. It is recommended that school districts create this type of contingent learning plan.

A final remote learning plan that should be cogitated by policymakers and district leaders is a four day in-person school week with a fifth day online. There are various options and formats for the online day that could be any day of the week. The fifth day could be synchronous online for the full day or half of the day synchronous and half of the day asynchronous. Another option would be to have part of the day include synchronous sessions with direct instruction from the teacher and for the second part of the day students could work in cooperative learning groups. Having a half or full day of online education for students would provide opportunities for teachers to receive training and professional development, such as with cooperative learning strategies online, to help build their self-efficacy. As of 2022, 81 out of 186 districts in Idaho, 70% of districts in Colorado, and 140 districts in Missouri have transitioned to the four-day

instruction week (Flandro, 2022; Gobir, 2022; Mobley, 2022). These districts have reported benefits to this model, including increases in retention of teachers and staff and providing more time and bandwidth for teacher training and professional development (Flandro, 2022; Gobir, 2022; Mobley, 2022). Other districts should consider the four day in-person schedule as a way to integrate online learning into education and recruit and retain high quality teachers.

A final implication from the results of this study includes the development of a 5-point user guide for cooperative learning online for students, teachers, and families. This guide could come in the form of a video presentation, slide presentation, or document and should include expectations for students and teachers. The five points in the guide could include the following:

1. Online course structure and schedule.

2. Instruction: Synchronous, asynchronous, and recorded instructional sessions.

3. Content: Lesson topics, resources, websites, and videos for instruction.

4. Interactions: Small group sessions, use of breakout rooms, and modes of communication.

5. Cooperative learning: Specific expectations of group structure and directions for types of cooperative learning strategies.

Furthermore, a more comprehensive guide for cooperative learning could be created that includes detailed expectations, structures, and explanations for the use of various types of cooperative learning strategies that would be used in the online class. These guides would help students to know what to expect in online classes and provide information on how cooperative learning groups will function. These guides could help build teacher self-efficacy as they would know what to expect from students and what is expected of them.

Recommendations for Further Research

There are several recommendations for future studies that could add to the research in the areas of teacher self-efficacy and attitudes and perceptions towards cooperative learning in an online setting. First, future researchers may consider using a larger sample size including participants from a broader range of locations to improve the generalizability of the topic of study. Additionally, more demographic information of participants may be gathered in order to have a broader perspective of the overall teacher. Additional studies regarding teacher self-efficacy and attitudes and perceptions towards cooperative learning may focus on targeted grade levels or subject areas to discover which strategies are successful and unsuccessful at the different levels. Furthermore, quality of instruction and teacher self-efficacy could receive some research attention. Using cooperative learning strategies with minimal effort could produce fewer positive results than high quality implementation of the strategy. It would be beneficial to understand the relationship between these two variables.

Next, researchers may want to explore correlations between teachers who typically teach online and those who only taught online during the COVID-19 pandemic. Teachers who typically teach online are likely to be more prepared and experienced teaching in an online setting than teachers who had to rapidly shift to the online setting. This consideration may lead a future researcher to determine if a relationship exists between teachers' attitudes and perceptions towards cooperative learning strategies in an online setting and teachers' years of experience in an online setting. A study could specifically target teachers who have taught five or more years online. Further research should investigate correlations between teachers' attitudes and perceptions towards cooperative learning and the amount of training teachers have had in this instructional method in order to understand how to prepare teachers to use cooperative learning

in any setting. Another suggestion is to research the differences of self-efficacy of teachers who work in a school district that has an emergency remote learning plan in place versus those that do not to determine if the preparedness impacts teachers' levels of self-efficacy.

Ultimately, to increase the power of the educational field, specifically online education, future researchers should target studies that determine how to build capacity in pre-service and in-service teachers' self-efficacy to use cooperative learning strategies in an online setting. It would be beneficial to gather more information on this topic that will better prepare pre-service teachers. Teaching programs can be evaluated to determine how to aim to increase teachers' self-efficacy and attitudes towards cooperative learning in an online or hybrid setting. Furthermore, in-service teachers may benefit from additional professional development in order to increase their self-efficacy and build capacity to use cooperative learning strategies in an online, hybrid, or in-person setting.

Online education does not have to be limited to online courses. Teachers teaching in-person can create learning opportunities for students to utilize cooperative learning strategies online within their classrooms. Students can work cooperatively using shared documents, conduct research together, and use many other resources to support the social learning construct in an online environment. There is an ample number of digital tools that are available and being utilized in cooperative ways in all types of classroom settings. The availability of these tools increases the capacity of students to work cooperatively with each other online regardless of their proximity to one another. Students can cooperate online with a student sitting across the classroom, across the country, or even across the world. Empowering students with the tools for cooperation online opens their world to 21st century opportunities in education and the workplace. Teachers are the drivers and trainers to prepare and transport them there. Employing

teachers to use cooperative learning in any classroom setting provides them time to practice implementing this strategy and build capacity in their instructional practices as an educator. Furthermore, commissioning students to use cooperative learning in any classroom setting provides them the skills and experiences needed to construct their learning together and consequently prepares them with 21st century skills for a future immersed in an online environment.

Limitations

The limitations of this study include factors related to the time period, reliability, access to technology, and participant selection. These factors may have impacted the findings in this study. One of the limitations of this study was the time period in which the research was conducted. The COVID-19 pandemic caused many school districts to mandate online education in the spring of 2020 and many schools continued distance learning into the spring of 2021. As a result, many teachers experienced teaching online for the first time. Teachers in all academic sectors around the world had to quickly pivot from their typical teaching in an in-person classroom and learn how to teach in an online setting. This rapid shift meant that many teachers were not experienced or prepared to teach in an online setting. Additionally, research for this study was conducted in January 2023 through February 2023 which is almost two years after some teachers had been teaching in an online setting. This amount of elapsed time may account for recall bias of participants' responses which refers to participants' ability to accurately recall information from past events when self-reporting. Therefore, participants who only taught in an online setting during the COVID-19 pandemic in 2020-2021, would have to recall their experiences from two to three years earlier. For some participants, that may be a long time to recall information accurately.

Another limitation may be the selection of participants. This study had a broad range of grade level participants; however, the majority of participants in this study were identified as elementary school teachers grades pre-k to grade 6. A broader network and a balanced representation of grade levels could enhance the reliability and generalizability of this study. Furthermore, the difference in participants' years of experience and context of teaching online may be another limitation. Further, 80.5% of participants have taught in an online setting for two years or less. This may indicate that their online teaching experiences were only during the COVID-19 pandemic and the time of mandated distance learning. Only eight out of 123 participants indicated having more than six years of teaching online which means a small percentage of this study's participants are experienced online educators. Lack of experience teaching online emerged in the qualitative data as a challenge of teachers and contributing factor to their sense of self-efficacy. It is also possible that teachers neglected to remember while taking the survey that their responses were in relation to their experiences teaching in an online setting and not their overall experience as a teacher.

Reliability is another limitation. This study relied on a survey to collect data and the self-reported questionnaires have the potential to be influenced teachers' biases or personal interpretations of the questions posed. This is of specific concern with the open-ended questions as participants' responses are based on their personal understanding of the questions, which has the potential to vary among participants. Additionally, the majority of participants claimed to have no workshop training in cooperative learning and an additional 39.8 % reported having two days or less of training. This is a significant portion of participants that have had minimal training with cooperative learning and therefore the survey's reliability may be impacted by their limited knowledge and understanding of cooperative learning strategies.

This study was also limited to participants' technological access and technological abilities. The survey was available via a Google Form which means that participants must have had access to a device and internet in order to complete the survey. Technological issues such as internet connectivity, accessibility to the form, and unfamiliarity and navigation of the Google form may have impacted participants' responses.

Delimitations

There were several boundaries put in place by the researcher in effort to address potential limitations. The study aimed to include teachers of all grade levels from kindergarten to college level to allow for a larger sample size. Additionally, the study was open to include any public or private school educator who had ever taught online which included teachers who did not typically teach online but did so during the COVID-19 pandemic. A combination of convenience sampling and snowball sampling was used to reach a broader population. Next, the researcher modified the survey scales so that it did not have redundant demographic questions as are in the original TSES and CLIQ. The researcher also added two free-response questions to the survey to collect qualitative data for this mixed-methods study. In the survey, the researcher provided definitions, descriptions, and examples of self-efficacy and cooperative learning in an effort to clarify such vocabulary words and minimize various interpretations.

Summary

The purpose of this research was to study and analyze the relationships between teachers' self-efficacy and teachers' attitudes and perceptions towards cooperative learning in an online setting. Overall, the data collected in this study revealed a significant and moderate, positive relationship between teachers' attitudes and perceptions towards cooperative learning strategies and teachers' self-efficacy in an online setting. The data also indicated a significant and

moderate, positive relationship between teachers' attitudes and perceptions towards cooperative learning strategies and teachers' years of experience teaching.

Finally, it was found that there are numerous experiences and factors that contribute to teachers' self-efficacy as a significant predictor to their attitudes and perceptions towards cooperative learning strategies. The findings in this study add to the current research and knowledge surrounding the variables of teacher self-efficacy in an online setting and teachers' attitudes and perceptions towards cooperative learning in online settings.

REFERENCES

Abramczyk, A., & Jurkowski, S. (2020). Cooperative learning as an evidence-based teaching strategy: What teachers know, believe, and how they use it. *Journal of Education for Teaching, 46*(3), 296–308. https://doi.org/10.1080/02607476.2020.1733402

Abrami, P., Poulsen, C., & Chambers, B. (1998). CLIQ: Cooperative Learning Implementation Questionnaire. Centre for the Study of Learning and Performance. http://doe.concordia.ca

Abrami, P. C., Poulsen, C., & Chambers, B. (2004). Teacher motivation to implement an educational innovation: Factors differentiating users and non-users of cooperative learning. *Educational Psychology, 24*(2), 201–216. http://dx.doi.org/10.1080/0144341032000160146

Adedoyin, O. B., & Soykan, E. (2020). Covid-19 pandemic and online learning: The challenges and opportunities. *Interactive Learning Environments, 31*(2), 863–875. https://doi.org/10.1080/10494820.2020.1813180

Aghajani, M., & Adloo, M. (2018). The effect of online cooperative learning on students' writing skills and attitudes through telegram application. *International Journal of Instruction. 11*(3), 433–448. https://doi.org/10.12973/iji.2018.11330a

Adnan, M. (2018). Professional development in the transition to online teaching: The voice of entrant online instructors. *ReCALL, 30*(1), 88–111. doi:10.1017/S0958344017000106

Alexander, G., & Wyk, M. M. V. (2014). Does cooperative learning as a teaching approach enhance teaching and learning in integrated culturally diverse school settings? An exploratory study. *Mediterranean Journal of Social Sciences, 5*(2), 689–698. https://doi:10.5901/mjss.2014.v5n2p689

Alghamdi, O. (2018). *Saudi college students' attitudes towards online collaborative learning*

[Doctoral dissertation, University of Kansas]. KU ScholarWorks.

https://kuscholarworks.ku.edu/bitstream/handle/1808/29468/Alghamdi_ku_0099D_1633

3_DATA_1.pdf?sequence=1

Ali, W. (2020). Online and remote learning in higher education institutes: A necessity in light of

COVID-19 pandemic. *Higher Education Studies, 10*(3), 16–25.

https://doi.org/10.5539/hes.v10n3p16

Ali, A., & Smith, D. (2015). Comparing social isolation effects on students' attrition in online

versus face-to-face courses in computer literacy. *Issues in Informing Science and

Information Technology*, *12*, 11–20. https://doi.org/10.28945/2258

Allen, I. E., & Seaman, J. (2007). *Online nation: Five years of growth in online learning*. Sloan

Consortium. https://files.eric.ed.gov/fulltext/ED529699.pdf

Allinder, R. M. (1995). An examination of the relationship between teacher efficacy and

curriculum-based measurement and student achievement. *Remedial and Special

Education, 16*(4), 247–254. https://doi.org/10.1177/074193259501600408

An, Y., Kaplan-Rakowski, R., Yang, J., Conan, J., Kinard, W., & Daughrity, L. (2021).

Examining K-12 teachers' feelings, experiences, and perspectives regarding online

teaching during the early stage of the COVID-19 pandemic. *Education Tech Research

Development, 69*, 2589–2613. https://doi.org/10.1007/s11423-021-10008-5

Ashe, S. J., & Lopez, R. M. (2021). Communication in online learning—How important is it?

The Clearing House, 94(1), 15–30. https://doi.org/10.1080/00098655.2020.1835795

Ashton, P. T., & Webb, R. B. (1986). *Making a difference: Teachers' sense of efficacy and

student achievement.* Longman.

Aslan, S. (2022). Using cooperative learning and the flipped classroom model with prospective

teachers to increase digital literacy self-efficacy, technopedagogical education, and 21st-century skills competence. *International Journal of Progressive Education, 18*(3), 121–137. https://doi.org/10.29329/ijpe.2022.439.9

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman and Company.

Bandura, A., & Adams, N. (1977). Analysis of self-efficacy theory of behavioral change. *Cognitive Therapy and Research, 1*(4), 287–310. https://doi.org/10.1007/BF01663995

Barbour, M. (2009). Today's student and virtual schooling: The reality, the challenges, the promise. *Journal of Distance Learning, 13*(1), 5–25.

Barreto, D., Oyarzun, B., & Conklin, S. (2022). Integration of cooperative learning strategies in online settings. *E-Learning and Digital Media, 19*(6), 574–594. https://doi.org/10.1177/20427530221104187

Barrot, J., Llenares, I., & Del Rosario, L. (2021). Students' online learning challenges during the pandemic and how they cope with them: The case of the Philippines. *Education and Information Technologies, 26*(6), 7321–7338. https://doi.org/10.1007/s10639-021-10589-x

Bdair, I. (2021). Nursing students' and faculty members' perspectives about online learning during COVID-19 pandemic: A qualitative study. *Teaching and Learning in Nursing, 16*(3), 220–226. https://doi.org/10.1016/j.teln.2021.02.008

Brame, C., & Biel, R. (2015). *Setting up and facilitating group work: Using cooperative learning*

groups effectively. Vanderbilt University Center for Teaching.

https://cft.vanderbilt.edu/guides-sub-pages/setting-up-and-facilitating-group-work-using-

cooperative-learning-groups-effectively/

Bray-Clark, N., & Bates, R. (2003). Self-efficacy beliefs and teacher effectiveness: Implications

for professional development. *The Professional Educator, 26,* 13–22.

Brynjolfsson E., Horton J. J., Ozimek A., Rock D., Sharma G., TuYe H.-Y. (2020). *COVID-19*

and remote work: An early look at U.S. data [Working paper 27344]. National Bureau of

Economic Research. https://doi.org/10.3386/w27344

Buchs, C., Filippou, D., Volpe, P., & Volpe, Y. (2017). Challenges for cooperative learning

implementation: Reports from elementary school teachers. *Journal of Education for*

Teaching, 43(3)*,* 296–306. https://doi.org/10.1080/02607476.2017.1321673

Bustamante, J. (2021, February 06). *Distance learning statistics. Online education.*

https://educationdata.org/online-education-statistics

Cardullo, V., Wang, C.-H., Burton, M., & Dong, J. (2021). K-12 teachers' remote teaching self-

efficacy during the pandemic. *Journal of Research in Innovative Teaching & Learning,*

14(1), 32–45. https://doi.org/10.1108/JRIT-10-2020-0055

Casey, D. M. (2008). A journey to legitimacy: The historical development of distance education

through technology. *TechTrends, 52*(2), 45–51. https://doi.org/10.1007/s11528-008-

0135-z

Centers for Disease Control and Prevention. (2021). *How to protect yourself and others.*

https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html

Chan, S., Maneewan, S., & Koul, R. (2021). Cooperative learning in teacher education: Its

effects on EFL pre-service teachers' content knowledge and teaching self-efficacy.

Journal of Education for Teaching: International Research and Pedagogy, 47(5), 654–

667. https://doi.org/10.1080/02607476.2021.1931060

Clark, C. (2013). A phenomenological study of the impact of pre-service and in-service training

regarding the integration of twenty-first century technologies into selected teachers'

instruction. (Publication No. 3559753) [Doctoral dissertation, Liberty University]

ProQuest Dissertation and Theses Global.

Coman, C., Țîru, L., Meseșan-Schmitz, L., Stanciu, C., & Bularca, M. (2020). Online teaching

and learning in higher education during the coronavirus pandemic: Students' perspective.

Sustainability, 12(24), 10367. http://dx.doi.org/10.3390/su122410367

Copeland, W., McGinnis, E., Bai, Y., Adams, Z., Nardone, H., Devadanam, V., & Hudziak, J.

(2021). Impact of COVID-19 pandemic on college student mental health and

wellness. *Journal of the American Academy of Child & Adolescent Psychiatry*, *60*(1),

134–141. https://doi.org/10.1016/j.jaac.2020.08.466

Corry, M., & Stella, J. (2018). Teacher self-efficacy in online education: A review of the

literature. *Research in Learning Technology, 26*. https://doi.org/10.25304/rlt.v26.2047

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative*

and qualitative research (4th ed.). Pearson.

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry & research design: Choosing among*

five approaches (4th ed.). Sage.

Curtis, H., & Werth, L. (2015) Fostering student success and engagement in a K-12 online

school. *Journal of Online Learning Research 1*(2), 163–190.

Davidson, N., & Major, C. H. (2014). Boundary crossings: Cooperative learning, collaborative

learning, and problem-based learning. *Journal on Excellence in College Teaching*, *25*(3-

4), 7–55.

DeCuir-Gunby, J. T., & Schutz, P. A. (2017). *Developing a mixed methods proposal: A practical guide for beginning researchers* (5th ed.). Sage.

Deutsch, M. (1949). A theory of co-operation and competition. *Human Relations, 2*(2), 129–152. https://doi.org/10.1177/001872674900200204

Dewey, J. (1997). *Experience and education.* Touchstone. (Original work published 1938)

Diallo, A. (2020, April 19). *How to reach students without internet access at home? Schools get creative*. The Hechinger Report. http://hechingerreport.org/how-to-reach-students-without-internet-access-at-home-schools-get-creative/

Dolighan, T., & Owen, M. (2021). Teacher efficacy for online teaching during the COVID-19 pandemic. *Brock Education Journal*, *30*(1), 95. https://doi.org/10.26522/brocked.v30i1.851

Domínguez, D. G., García, D., Martínez, D. A., & Hernandez-Arriaga, B. (2020). Leveraging the power of mutual aid, coalitions, leadership, and advocacy during COVID-19. *American Psychologist*, *75*(7), 909-918. https://doi.org/10.1037/amp0000693

Dorn, E., Hancock, B., Sarakatsannis, J., & Viruleg, E. (2020). *COVID-19 and student learning in the United States: The hurt could last a lifetime.* McKinsey & Company. https://www.mckinsey.com/industries/public-and-social-sector/our-insights/covid-19-and-student-learning-in-the-united-states-the-hurt-could-last-a-lifetime#

Du, J., Ge., X., & Xu., J. (2015). Online collaborative learning activities: The perspectives of African American female students. *Computers & Education, 82*, 152–161.

Duffin, E. (2020, May 18). *U.S. student distance learning enrollment from 2012–2018*. https://www.statista.com/statistics/944245/student-distance-learning-enrollment-usa/

Dupuis, J., Savick, S., & Fenster, M. (2020). Relationship between self-efficacy measured by the TSES scale and teacher participation in PDS Activity. *The Professional Educator, 43*(1), 47–58.

Dweck, C. (2016). What having a "growth mindset" actually means. *Harvard Business Review, 13*, 213–226. https://hbr.org/2016/01/what-having-a-growth-mindset-actually-means

Eadens, D., Maddock, D., Thornburg, A., & Abernathy, D. (2022). K-12 teacher perspectives on the pandemic pivot to online teaching and learning. *Journal of Pedagogical Research*, *6*(1), 131–151. https://doi.org/10.33902/JPR.2022175776

Education Week. (2020, May 15). *Map: Coronavirus and school closures in 2019–2020.* https://www.edweek.org/ew/section/multimedia/map-coronavirus-and-school-closures.html

Erukulapati, K. (2019). Lifelong learners. *Quality Progress, 52*(4), 72–72.

Ervin, J. (2019). *Undergraduate education students' experiences in online cooperative learning activities: An embedded single-case study*. [Doctoral dissertation, Liberty University]. https://digitalcommons.liberty.edu/doctoral/2218

Fausnaugh, R. (2016). *Differences between elementary, middle, and secondary teachers' perceptions and implementation of cooperative learning strategies.* [Doctoral dissertation, Liberty University]. https://digitalcommons.liberty.edu/doctoral/1313/

Fenn, M. (2019). *The relationship between a teacher's self-efficacy with using technology and their level of integrating of technology* (Publication No. 13808572) [Doctoral dissertation, Concordia University—Portland]. ProQuest Dissertation and Theses Global.

Ferguson-Patrick, K. (2016). The importance of teacher role in cooperative learning: The effects of high stakes testing on pedagogical approaches of early career teachers in primary

schools. *Education, 46*(1), 3–13. https://doi.org/10.1080/03004279.2016.1189946

Flandro, C. (2022). *More rural districts transition to a four-day week in hopes of attracting teachers.* Idaho Capital Sun. https://idahocapitalsun.com/2022/09/14/more-rural-districts-transition-to-a-four-day-week-in-hopes-of-attracting-teachers/

Frankfort-Nachmias, C., & Nachmias, D. (2008). *Research methods in the social sciences* (7th ed.). Worth.

Freitas, C. (2022). Group feedback. *California Educator, 26*(5), 45–46.

Frisby, B. N., & Martin, M. M. (2010). Instructor–student and student–student rapport in the classroom. *Communication Education, 59*(2), 146–164. https://doi.org/10.1080/03634520903564362

Garrett, R., Legon, R., Fredericksen, E. E., & Simunich, B. (2020). *CHLOE 5: The pivot to remote teaching in spring 2020 and its impact.* Quality Matters. https://www.qualitymatters.org/qa-resources/resource-center/articles-resources/CHLOE-5-report-2020

Gillies, R. M. (2016). Cooperative learning: Review of research and practice. *Australian Journal of Teacher Education, 41*(3). http://dx.doi.org/10.14221/ajte.2016v41n3.3

Garvis, S. (2013). Beginning generalist teacher self-efficacy for music compared with maths and English. *British Journal of Music Education, 30*(1), 85–101. https://doi.org/10.1017/S0265051712000411

Gentry, J. E., Baker, C., Thomas, B. D., Whitefield, C., & Garcia, L. (2014) Transforming technology integration: An instrument to measure efficacy for modeling 21st-century skills. *National Teacher Education Journal 7*(3), 31–38.

Gibson, S., & Dembo, M. H. (1984). Teacher efficacy: A construct validation. *Journal of*

Educational Psychology, 76(4), 569–582. https://doi.org/10.1037/0022-0663.76.4.569

Gobir, N. (2022). *Why more schools are considering a 4-day week despite some drawbacks.*
https://www.kqed.org/mindshift/59644/why-more-schools-are-considering-a-4-day-week-despite-some-drawbacks

Goddard, R. D., Hoy, W. K. and Hoy, A. W. (2000). Collective teacher efficacy: Its meaning, measure, and impact on student achievement. *American Educational Research Journal, 37*(2), 479–507. https://doi.org/10.3102/00028312037002479

Gomez, F. C., Trespalacios, J., Hsu, Y. C., & Yang, D. (2021). Exploring teachers' technology integration self-efficacy through the 2017 ISTE standards. *TechTrends 66*, 159–171. https://doi.org/10.1007/s11528-021-00639-z

Gosselin, K. (2009). *Development and psychometric exploration of the online teaching self-efficacy inventory*. [Doctoral dissertation, Texas Tech University].
http://hdl.handle.net/2346/8971

Guskey, T. R., & Passaro, P. D. (1994). Teacher efficacy: A study of construct dimensions. *American Educational Research Journal, 31*, 627–643.
http://dx.doi.org/10.3102/00028312031003627

Harris, A., & Jones, M. (2020). COVID 19—school leadership in disruptive times. *School Leadership & Management, 40*(4), 243–247.
https://doi.org/10.1080/13632434.2020.1811479

Hennessey, A., & Dionigi, R. A. (2013). Implementing cooperative learning in Australian primary schools: Generalist teachers' perspectives. *Issues in Education Research, 23*(1), 52–68.

Herold, B. (2020, March 27). *The scramble to move America's schools online.* Education Week.

https://www.edweek.org/ew/articles/2020/03/26/the-scramble-to-move-americas-schools-online.html

Hodges, C. B., Moore, S., Lockee, B. B., Trust, T., & Bond, M. A. (2020). The difference between emergency remote teaching and online learning. *Educause Review.* https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Hoy, A. W., & Spero, R. B. (2005). Changes in teacher efficacy during the early years of teaching: A comparison of four measures. *Teaching and Teacher Education, 21*(4), 343–356. https://doi.org/10.1016/j.tate.2005.01.007

Huang, Y. (2016). Exploring teachers' motivation for implementing cooperative learning using expectancy-value theory. *International Journal for Cross-Disciplinary Subjects in Education, 7*(3), 2852–2856.

Hulewicz, R. (2020). *Third through fifth grade teachers' perceptions and practices of cooperative learning* [Doctoral dissertation, Florida State University]. https://purl.lib.fsu.edu/diginole/2020_Summer_Fall_Hulewicz_fsu_0071E_16030

Humphries, C. A., Hebert, E., Daigle, K., & Martin, J. (2012). Development of a physical education teaching efficacy scale. *Measurement in Physical Education and Exercise Science, 16*(4), 284–299. https://doi.org/10.1080/1091367X.2012.716726

Husaini, A., & Syarifuddin, H. (2020). The validity of learning devices of cooperative models based on blended learning to improve learning outcomes. *Journal of Physics: Conference Series, 1554*(1). https://doi.org/10.1088/1742-6596/1554/1/012074

Ioannou, A., & Artino, A. R. (2010). Using a classroom response system to support active learning in an educational psychology course: A case study. *International Journal of*

Instructional Media, 37(3), 1–12.

Jacobs, G., & Ivonne, F. (2020). Infusing cooperative learning in distance education. *The Electronic Journal for English as a Second Language, 24*(1).

Johnson, C., Walton, J., Strickler, L., Elliott, J. (2022). Online teaching in K-12 education in the United States: A systematic review. *Review of Educational Research.* https://doi.org/10.3102/00346543221105550

Johnson, D. W., & Johnson, R. T. (1987). *Learning together and alone: Cooperative, competitive, and individualistic learning* (2nd ed.). Prentice-Hall.

Johnson, D. W., & Johnson, R. T. (1989). *Cooperation & competition: Theory & research.* Interaction Book Company.

Johnson, D. W., & Johnson, R. T. (1994). *Leading the cooperative school.* (2nd ed.). Interaction Book Company.

Johnson, D.W., & Johnson, R.T. (1999). *Human relations: Valuing diversity*. Interaction Book Company.

Johnson, D. W., & Johnson, R. T. (2002). Learning together and alone: Overview and meta-analysis. *Asia Pacific Journal of Education, 22*(1), 95–105. https://doi.org/10.1080/0218879020220110

Johnson, D. W., & Johnson, R. T. (2009). An educational psychology success story: Social interdependence theory and cooperative learning. *Educational Researcher, 38*(5), 365–379. https://doi.org/10.3102/0013189X09339057

Johnson, D. W., & Johnson, R. T. (2017). Cooperative learning. Ponencia Plenaria. *Inovacion Educacion.* University of Minnesota. Congreso Internacional.

Johnson, D. W., Johnson, R. T, & Holubec, E. (1991). *Cooperation in the classroom*. Interaction

Book Company.

Johnson, D. W., Johnson, R., & Holubec, E. (1994). *Cooperative learning in the classroom*. Association for Supervision and Curriculum Development.

Johnson, D. W., Johnson, R. T., & Holubec, E. (2020). Common mistakes in using cooperative learning—and what to do about them? *The Newsletter of the Cooperative Learning Institute, 34*(1), 3–4.

Johnson, D. W., Johnson, R. T., Roseth, C., & Shin, T. S. (2014). The relationship between motivation and achievement in interdependent situations. *Journal of Applied Social Psychology, 44*(9), 622–633. https://doi.org/10.1111/jasp.12280

Johnson, D. W., Johnson, R., & Smith, K. A. (1991). *Active learning: Cooperation in the college classroom*. Interaction Book Company.

Johnson, D. W., Johnson, R. T., & Stanne, M. B. (2000). *Cooperative learning methods: A meta-analysis*. University of Minnesota.

Johnson, S. A., & Romanello, M. L. (2005). Generational diversity: Teaching and learning approaches. *Nurse Educator, 30*(5), 212–216. https://doi.org/10.1097/00006223-200509000-00009

Junus, K., Santoso, H., Putra, P., Gandhi, A., & Siswantining, T. (2021). Lecturer readiness for online classes during the pandemic: A survey research. *Education Sciences, 11*(3), 139. http://dx.doi.org/10.3390/educsci11030139

Kagan, S. (1989). The structural approach to cooperative learning. *Educational Leadership, 47*(3), 14. http://www.ascd.org/ASCD/pdf/journals/ed_lead/el_198912_kagan.pdf

Kagan, M. (2001). *Logic line-ups: Higher-level thinking activities*. Kagan Publishing.

Kandasamy, C., & Habil, H. (2018). Exploring cooperative learning method to enhance speaking

skills among school students. *LSP International Journal*, *5*(2), 1–16.

https://doi.org/10.11113/lspi.v5n2.59

Kapasia, N., Paul, P., Roy, A., Saha, J., Zaveri, A., Mallick, R., Chouhan, P. (2020). Impact of lockdown on learning status of undergraduate and postgraduate students during COVID-19 pandemic in West Bengal, India. *Children and Youth Services Review, 116*, 105–194. https://doi.org/10.1016/j.childyouth.2020.105194

Kaufmann, R., & Vallade, J. I. (2020). Exploring connections in the online learning environment: Student perceptions of rapport, climate, and loneliness. *Interactive Learning Environments*, *30*(10), 1794–1808.

http://doi.org/10.1080/10494820.2020.1749670

Khalil, R., Mansour, A., Fadda, W., Almisnid, K., Aldamegh, M., Al-Nafeesah, A., & Al-Wutayd, O. (2020). The sudden transition to synchronized online learning during the COVID-19 pandemic in Saudi Arabia: A qualitative study exploring medical students' perspectives. *BMC Medical Education, 20*(1), 1–10. https://doi.org/10.1186/s12909-020-02208-z

Kirik, O. T., & Markic, S. (2012). The self-efficacy of pre-service elementary teachers using cooperative learning in science teaching. *Procedia - Social and Behavioral Sciences, 46*, 5005–5009. https://doi.org/10.1016/j.sbspro.2012.06.376

Klassen, R. M., & Chiu, M. M. (2010). Effects on teachers' self-efficacy and job satisfaction: Teacher gender, years of experience, and job stress. *Journal of Educational Psychology, 102*(3), 741–756. https://doi.org/10.1037/a0019237

Klassen, R. M., Tze, V. M., Betts, S. M., & Gordon, K. A. (2011). Teacher efficacy research 1998–2009: Signs of progress or unfulfilled promise*? Educational Psychology Review*

23(1), 21–43. https://doi.org/10.1007/s10648-010-9141-8

Koenig, R. (2020, May 28). *Pandemic may (finally) push online education into teacher prep programs.* Ed Surge. https://www.edsurge.com/news/2020-05-28-pandemic-may-finally-push-online-education-intoteacher-prep-programs

Kolb, L. (2021). From 1916 to 2021: What would John Dewey say about remote learning? *TeacherLibrarian*, *48*(5). https://go.gale.com/ps/i.do?id=GALE%7CA672909150&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=14811782&p=AONE&sw=w&userGroupName=anon%7Ef6db16be

Koutselini, M. (2009). Teacher misconceptions and understanding of cooperative learning: An intervention study. *Journal of Classroom Interaction, 43*(2), 34–44.

Kraft, M. A., Simon, N. S., & Lyon, M. A. (2021). Sustaining a sense of success: The protective role of teacher working conditions during the COVID-19 pandemic. *Journal of Research on Educational Effectiveness*, *14*(4), 727–769. https://doi.org/10.1080/19345747.2021.1938314

Kutnick, P., Ota, C., & Berdondini, L. (2008). Improving the effects of group working in classrooms with young school-aged children: Facilitating attainment, interaction, and classroom activity. *International Journal of Educational Research, 18*(1), 83–95. https://doi.org/10.1016/j.learninstruc.2006.12.002

Kurt, S. (2018). *Fully and partially online courses: Definitions*. Educational Technology. https://educationaltechnology.net/fully-andpartially-online-courses- definitions/

Lewis, E., & Wang, C. (2015). Using an online curriculum design and a cooperative instructional approach to orientate adjunct faculty to the online learning environment. *The Journal of Continuing Higher Education, 63*, 109–118.

https://doi.org/10.1080/07377363.2015.1042995

Lin, E. (2006). Cooperative learning in the science classroom. *The Science Teacher, 73*, 34–39.

Likitrattanaporn, W. (2018). A study of language learning strategies for practical use through the process of cooperative learning. *International Journal of Educational Technology and Learning*, *3*(1) 35–44. https://doi.org/10.20448/2003.31.35.44

Loh, R., & Ang, C. (2020). Unravelling cooperative learning in higher education: A review of research. *Research in Social Sciences and Technology, 5*(2), 22–39. https://doi.org/10.46303/ressat.05.02.2

Matthews, D. (1999). The origins of distance education and its use in the United States. *T.H.E. Journal, 27*(2), 54.

Matuga, J. (2009). Self-regulation, goal orientation, and academic achievement of secondary students in online university courses. *Journal of Educational Technology & Society, 12*(3), 4–11. http://search.proquest.com/docview/1287037464?accountid=27700

Maxwell, J. A. (2013). *Qualitative research design: An interactive approach* (3rd ed.). Sage.

McCoach, D. B., & Colbert, R. D. (2010). Factors underlying the collective teacher efficacy scale and their mediating role in the effect of socioeconomic status on academic achievement at the school level. *Measurement and Evaluation in Counseling and Development, 43*(1), 31–47.

McMahon, M. (1997, December 7–10). *Social constructivism and the world wide web—A paradigm for learning* [Conference paper]. The Australian Society for Computers in Learning in Tertiary Education (ASCILITE) Annual Conference, Perth, Western Australia. https://www.ascilite.org/conferences/perth97/papers/Mcmahon/Mcmahon.html

McMillan, J. H. (2012). *Educational research: Fundamentals for the consumer* (6th ed.).

Pearson College Division.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Mobley, M. (2022). *Independence, Missouri school district will move to 4-day school week.* https://abc7news.com/independence-mo-school-missouri-district-4-day-week/12569978/

Mojavezi, A., & Tamiz, M. P. (2012). The impact of teacher self-efficacy on the students' motivation and achievement. *Theory and Practice in Language Studies, 2*(3), 483–491. https://doi.org/10.4304/tpls.2.3.483-491

Mongillo, M. (2011) *Exploring the development of novice teachers' self-efficacy.* (Publication No. 3480845) [Doctoral dissertation, Southern Connecticut State University]. ProQuest Dissertation and Theses Global.

Moore-Adams, B. L., Jones, W. M., & Cohen, J. (2016). Learning to teach online: A systematic review of the literature on K-12 teacher preparation for teaching online. *Distance Education, 37*(3), 333–348. https://doi.org/10.1080/01587919.2016.1232158

Mojtaba, A., & Mahsa, A. (2018). The effect of online cooperative learning on students' writing skills and attitudes through telegram application. *International Journal of Instruction*, *11*(3). https://doi.org/10.12973/iji.2018.11330a

Mundelsee, L., & Jurkowski, S. (2021). Think and pair before share: Effects of collaboration on students' in-class participation. *Learning and Individual Differences*, *88.* https://doi.org/10.1016/j.lindif.2021.102015

Murgatrotd, S. (2020). *COVID-19 and online learning.* https://doi.org/10.13140/RG.2.2.31132.85120

Murray, J. (2014). *Effect of web-based cooperative learning on African American males'
mathematics achievement* [Doctoral dissertation, Walden University].
https://www.proquest.com/docview/1562697105/E02C701DA5F74C7FPQ/16?accountid
=194047

National Center for Learning Disabilities. (2020). *Inclusive technology during the COVID-19
crisis*. https://www.ncld.org/wp-content/uploads/2020/07/Inclusive-Technology-During-
the-COVID-19-Crisis-FINAL.pdf.

National Forum on Education Statistics (NFES). (2021). *Forum guide to virtual education data:
A resource for education agencies*. U.S. Department of Education. National Center for
Education Statistics. https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=NFES2021078

Narvaez, D., Vaydich, J. L., Turner, J. C. and Khmelkov, V. (2008). Teacher self-efficacy for
moral education. *Journal of Research in Character Education, 6*(2), 3–15.

Neer, M. R., & Kircher, W. F. (1989). Apprehensives' perception of classroom factors
influencing their class participation. *Communication Research Reports, 6*(1), 70–
77. https://doi.org/10.1080/08824098909359836

Nelson, R. M., & DeBacker, T. K. (2008). Achievement motivation in adolescents: The role of
peer climate and best friends. *The Journal of Experimental Education, 76*(2), 170–189.
http://www.jstor.org/stable/20157479

New Jersey School Boards Association. (2022). *Legislative Update: Governor signs COVID-
related special education claims measure, remote instruction bill advances, senate
education committee meets*. https://www.njsba.org/news-publications/school-board-
notes/march-8-2022-vol-xlv-no-29/legislative-update-16/

Newton, D. (2020). Most teachers say they are "not prepared" to teach online. *Forbes*.

https://www.forbes.com/sites/dereknewton/2020/03/26/most-teachers-say-they-are-not-prepared-to-teach-online/?sh=4370c96a7f2c

Ní Shé, C., Farrell, O., Brunton, J., Costello, E., Donlon, E., Trevaskis, S., & Eccles, S. (2019). *Teaching online is different: Critical perspectives from the literature*. Dublin City University. https://doi.org/10.5281/zenodo.3479402

Niederhauser, D.S., & Stoddart, T. (2001). Teachers' instructional perspectives and use of educational software. *Teaching and Teacher Education, 17*, 15–31. https://doi.org/10.1016/S0742-051X(00)00036-6

Nierenberg, A. (2020). *Students, parents, and teachers tell their stories of remote learning*. New York Times. https://www.nytimes.com/2020/10/14/education/learning/students-parents-teachers-remote-stories.html

Northcote, M., Gosselin, K. P., Reynaud, D., Kilgour, P., & Anderson, M. (2015). Navigating learning journeys of online teachers: Threshold concepts and self-efficacy. *Educational Research, 25*(3), 319–344. https://www.iier.org.au/iier25/northcote.pdf

Oermann, M. H. (2007). Lectures for active learning in nursing education. In L. E. Young & B. L. Paterson (Eds.), *Teaching nursing: Developing a student-centered learning environment.* (pp. 279–294). Lippincott Williams & Wilkins.

Oludipe, D., & Awokoy, J. O. (2010). Effect of cooperative learning teaching strategy on the reduction of students' anxiety for learning chemistry. *Journal of Turkish Science Education (TUSED), 7*(1), 30–36. https://www.tused.org/index.php/tused/article/view/501

Pajares, F. (1992). Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*(4), 543–578. http://www.jstor.org/stable/1170653

Pannucci, C. J., & Wilkins, E. G. (2010). Identifying and avoiding bias in research. *Plastic and Reconstructive Surgery*, *126*(2), 619–625. https://doi.org/10.1097/PRS.0b013e3181de24bc

Partnership for 21st Century Learning. (2016). *Framework for 21st century learning*. http://www.Partnership for 21st Century Learning.org/ourwork/Partnership for 21st Century Learning-framework

Pedersen, J., & Digby, A. (2014). *Secondary schools and cooperative learning: Theories, models, and strategies* (1st ed.) Taylor and Francis.

Peterson, A. T., & Roseth, C. J. (2016). Effects of four CSCL strategies for enhancing online discussion forums: Social interdependence, summarizing, scripts, and synchronicity. *International Journal of Educational Research, 76*, 147–161. https://doi.org/10.1016/j.ijer.2015.04.009

Phillips, V. (1998). Virtual classrooms, real education. *Nation's Business, 86*(5), 41–44.

Picciano, A., & Seaman, J. (2019). K–12 online learning: A survey of U.S. school district administrators. *Online Learning, 11*(3). DOI: https://doi.org/10.24059/olj.v11i3.1719

Popa, C., & Pop, M. (2019). Cooperative learning-applications for children from primary school. *Plus Education, 22*(1), 78–87.

Portillo, J., Garay, U., Tejada, E., & Bilbao, N. (2020). Self-perception of the digital competence of educators during the COVID-19 pandemic: A cross-analysis of different educational stages. *Sustainability, 12*(23), 10128. http://dx.doi.org/10.3390/su122310128

Poulou, M., Reddy, L., & Dudek, C. (2019). Relation of teacher self-efficacy and classroom practices: A preliminary investigation. *School Psychology International, 40*(1), 25–48. https://doi.org/10.1177/0143034318798045

Pressley, T., & Ha, C. (2021). Teaching during a pandemic: United States teachers' self-efficacy during COVID-19. *Teaching and Teacher Education, 106*, 103465. https://doi.org/10.1016/j.tate.2021.103465

Rasheed, R., Kamsin, A., Abdullah, N. (2020). Challenges in the online component of blended learning: A systematic review. *Computer and Education, 144.* https://doi.org/10.1016/j.compedu.2019.103701

Rhew, E., Piro, J. S., Goolkasian, P., Cosentino, P., & Palikara, O. (2018). The effects of a growth mindset on self-efficacy and motivation. *Cogent Education, 5*(1), 1–16. https://doi.org/10.1080/2331186X.2018.1492337

Rhoads, M. (2020). *Navigating the toggled term: A guide for K-12 classroom and school leaders*. Peter Lang.

Rhoads, M., Moore, S., & Clevenger-McLaughlin, J. (2022). *Instruction without boundaries: Enhance your teaching strategies with technology tools in any setting.* Edumatch.

Rice, K. (2006). A comprehensive look at distance education in the K–12 context. *Journal of Research on Technology in Education, 38*(4), 425–448. https://doi.org/10.1080/15391523.2006.10782468

Rieck, W. A., & Wadsworth, D. E. (2005). Assessment accommodations: Helping students with exceptional learning needs. *Intervention in School and Clinic, 41*(2), 105–109.

Robertson, M., & Al-Zahrani, A. (2012). Self-efficacy and ICT integration into initial teacher education in Saudi Arabia: Matching policy with practice. *Australasian Journal of Educational Technology*, *28*(7). https://doi.org/10.14742/ajet.793

Rowles, C. J., & Russo, B. L. (2009). Strategies to promote critical thinking and active learning. In D. Billings & J. Halstead (Eds.), *Teaching in Nursing: A Guide for Faculty* (pp. 238–

261). Saunders Elsevier.

Ruey, S. (2010). A case study of constructivist instructional strategies for adult online learning. *British Journal of Educational Technology, 41*(5), 706–720. https://doi.org/10.1111/j.1467-8535.2009.00965.x

Ruys, I., Van Keer, H., & Aelterman, A. (2010). Collaborative learning in pre-service teacher education: An exploratory study on related conceptions, self-efficacy and implementation. *Educational Studies, 36*(5), 537–553. https://doi.org/10.1080/03055691003729021

Saborit, J. A. P., Fernández-Río, J., Estrada, J. A. C., Méndez-Giménez, A., & Alonso, D. M. (2016). Teachers' attitude and perception towards cooperative learning implementation: Influence of continuing training. *Teaching and Teacher Education, 59*, 438–445. https://doi.org/10.1016/j.tate.2016.07.020

Salemink, K., Strijker, D., & Bosworth, G. (2017). Rural development in the digital age: A systematic literature review on unequal ICT availability, adoption, and use in rural areas. *Journal of Rural Studies, 54*, 360–371. https://doi.org/10.1016/j.jrurstud.2015.09.001

Scheckel, M. (2009). Selecting learning experiences to achieve curriculum outcomes. In D. Billings & J. Halstead (Eds.), *Teaching in nursing: A guide for faculty,* (pp. 154–172). Saunders Elsevier.

Schultz, J. L., Wilson, J. R., & Hess, K. C. (2010). Team-based classroom pedagogy reframed: The student perspective. *American Journal of Business Education, 3*(7), 17–24. https://doi.org/10.19030/ajbe.v3i7.455

Seaman J. E., & Seaman, J. (2017). Distance education state almanac 2017. *Babson Survey Research Group.*

https://www.bayviewanalytics.com/reports/almanac/national_almanac2017.pdf

Sharan, S., & Sharan Y. (1976). *Small group teaching*. Educational Technology Publications.

Shaw, M. (2015). *The effects of face-to-face and online peer feedback on business students'*
perceptions of quality and effectiveness. (Publication No. 3708789) [Doctoral
dissertation, Montana State University]. ProQuest Dissertation and Theses Global.
https://www.proquest.com/docview/1698494791/A531CD9427844471PQ/25

Siddiquei, M. I., & Kathpal, S. (2021). Challenges of online teaching during COVID-19: An
exploratory factor analysis. *Human Behavior and Emerging Technologies*, *3*(5), 811–822.
https://doi.org/10.1002/hbe2.300

Silalahi, T. F., & Hutauruk, A. F. (2020). The application of cooperative learning model during
online learning in the pandemic period. *Budapest International Research and Critics*
Institute (BIRCI-Journal): Humanities and Social Sciences, 3(3), 1683–1691.
https://doi.org/10.33258/birci.v3i3.1100

Slavin, R. E. (1995). *Cooperative learning: Theory, research, and practice*. Allyn & Bacon.

Slavin, R. E. (2014). Making cooperative learning powerful. *Educational Leadership, 72*(2), 22–
26.

Smith-Stoner, M., & Molle, M. E. (2010). Collaborative action research: Implementation of
cooperative learning. *Journal of Nursing Education, 49*(6), 312–318.
https://doi.org/10.3928/01484834-20100224-06

Springer, L., Stanne, M. E., & Donovan, S. S. (1999). Effects of small-group learning on
undergraduates in science, mathematics, engineering, and technology: A meta-analysis.
Review of Educational Research, 69(1), 21–5.
http://dx.doi.org/10.3102/00346543069001021

Stein, M. K., & Wang, M. C. (1988). Teacher development and school improvement: The

    process of teacher change. *Teaching and Teacher Education, 4*(2), 171–187.

    https://doi.org/10.1016/0742-051X(88)90016-9

Strom, P., & Strom, R. D. (2014). *Adolescents in the internet age: Teaching and learning from*

    them (2nd Ed.)*.* Information Age.

Sun, A., & Chen, X. (2016). Online education and its effective practice: A research review.

    Journal of Information Technology Education: Research, 15, 157-190.

    http://www.informingscience.org/Publications/3502

Suryaman, M., Cahyono, Y., Muliansyah, D., Bustani, O., Suryani, P., Fahlevi, M., & Munthe,

    A. (2020). COVID-19 pandemic and home online learning system: Does it affect the

    quality of pharmacy school learning? *Systematic Reviews in Pharmacy, 11*(8), 524–530.

Susman, E. B. (1998). Cooperative learning: A review of factors that increase the effectiveness

    of cooperative computer-based instruction. *Journal of Educational Computing Research,*

    18(4), 303–322. https://doi.org/10.2190/2MMX-R2R9-KMCT-NCR3

Tait, M. (2008). Resilience as a contributor to novice teacher success, commitment, and

    retention. *Teacher Education Quarterly, 35*(4), 57–75.

Tang, K.Y., Hsiao, C.H., Tu, Y.F., Hwang, G.J., & Wang, Y. (2021). *F*actors influencing

    university teachers' use of a mobile technology-enhanced teaching (MTT) platform.

    Educational Technology Research and Development, 69, 2705–2728.

    https://doi.org/10.1007/s11423-021-10032-5

TEDx Talks. (2014, January 27). *Anant Agarwal: Why massively open online courses (still)*

    matter [Video]. YouTube. https://www.youtube.com/watch?v=rYwTA5RA9eU

Thomson, S. (2011). Qualitative research: Validity. *Journal of Administration and Governance,*

6(1), 77–82.

Trust, T., & Whalen, J. (2020). Should teachers be trained in emergency remote teaching?
Lessons learned from the COVID-19 pandemic. *Journal of Technology and Teacher Education, 28*(2), 189–199. https://www.learntechlib.org/primary/p/215995/

Tschannen-Moran, M., Woolfolk Hoy, A., & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research, 68*(2), 202–248. https://doi.org/10.3102/00346543068002202

Tschannen-Moran, M., & Hoy, A. (2001). Teacher efficacy: capturing an elusive construct. *Teaching and Teacher Education, 17*(7), 783–805. https://doi.org/10.1016/S0742-051X(01)00036-1

Twani, E. (2021). *Becoming Einstein's teacher: Awakening the genius in your students.* Relational Learning Inc.

United States Department of Education. (2013). *Biennial survey of education in the United States, opening fall enrollment in higher education.* United States Department of Education, National Center for Education Statistics. http://nces.ed.gov/programs/digest/d13/tables/dt13_303.10.asp

United States Department of Education Office of Educational Technology. (2016). *Future ready learning: Reimagining the role of technology in education. 2016 national education technology plan.* https://tech.ed.gov/files/2015/12/ NETP16.pdf

Van Ryzin, M. J., & Roseth, C. J. (2018). Cooperative learning in middle school: A means to improve peer relations and reduce victimization, bullying, and related outcomes. *Journal of Educational Psychology, 110*(8), 1192–1201. https://doi.org/10.1037/edu0000265

Vandeveer, M. (2009). From teaching to learning. In D. Billings & J. Halstead (Eds.), *Teaching*

in nursing: A guide for faculty (pp. 189–226). Saunders Elsevier.

Vannatta, R. A., & Fordham, N. (2004). Teacher dispositions as predictors of classroom

technology use. *Journal of Research on Technology in Education*, *36*(3), 253–271.

Veldman, M. A., Van Kuijk, M. F., Doolaard, S., & Bosker, R. J. (2020). The proof of the

pudding is in the eating? Implementation of cooperative learning: Differences in

teachers' attitudes and beliefs. *Teachers and Teaching, 26*(1), 103–117.

https://doi.org/10.1080/13540602.2020.1740197

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*.

Harvard University Press.

Winn, K. (2023). *Utah school districts announce extension of virtual learning day in aftermath*

of storm. https://kjzz.com/news/local/utah-school-districts-extend-virtual-learning-days-

following-heavy-snowfall

Wright, J. M. (2011). *Effect of quality matters training on faculty's online self-efficacy.*

https://www.semanticscholar.org/paper/Effect-of-Quality-Matters-Training-on-

Faculty%E2%80%99s-Wright/dab4d0256c15c0a2107dd3b924d0bfb19e0b5574

Yada, A., Leskinen, M., Savolainen, H., & Schwab, S. (2022). Meta-analysis of the relationship

between teachers' self-efficacy and attitudes toward inclusive education. *Teaching and*

Teacher Education, 109. https://doi.org/10.1016/j.tate.2021.103521

Yeo, L. S., Ang, R. P., Chong, W. H., Huan, V. S., & Quek, C. L. (2008). Teacher efficacy in the

context of teaching low achieving students. *Current Psychology, 27*, 192–204.

https://doi.org/10.1007/s12144-008-9034-x

You, J., & Kang, M. (2014). The role of academic emotions in the relationship between

perceived academic control and self-regulated learning in online learning. *Computers &*

Education, 77, 125–133. https://doi.org/10.1016/j.compedu.2014.04.018

Young, L. E., & Maxwell, B. (2007). Student-centered teaching in nursing: From rote to active teaching. In L. Young & B. Paterson (Eds.), *Teaching nursing: Developing a student-centered learning environment* (pp. 3–25). Lippincott Williams & Wilkins.

Zakaria, E., & Iksan, Z.H. (2007). Promoting cooperative learning in science and mathematics education: A Malaysian perspective. *Eurasia Journal of Mathematics, Science and Technology Education, 3*, 35–39.

Zee, M., de Jong, P., & Koomen, H. (2016). Teachers' self-efficacy in relation with individual students with a variety of social-emotional behaviours: A multilevel investigation. *Journal of Educational Psychology, 108*(7), 1013–1027. https://doi.org/10.1037/edu0000106

APPENDICES

Appendix A: Informed Consent and Survey

INFORMED CONSENT TO PARTICIPATE IN THE SURVEY

The purpose of this study you are being asked to participate in is designed to investigate teachers' attitudes and perceptions towards cooperative learning strategies in an online setting and teacher self-efficacy in an online setting.

TITLE: "Teacher Attitudes and Perceptions towards Cooperative Learning Strategies and Teacher Self-Efficacy in an Online Setting"

ABSTRACT: In 2020, the COVID-19 pandemic forced schools, elementary to college level, into online education. Many educators were not prepared and did not have confidence in implementing instructional strategies that were engaging to students in an online setting. Teacher self-efficacy is linked to instructional effectiveness. Cooperative learning is an instructional strategy that research shows to be effective for student engagement and achievement. This study you are requested to participate in is designed to investigate teacher self-efficacy and attitudes and perceptions towards cooperative learning in online settings. All questions pertain to your experiences as an educator in online education.

PARTICIPATION: Participation in this study is voluntary and you may choose to participate or withdraw from the study at any time without any penalty or loss of benefits. Upon completion of the survey, you may choose to enter your email address for a chance to win a $20 Amazon gift card. The email address you provide will not be connected to your responses nor used for any other use. Five respondents who have completed the survey will be randomly selected to win a $20 Amazon gift card for participation in the survey.

CONFIDENTIALITY: Participants' information will be anonymous.

RISKS: There are no foreseeable risks associated with your participation in this research study.

DURATION: The survey will take approximately 15 minutes.

CONTACT: This study is being conducted by Caris Adams under the supervision of Dr. Matthew Rhoads, Dissertation Chairman, Concordia University, Irvine, CA. Any questions regarding the research and research subjects' rights may be directed to Dr. Matthew Rhoads at matthew.rhoads1@cui.edu.

RESULTS: The results of the study will be made available via the Concordia University Library repository with open access on the internet upon completion of the research study.

CONFIRMATION STATEMENT: By continuing with this form, you agree that you are of 18 years of age and have read and understood the consent statement with full knowledge of the nature of the study. If you agree and wish to participate in the study, please select yes and

continue with the questionnaire. If you do not agree or do not wish to participate, you may select no and terminate your participation at this time.

Please share this survey link with anyone who is a potential participant for this study. Potential participants include any teacher, kindergarten through college level, who currently teach or have previously taught in an online setting. Participants do not need to have experience using cooperative learning in an online setting to participate in this study.

<u>**SECTION I – Tell Us About Yourself**</u>

Directions:
Please indicate the appropriate response on the answer sheet according to the response alternatives given under each item.

1. Gender
   a. Female
   b. Male
   c. Other
2. Years of teaching completed
   a. 0 to 1 years
   b. 2 to 5 years
   c. 6 to 15 years
   d. 16 to 24 years
   e. 25 years or more
3. Years of teaching in an online setting
   a. 0 to 1 year
   b. 1 to 2 years
   c. 2 to 5 years
   d. 6 years or more
4. Language of instruction
   a. None of my students speak the language of instruction as their first language.
   b. A few of my students speak the language of instruction as their first language.
   c. Some (about 50%) of my students speak the language of instruction as their first language.
   d. Most of my students speak the language of instruction as their first language
   e. All of my students speak the language of instruction as their first language.
5. Teaching position (online)
   a. Classroom teacher, Pre-K to Kindergarten
   b. Classroom teacher, Grades 1 to 3
   c. Classroom teacher, Grades 4 to 6
   d. Classroom teacher, Grades 7 to 12
   e. Classroom teacher, College Level
   f. Mathematics
   g. Science
   h. Second language
   i. Language arts
   j. Physical education

      k. Social science
      l. Creative Arts (music, drama, art)
      m. Special education
      n. Vocational
      o. Other

6. Ability composition of your class(es) (online)
      a. Mostly above average ability students
      b. Mostly average ability students
      c. Mostly below average ability students
      d. Mixed (all ability levels)

7. Typical class size (online)
      a. Less than 18 students
      b. 18 to 24 students
      c. 25 to 29 students
      d. 30 to 34 students
      e. More than 34 students

8. Number of years you have been implementing cooperative learning
      a. None
      b. Less than 2 years
      c. Between 2 and 4 years
      d. Between 4 and 8 years
      e. More than 8 years

9. Amount of workshop training in cooperative learning that you have received
      a. None
      b. Less than a full day
      c. Between 1 and 2 days
      d. Between 3 and 6 days
      e. More than 6 days

10. Method(s) in which you have been trained (mark all that apply)
      a. None
      b. Learning Together (Johnsons)
      c. Structural Approach (Kagan)
      d. STAD and TGT (Slavin)
      e. Name of method was not given/Do not remember name of method
      f. Other methods of cooperative learning

11. Type of follow-up support in cooperative learning that you have received (mark all that apply)
      a. None
      b. With trainer
      c. With fellow teacher(s)
      d. With administrator(s) (e.g., principal, curriculum consultant)
      e. Other

Section II - Teacher Sense of Efficacy Scale

This questionnaire is designed to help us gain a better understanding of the kinds of things

that create difficulties for teachers in their school activities.

Definition of Teacher Self-Efficacy - The teacher's belief in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context.

Directions: Please indicate your opinion about each of the questions below by marking any one of the 5 responses ranging from (1) "None at all" to (5) "A Great Deal" as each represents a degree on the continuum.

*Please respond to each of the questions by considering your past or present experiences *teaching in an online setting.*

Response Scale
1. None at all
2. Very little
3. Some degree
4. Quite a bit
5. A great deal

1. How much can you do to control disruptive behavior in the classroom?
2. How much can you do to motivate students who show low interest in schoolwork?
3. How much can you do to calm a student who is disruptive or noisy?
4. How much can you do to help your students value learning?
5. To what extent can you craft good questions for your students?
6. How much can you do to get children to follow classroom rules?
7. How much can you do to get students to believe they can do well in schoolwork?
8. How well can you establish a classroom management system with each group of students?
9. To what extent can you use a variety of assessment strategies?
10. To what extent can you provide an alternative explanation or example when students are confused?
11. How much can you assist families in helping their children do well in school?
12. How well can you implement alternative teaching strategies in your classroom?
13. What experiences have you had that contribute to high and low levels of self-efficacy when using cooperative learning strategies in an online setting?

Section III - Cooperative Learning Implementation Questionnaire

This questionnaire is designed to identify factors which may have influenced your decision about whether or not to implement cooperative learning.

Definition of Cooperative Learning:
An instructional strategy in which students work actively and purposefully together in small groups to enhance both their own and their teammates' learning.
Examples of Cooperative Learning Strategies:

Think, pair, share *(students pair with a partner and share ideas about a topic)*
Jigsaw *(students become an expert on a topic then return to their home group and all experts share on their topics)*
Rally Coach *(students pair with a partner and take turns being the coach, verbally solving a problem or explaining a topic)*
Group Investigation *(students work together to solve a problem or research a topic)*
Roundtable *(students take turns writing their own responses about a topic)*
Numbered Heads Together *(students in groups given a number, students discuss topic, teacher calls a number to share out)*
Round Robin *(students take turns sharing their thoughts one at a time)*
Cooperative Graffiti *(students write down ideas about a topic all at once)*
Four Corners *(students are given 4 choices and join the group of their choice to discuss the topic)*
Write-around *(students take turns writing about a topic adding to what was previously written)*

The response scale is indicated for each section. Please select the answer that best corresponds to your past or present experiences *teaching in an online setting.*

Professional Views on Cooperative Learning

Directions:
For each of the following statements, please circle the response on the answer sheet that best corresponds to your position, according to the following response scale.

Response Scale:
  A. Strongly disagree
  B. Disagree
  C. Undecided
  D. Agree
  E. Strongly agree

1. If I use cooperative learning, the students tend to veer off task.
2. I understand cooperative learning well enough to implement it successfully.
3. The costs involved in implementing cooperative learning are great.
4. Competition best prepares students for the real world.
5. The amount of cooperative learning training I have received has prepared me to implement it successfully.
6. Cooperative learning holds bright students back.
7. There are too many demands for change in education today.
8. Cooperative learning is consistent with my teaching philosophy.
9. My students presently lack the skills necessary for effective cooperative group work.
10. For me to succeed in using cooperative learning depends on receiving support from my colleagues.
11. Using cooperative learning is likely to create too many disciplinary problems among my students.
12. Using cooperative learning enhances my career advancement.

13. For me to succeed in using cooperative learning requires support from the school administration.
14. Cooperative learning contradicts parental goals.
15. Cooperative learning is a valuable instructional approach.
16. Peer interaction helps students obtain a deeper understanding of the material.
17. My training in cooperative learning has not been practical enough for me to implement it successfully.
18. Cooperative learning is appropriate for the grade level I teach.
19. If I use cooperative learning, too many students expect other group members to do the work.
20. It is impossible to implement cooperative learning without specialized materials.
21. I feel pressured by the administration to use cooperative learning.
22. Cooperative learning places too much emphasis on developing students' social skills.
23. I believe I can implement cooperative learning successfully.
24. I have too little teaching experience to implement cooperative learning successfully.
25. Engaging in cooperative learning enhances students' social skills.
26. It is impossible to evaluate students fairly when using cooperative learning.
27. There is too little time available to prepare students to work effectively in groups.
28. There are too many students in my class to implement cooperative learning effectively.
29. Using cooperative learning promotes friendship among students.
30. My students are resistant to working in cooperative groups.
31. Engaging in cooperative learning interferes with students' academic progress.
32. Implementing cooperative learning requires a great deal of effort.
33. Cooperative learning is inappropriate for the subject I teach.
34. Cooperative learning enhances the learning of low-ability students.
35. I feel pressured by other teachers to use cooperative learning.
36. Cooperative learning is an efficient classroom strategy.
37. Cooperative learning helps meet my school's goals.
38. Implementing cooperative learning takes too much class time.
39. Using cooperative learning fosters positive student attitudes towards learning.
40. I find that cooperative learning is too difficult to implement successfully.
41. Cooperative learning would not work with my students.
42. I prefer using familiar teaching methods over trying new approaches.
43. If I use cooperative learning, my classroom is too noisy.
44. I believe I am a very effective teacher.
45. Implementing cooperative learning takes too much preparation time.
46. I feel a personal commitment to using cooperative learning.
47. Cooperative learning gives too much responsibility to the students.
48. The physical set-up of my classroom is an obstacle to using cooperative learning.

Current Teaching Practices

Directions:

For each of the following statements, please indicate the response that best corresponds to your teaching practices, according to the following response scale:

* Please select the answer that best corresponds to your past or present experiences *teaching in an online setting.*

Response Scale:
  A. Not at all
  B. Slightly
  C. Somewhat
  D. Largely
  E. Entirely

  49. Rate the extent to which cooperative learning is/was part of your online class routine
  50. Rate the extent to which you think cooperative learning will be integrated into your online class routine in the future.
  51. What are your specific attitudes and perceptions towards using cooperative learning strategies in an online classroom?

If you <u>do not</u> use cooperative learning, please stop here.
Your participation in this study is appreciated. Please share the survey link with other potential participants.

*Please answer the following questions ONLY IF you use cooperative learning in your classes.

Response Scale:
  A. Not at all
  B. Slightly
  C. Somewhat
  D. Largely
  E. Entirely

  52. Rate the extent to which you structure your cooperative learning activities to ensure that all group members actively work together.
  53. In a typical cooperative learning activity in your class, rate the extent to which group members actively participate.
  54. In a typical cooperative learning activity in your class, rate the extent to which your students complete their share of the group task.
  55. Rate the extent to which you implement cooperative learning in order to increase academic achievement.
  56. Rate the extent to which you implement cooperative learning in order to improve social skills.
  57. Rate the extent to which you implement cooperative learning in order to motivate students.
  58. Rate the extent to which you implement cooperative learning in order to raise self-esteem.
  59. Which cooperative learning strategies have you used in an online classroom setting?
        a. Think-pair-share

       b. Jigsaw
       c. Rally Coach
       d. Group investigation
       e. Roundtable
       f. Numbered Heads Together
       g. Round Robin
       h. Cooperative Graffiti
       i. Four Corners
       j. Write-around

ALL RESPONDENTS

Your feedback is welcome. Please write any suggestions or comments in the space provided.

Appendix B: Permission to Use the Teachers' Sense of Efficacy Scale (TSES)

COLLEGE OF EDUCATION AND HUMAN ECOLOGY

Anita Woolfolk Hoy, Ph.D.

Professor
Psychological Studies in Education

Dear

You have my permission to use the *Teachers' Sense of Efficacy Scale* in your research. A copy the scoring instructions can be found at:

http://u.osu.edu/hoy.17/research/instruments/

Best wishes in your work,

Anita Woolfolk Hoy, Ph.D.
Professor Emeritus

College of Education
29 West Woodruff Avenue
Columbus, Ohio 43210-1177

www.coe.ohio-state.edu/ahoy

Phone 614-292-3774
Fax   614-292-7900
Hoy.17@osu.edu

Appendix C: Permission to Use the Cooperative Learning Implementation Questionnaire

(CLIQ)
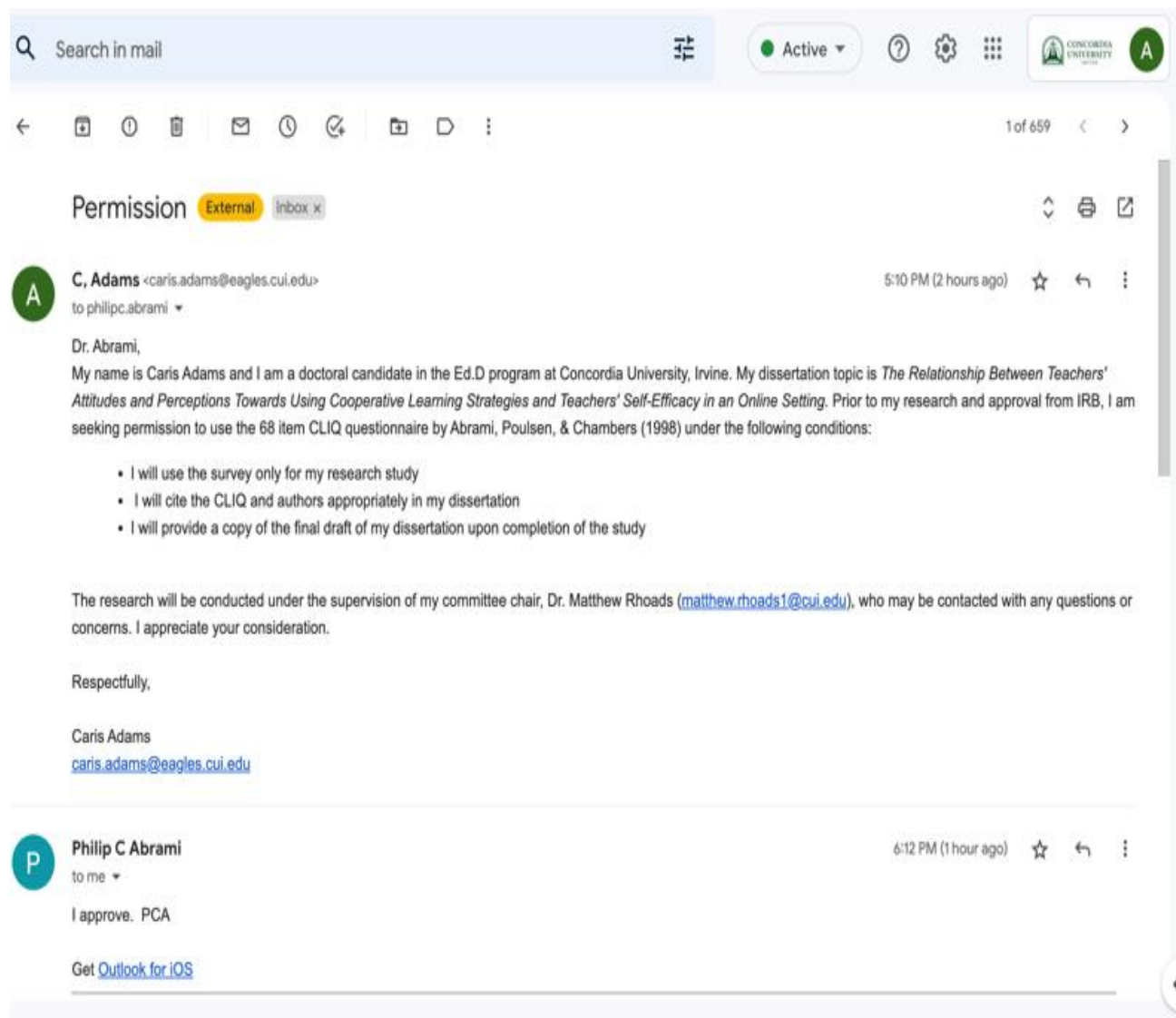
Appendix D: Concordia University IRB Approval

INSTITUTIONAL REVIEW BOARD (IRB) DECISION FORM

Review Date   December 8, 2022

Reviewer ID#   **Reviewer 162506**

Category   ☐ Expedited Review 45 CFR 46.110

☐ Full Board Review 45 CFR 46

IRB Application #	#INC-12309
Title of Project	The Relationship Between Teachers' Attitudes and Perceptions Towards Cooperative Learning Strategies and Teachers' Self-Efficacy in an Online Setting
Principal Investigator Name (PI)	**Caris Adams**
PI Email (use CUI email, if applicable)	caris.adams@eagle.cui.edu

DECISION

☐ **Approved**

Effective duration of the IRB Approval: __12/8/2022 to _12/8/2023__

For Expedited and Full Board Approved, Please Note:

a.   *The IRB's approval is only for the project protocol named above. Any changes are subject to review and approval by the IRB.*

b.   *Any adverse events must be reported to the IRB.*

c.   *An annual report or report upon completion is required for each project. If the project is to continue beyond the twelve month period, a request for continuation of approval should be made in writing. Any deviations from the approved protocol should be noted.*

☐ **Needs revision and resubmission**

☐ **Not approved**

COMMENTS

Required Changes:

Suggested Changes:

(*Recommendations stated below are **not** required in order for the application to be approved*)

Appendix E: Qualitative Data: Open Codes for Research Question 4

Research Question 4: What are the perceptions of teachers towards using cooperative learning strategies in an online setting and how are they influenced by other factors?

Positive	Negative	Neutral
Helpful for students to work together collectively in groups	It is too confusing, couldn't have them in groups, difficult to get a full group to login for a small group lesson; impossible to implement	Usually one student directed the whole group
Cooperative learning increases engagement online.	easier to manage cooperative learning in a classroom setting.	Takes careful planning and gentle nudging until students get the hang of it
	wouldn't remain on task or refused to interact with their peers.	need to be good with using breakout rooms to allow kids the opportunities to work together.
Cooperative learning strategies and collaborative activities are essential to online learning.	Parents don't see the positives of coop learning.	
Break Out rooms, cooperative learning strategies and collaborative activities can be easily implemented.	I avoided cooperative learning due to the minimal participation and engagement from my students	should be balance between independent and cooperative learning.
Students who are more familiar with technology and programs	Having first graders in different online rooms to do cooperative learning is	proper training for educators

Positive	Negative	Neutral
like ZOOM would do better than newer students.	not how I would teach my class.	would need to happen
Would like to learn more about using in an online setting.	Relies on everyone having access to efficient technology and a space for learning	Relies on everyone having access to efficient technology and a space for learning
Kids enjoy going to breakout rooms to work on assignments. I can hops from each group to monitor their progress.	too hard to incorporate cooperative learning online. too hard to make sure everyone is doing all the parts that they need to do to participate.	Until the university supports synchronous online classes, the administrative burden is too great for me and my students
Increases participation among all learners.	difficult to do in an online setting	Never thought about it
necessary to help students connect with one another and develop digital social and communication skills.	I do not like it. I cannot guide students in breakout rooms, nor expect them to work outside of class. Many students need quite a bit of support.	The homeschool setting is completely different than I would have ever thousand
practice and routine makes improvements. Reading groups worked best.	Difficult to do	In a completely online setting, accountability is a huge part of cooperative learning especially in an adult is not in each online learning space
Students will need to collaborate	Online learning does not work.	Low level

Positive	Negative	Neutral
in their careers so why not teach them how now.		learners do not progress and are reliant on higher level learners to accomplish tasks
Effective for all learners	I struggled to use those	Sometimes parents don't see the positives of cooperative learning
I value them as part of my everyday routines and management.	difficult to do break or rooms; students work collaboratively on line	We did a lot of Round Robin
great wait to introducing collaboration in an online setting. It helps build social skills as well.	Cooperative learning in an online setting is hard; getting them to engage in online learning, in general, was tough; getting them to engage and follow through with cooperative learning while online was near impossible; lower turn in and success rate when teaching online.	The amount of parent driven input is at times overwhelming
would still do group projects and assignments	It was very hard	
Useful for students to connect and communicate in an online setting	hardest obstacles is attendance and setting groups and then members not being present.	
very positive, need to learn how to use cooperative learning strategies effectively, students enjoy them.	difficult not impossible but difficult to support this as students work at such different levels.	
great tool to support student learning and growth both academically and socially.	more difficult than implementing it in a real classroom.	
cooperative learning is important in an online classroom setting.	complicated because I can not see all student working in their assignments.	
Love it	I need more training	

Positive	Negative	Neutral
I'm open to incorporate more cooperative learning strategies in an online classroom	low level learners do not progress. reliant on higher level learners to accomplish tasks.	
Positive	I have not used it regularly or extensively	
If they participate in cooperative learning as they are expected to, it is a great tool.	difficult and maybe not as effective as in person.	
I used escape rooms	difficult because of the age of my students.	
essential in order to activate engagement.	very difficult to implement in the online setting. It is also difficult to monitor in the same setting.	
Happy to using cooperative learning strategies; cooperative learning would help with that.	Hard to control any students online	
one of the most effective tools to help students continue to learn and receive the differentiation they require.	never seen it done effectively; would hesitate to try it myself.	
great for older students who are capable of more responsibility	Younger students require more hands on guidance or teacher scaffolding.	
breakout rooms seemed like a great way to help students learn to work cooperatively.	Technology made cooperative learning much more difficult. breakout rooms are available, they were time-consuming to set up, Simpler to work as one giant group online.	
work fine for student learning	accountability is a huge part of cooperative learning, if an adult is not in each online learning space.	
Cooperative learning in an online classroom setting is imperative. Children need time	very heavy lift, students nor teachers had used the Google Classroom tools to any extent prior to the sudden start	

Positive	Negative	Neutral
and space to clarify their thinking and communicate their ideas clearly. Cooperative learning provides the necessary parameters to accomplish these goals.	of online teaching and learning.	
Imperative when slowly introduced to students. Gradual release of responsibility to students is important to reduce misbehavior as well as clear guidelines on the role of each student.	hard for some students to stay engaged.	
Gets students talking and interacting in an environment that can be distant.	did not seem worth trying with kindergartners. There was either too much or too little parent help with every aspect of distance learning, no matter how many times. I hope I never have to teach kindergarten in an online format ever again!	
Cooperative learning strategies is good research based teaching	takes a bit of prep work and dedication to use cooperative learning strategies	
Cooperative learning is used with certain groups of students	worried about the participation online	
Students that stayed to participate liked to work in cooperative activities; allowed them time to chat with their fellow classmates; could only share one at a time they had to be strategic about what they shared and when.	online learning makes it challenging because of the Internet quality, background noise, varying attendance and time it takes to set up breakout rooms.	
Positive perception of cooperative learning and online settings. Cooperative learning helps to alleviate the concerns of isolation within online learning;	Challenging to use and monitor	

Positive	Negative	Neutral
creates an opportunity for students to engage with different students they may otherwise choose not to;Cooperative leaning allows you grow another aspect of a student and introduce another entity within a learning modality.		
Beneficial for students to work cooperatively	hard to maintain cooperative learning in a first grade	
I would love to use more cooperative strategies	not all of my students can handle it, or their parents are not willing to have them participate in cooperative learning; parent driven input is at times overwhelming.	
Effective and engaging strategy. Students can collaborate in breakout rooms. Students can work cooperatively on shred documents online. Students can give responses in the chat box. Positive attitude towards cooperative learning strategies.	difficulty I faced with cooperative learning online; school district and state stating that the work they would be doing did not matter that they would still pass the class. Allowed many students to check out.	
I would love to use more collaborative and accessible technology platforms like google docs, yellowdig; a LOT of online interactive cooperative platforms to engage students in an online;	need more training on technology skills related to online strategies to be successful.	
Cooperative learning is great.	much more challenging in an online setting to implement.	
Great practice	The reading intervention program I use doesn't exactly lend itself well to cooperative learning, especially online.	
great way students to learn while	Some students when at home, do not	

Positive	Negative	Neutral
interacting with each other.	have access to the tools they need to be successful in cooperative learning.	
Cooperative learning is an exceptional way of teaching.	students would log off and one student would be left by themselves	
	rarely have training on the specific use of the; still trying to convince the "veteran" teachers That the use of these platforms is as valuable as other more traditional platforms.	
It is an effective teaching tool.	administrative burden is too great for me and my students.	
Valuable asset to the learning process.	Not enough rewards for using this approach	
	interactions troublesome due to their self motivation	
Use breakout rooms and google classroom to deliver forms for the students; Popping into each breakout room and setting expectations for work completion before hand helps keep the kids on task.	Difficult	
	I like to lecture and not spend too much time in groups because I don't think they learn much from them.	

Appendix F: Qualitative Data: Axial Coding from Dedoose for Research Question 4

Research Question 4: What are the specific perceptions of teachers towards using cooperative learning strategies in an online setting and how are they influenced by other factors?

Positive Codes

Positive	Academic	Effective	Helpful Resources	Positive Student Engagement	Positive Teacher Attitude	Positive social	Students benefit	Technological advantages	Totals
0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	1	0	0	0	2
0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	2
0	0	1	0	0	1	0	0	0	2
0	0	0	0	0	0	1	0	0	2
0	0	0	0	0	1	0	1	0	2
0	0	0	0	0	0	0	0	0	2
0	0	1	0	0	1	0	0	0	2
0	0	0	1	0	0	0	0	0	5
0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	5
0	1	0	0	0	1	0	0	0	2
0	0	0	0	1	1	0	0	0	2
0	0	0	0	0	0	0	0	0	3
0	0	0	0	0	1	0	1	0	3
0	1	1	0	0	1	0	1	0	4
0	0	0	0	1	1	0	0	0	2
0	0	0	1	0	1	0	0	0	2
0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	1	0	0	0	1
0	0	0	0	0	1	0	0	0	1
0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	4

0	0	0	0	0	1	0	0	0	1
0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	1	0	0	0	1
0	1	0	1	0	0	1	0	0	3
0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	1	1	0	0	2
0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	1	1	1	0	3
0	0	0	0	0	0	0	0	0	3
0	0	0	0	0	1	1	0	0	2
0	0	0	0	0	1	0	0	0	1
0	0	1	1	0	0	0	1	0	3
0	0	1	0	0	1	0	0	0	2
0	0	0	0	0	0	0	0	0	4
0	0	0	0	0	1	1	0	0	2
0	0	0	1	0	0	0	0	0	2
0	0	0	0	0	1	1	0	1	3
0	0	0	0	0	0	0	0	0	1
0	0	0	0	1	1	0	0	0	2
0	0	0	1	0	1	1	1	0	4
0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	3
0	0	0	1	0	1	0	0	0	2
0	0	1	0	0	1	1	0	0	3
0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	1
0	3	6	7	3	25	9	6	1	0

*Negative Codes

Negative	Difficult for students	Difficult for teachers	Grade level not appropriate	Lack of teacher training	Lesser years of teaching experience	Low student engagement	Negative teacher attitude and perception	Poor student behavior	Socially challenging for students	Technology issues
0	0	0	0	1	0	0	0	0	0	0
0	0	0	0	0	0	1	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	1	0	1	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	1	1	0	0	0	0	0	0	0
0	0	1	0	0	0	0	1	0	0	0
0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	1	1	1	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	1	0	0	0	0
0	0	1	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	1	1	0	1	0	0	1	0	0	1
0	0	1	0	0	0	0	1	0	0	1
0	0	0	1	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	1
0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	1	1	0	0	1	1	0	0	0
0	0	1	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	1	1	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0
0	0	1	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	0	0
0	0	0	0	1	0	0	0	0	0	0
0	0	1	0	0	0	0	1	0	0	1
0	0	1	0	0	0	0	1	0	0	0
0	0	0	0	0	0	1	0	0	0	1
0	0	1	0	0	0	0	0	0	0	0
0	1	1	0	0	0	1	0	0	0	0

0	0	1	0	0		0	0	1		0	1	1
0	0	1	0	0		0	0	0		0	0	0
0	0	0	0	0		0	0	1		0	0	0
0	0	0	0	0		0	0	1		0	0	1
0	0	0	0	0		0	0	0		0	0	0
0	0	0	0	0		0	0	1		0	0	0
0	0	0	0	0		0	0	0		0	0	0
0	0	1	0	1		0	0	0		0	0	0
0	0	0	0	0		0	0	0		0	0	0
0	1	0	0	0		0	0	1		0	0	1
0	0	0	0	0		0	0	1		0	0	1
0	0	1	0	0		0	0	0		0	0	0
0	0	0	0	0		0	0	1		0	0	1
0	0	0	0	0		0	0	1		0	0	1
0	0	0	0	0		0	0	0		0	0	0
0	0	0	1	0		0	0	0		0	0	1
0	0	0	0	0		0	0	1		0	0	0
0	8	20	7	4		0	8	20		0	2	12

Appendix G: Qualitative Data: Open Codes for Research Question 5

Research Question 5: What are the specific experiences that contributed to teachers' levels of

high and low self-efficacy towards cooperative learning in an online setting?

Positive	Negative	Neutral
Classroom rules were easily followed fewer of them. "mute" button, less interruptions.	impossible to guide young children through hands-on activities such as math manipulatives.	My comfort with technology and relationships with students.
Classroom management	thrown into online learning, no online training or experience. Class was too young to begin using Google Classroom; relied heavily on parent support. Relied heavily on colleagues, long days, self training, trial and error, frustration, and self doubt. Hardest part, getting them to do the work and show up.	Teaching one to one sped students on line.
Zoom breakout rooms	very challenging to implement cooperative learning; background noise, varying attendance and students' varying Internet quality.	taking the time to learn, plan, create, and prepare meaningful lessons that students will be engaged in.
points acquired for correct answers (or expected behaviors) go a long way toward working efficiently as a group.	very little training was given for using cooperative learning strategies in an online setting; self taught.	

Positive	Negative	Neutral
Choosing interesting topics!	student doesn't want to participate, ruins a group; being on the other side of a computer teacher has limited ways to change a student's behavior when they don't want to engage.	
Grouping/ think pair shares	thrown into online teaching; little to no support or examples	
My experience very positive using cooperative learning.	difficult to engage students in collaborative and cooperative learning activities cameras turned off.	
Providing office hours and breakout rooms	Students would sign in but then leave the room	
Breakout rooms; gathering household items to accomplish a task.; breakout rooms to come together to explain and share out.	Trial by fire, no formal training. zero student engagement contributed to low self-efficacy.	
Using experiences of those around	Not being able to share in a group with expressions, gestures, and manipulatives. Online one cannot see, hear, and feel enthusiasm or breed cultivation. Only one person online can talk at a time; collaboration difficult. need to see what all my kids are doing; real-time classrooms make that happen, and give me the opportunity to support everyone.	
Chunking assignments, templates, diagrams, graphic organizers	hard to motivate students, wasn't able to use my regular methods	

Positive	Negative	Neutral
breakout rooms, meet with students individually or in hetero or homogeneous groups, meet after class to discuss and alter progress	Apathetic students don't take responsibility for their own education.	
	didn't do much group work when I was teaching online.	
more focussed one on one time with students,	Proximity of students made some strategies difficult to use. Monitoring students in breakout rooms was challenging.	
pairing students with a helper	Students not being motivated to learn in an online setting (screens turned off, lack of participation).	
	distracted. talking about other stuff instead of working on the task.	
Addressing students' needs by breaking them up; academic learning groups, homogeneous grouping as well as heterogeneous grouping.	Engagement easy for students to get distracted, especially if they are learning from home, Many distractions, Easily "check out".	
small group instruction; Think pair share , break out rooms. Nice to have so much parent participation to help support their child.	Online was the worst. wasn't normal, the kids struggled immensely. Devastation	
Practice over time, trying different strategies.	motivation issues. Helpless; students wouldn't log on; log on late. Never know if they were as focussed on me as I was on them.	
Google documents to work collaboratively. Most students didn't contribute and the ones who did contribute completed the document	minamilly engaged student, virtually in a day care setting adult to student ratio was very	

Positive	Negative	Neutral
alone.	low. In this setting, my self-efficacy was low. Intervention by administration was required.	
students don't care and don't value their learning, don't engage.	kindergartners need a lot of support to work cooperatively. difficulty for me as a teacher to really capture what they learned or shared; pop on and out of groups quickly.	
My entire teaching world is based on cooperative learning both when I teach online and in the classroom. Nearpod has really helped me to reach students on their level, so they can share ideas with their group in a way that's comfortable for them.	Teaching online was much more difficult. I have much more control of behavior, classroom management, the ability to assess, etc when students are in person. Special education students struggled with online learning; reading ability, lacking support at home, and working independently was difficult for them.	
I took professional development classes in technology.	Not very effective	
Break out rooms differentiated by student data. Pairing students in collaborative study groups, project based learning groups	small groups, some did not participate at all, or participated at random times , or walked away from group without participating. Assigning a fair grade to the group required more time.	
Separate small group online classes for targeted interventions; Created small groups based on ability levels	Very disheartening. parents work and cannot assist their children younger children	
Watching popular science YouTubers and tried to model my online class in the same	hard to do cooperative learning; constraints of the technology. Too hard when kids are not together.	

Positive	Negative	Neutral
	who need additional support to complete work or stay on task. I can only do so much when teaching online. lack of focus, difficult to handle felt impossible.	
Providing office hours and breakout rooms Our administrator allowed time for training, rest, and professional reflection. Adjustments were made to testing and grading requirements, as well as expectations for cooperative learning. All of these brought a higher level of self-efficacy.	No experience and lack of training for online learning equals low levels of self efficacy.	
Using music, games, and a high energy approach led to my students wanting to be on screen and actively participating. In the classroom, online learning is successful. Students have obtained a new set of technology skills and enjoy implementing them.	very limited access to an IT Specialist. Student would experience difficulties at home. I had difficulty using small group cooperative work, such as breakout rooms, rarely able to correct the problems. Class time was wasted. This caused a low level of self-efficacy.	
High levels of engagement/interaction, use of small group games like Bingo or gameboards/spinners, emailed, google shared doc. Manipulatives, interactive platforms like PearDeck, use of the document camera, involve parents; getting to know families and child personally. 1-on-1 zoom small group lessons on zoom. Frequent encouragement, positive reinforcement, specific praise AND corrective feedback. Use of group cooperative online games and Gonoodle as brain breaks.	Online was extremely difficult; put more responsibility on the parents.	
I was doing well keep evaluating, changing what did not work well, being flexible to adapt how I had taught in the past. Gave myself freedom to vary from what I felt I	parents who have an extreme regidity do not want to implement anything new into their curriculum; parent is the	

Positive	Negative	Neutral
had to teach in the past.	primary educator	
Years of teaching experience; created student groups. Grouping students, small instructional groups are necessary; whole class and small group instruction.	On line skills are not up to the level of the new teachers coming into the profession. I was learning more, little by little, with great effort and a lot of help when I was teaching on line.	
elementary students craved interaction with other students. This helped fuel participation.	Had to change my outlook. Tremendous amount of mental training to do things a different way. Cooperative grouping online was not always successful, was not and never will be the same as "in person"cooperative learning.	
Hard to engage all kids. open communication with parents and a commitment to student Suffes that we were successful.	training alone was not sufficient.	
grouping strategies; professional learning sessions.		
Trialing, observing other teachers		
Be clear and set expectations. Use the technology and student interest to create groups and buy-in.		
Trainings		
Supportive households accomplished the most.		
break out rooms , chat room		
Detrimental to my own success-to foster a fun yet educational class Cooperative learning can be a very effective way of supporting learning goals in any setting.		

Positive	Negative	Neutral

Learn as you go

Having knowledge of how to utilize the technology has really helped to facilitate cooperative learning in an online setting

Training I received and personal experiences, I have confidence in what I do. I have been teaching for over 20 years, so I know how to deal with certain behaviors within the classroom. motivate students by instilling value within them.

Years of experience learning what works and what doesn't

Fantastic instructor development when I first started teaching; 40 hour week training REALLY helped me develop my identity as an instructor, style. Having experience teaching continues to develop my skill sets.

I have a high self-efficacy in my ability. nature of my online program,I was able to motivate him by conveying his capabilities and strengthening the work environment the group was able to complete more assignments than any other class within the program.

small groups/breakout room; work together.

Team that was supportive; worked well together

Breakout rooms was a good way to put students into cooperative groups.

Jamboards, google classroom assignments as groups, breakout rooms

lesson utilizing break out sessions with a teacher in the room contributed to high-

Positive	Negative	Neutral
efficacy,		
I am always encouraging my students and I feel they are encouraged to do a good job.		
Extensive teaching experience online and in-person across a variety of class subjects. Regularly attend trainings and workshops.		

Appendix H: Qualitative Data: Axial Coding from Dedoose for Research Question 5

Research Question 5: What are the specific experiences that contributed to teachers' levels of high and low self-efficacy towards cooperative learning in an online setting?

Positive Codes

Positive Experiences	Appropriate selection of topics	Classroom management	Flexibility	Groups	Office hours	Parental support	Rapport with students	Strategies	Student participation	Training/Practice	Practice	Years of teaching experience	Totals
1	0	0	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	1	0	0	0	0	0	0	2
1	0	0	0	0	0	0	0	0	0	1	0	0	2
1	1	1	0	1	0	0	0	0	0	0	0	0	4
1	0	0	0	0	0	0	0	1	0	0	0	0	2
1	0	0	0	0	0	0	0	0	0	1	0	0	2
1	0	0	0	1	0	0	0	1	0	0	0	0	3
1	0	0	0	0	0	1	1	0	0	0	0	0	3
1	0	0	0	0	0	0	0	0	1	0	0	0	2
1	0	0	0	0	0	0	1	0	0	1	0	0	3
1	0	0	0	1	0	0	0	0	0	0	0	1	3
1	0	0	1	0	0	0	0	0	0	0	0	0	2
1	0	0	0	0	0	0	0	0	0	0	1	1	3
1	0	0	0	1	0	1	1	1	0	0	0	0	5
1	0	0	0	0	0	0	0	1	1	0	0	0	3
1	0	0	1	0	0	0	0	0	0	1	0	0	5
0	0	0	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0	2
1	0	0	0	1	0	1	0	1	0	0	0	0	6
1	0	0	0	0	0	0	0	0	0	1	1	0	3
0	0	0	0	0	0	0	0	0	0	0	0	0	5
1	1	0	0	1	0	0	0	0	0	0	0	0	3
1	0	0	0	1	0	0	0	1	0	0	0	0	3
1	0	0	0	0	0	0	0	0	0	1	0	0	2

0	0	0	0	0	0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	0	0	0	0	0	3
1	0	1	0	0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0	4
1	0	0	0	0	0	0	0	1	0	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	1	0	0	0	0	3
1	0	0	1	0	0	0	0	1	0	0	1	0	4
0	0	0	0	0	0	0	0	0	0	0	0	0	6
1	0	0	0	1	0	1	0	1	0	0	0	0	4
1	0	0	0	1	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	0	0	0	0	0	5
0	0	0	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0	0	1
1	0	0	0	1	0	0	0	1	0	0	0	0	3
0	0	0	0	1	0	0	0	0	0	0	0	0	4
0	0	0	0	0	0	0	0	0	0	0	0	0	1
1	0	0	0	1	1	0	0	1	0	0	0	0	4
1	0	0	0	0	0	0	0	1	0	0	0	0	2
1	0	0	0	0	0	0	0	0	0	1	0	0	2
1	0	0	0	1	0	0	0	1	0	0	0	0	3
1	0	1	0	0	0	0	0	1	0	0	0	0	6
0	0	0	0	0	0	0	0	0	0	0	0	0	1
1	0	0	0	0	1	0	0	1	0	0	0	0	3
1	0	0	0	0	0	0	0	1	0	0	0	0	2
1	0	0	0	1	0	0	0	1	0	0	0	0	3
1	1	0	0	0	0	0	0	0	0	0	0	0	2
1	0	0	0	1	0	0	0	1	0	0	0	0	3
0	0	0	0	0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0	3
0	0	0	0	0	0	0	0	0	0	0	0	0	3
1	0	0	0	0	0	0	0	1	0	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0	2
0	0	0	0	0	0	0	0	0	0	0	0	0	3
1	0	1	0	0	0	0	0	0	0	0	0	0	2
38	3	4	3	15	2	5	3	20	2	7	3	2	0

*Negative / Neutral Codes

Negative Experiences	Difficult to motivate students	Difficulties online	Grade level / ability	Grading	Lack of control	Lack of online strategies	Lack of parent support	Lack of student participation	Lack of support/training	Rely on others for support	Neutral / Unknown
0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	1	0	0	0	0
1	0	0	0	0	0	0	0	0	1	0	0
1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	1
1	0	0	0	0	0	0	0	0	1	0	0
1	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	1	0	1	0	1	0	0	0	0
1	1	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	1	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	0	0	1	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	0	0	0	1	0	0	0
1	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	0	1	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	0	1	0
1	0	0	1	0	0	0	0	1	1	1	0
0	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	0	0	0	1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	1
1	0	0	0	0	0	1	0	0	0	0	0

1	0	0	0	0	0	0	0	1	0	0	0
1	1	0	0	0	0	1	0	0	0	0	0
1	0	1	0	0	1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1	0	0	0
1	0	0	0	0	0	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	1	0	0
1	0	0	0	0	1	0	0	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
25	6	4	3	1	4	3	4	13	5	2	5

Appendix I: Collaborative Institutional Training Initiative Certificate

CITI PROGRAM

Completion Date 12-Sep-2021
Expiration Date 11-Sep-2024
Record ID 44937854

This is to certify that:

Caris Leidner

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Social & Behavioral Research - Basic/Refresher
(Curriculum Group)
Social & Behavioral Research
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Concordia University Irvine

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?we9f9055a-e0ae-4a99-8519-d4cf6f182ab8-44937854