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THE EFFECTS AND IMPACT OF INTERDISCIPLINARY TEAMING ON TEACHER PRACTICES AND EFFICACY

Lisa Depaola

THE EFFECTS AND IMPACT OF INTERDISCIPLINARY TEAMING ON TEACHER PRACTICES AND EFFICACY

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Lisa DePaola

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Lisa DePaola	Dr. Anthony Annunziato

ABSTRACT

THE EFFECTS AND IMPACT OF INTERDISCIPLINARY TEAMING ON TEACHER PRACTICES AND EFFICACY

Lisa DePaola

The purpose of this study was to explore the effects and impact of interdisciplinary teaming on teacher practices and efficacy. This study revealed the perspectives of eight 7th and 8th grade teachers, who teach one of the core disciplines (English Language Arts, Mathematics, Science, and Social Studies) and the school principal by interviewing them for this case study in an Essential Elements School-to-Watch in Nassau County, New York. It included perceptions from the other 7th and 8th grade teachers on interdisciplinary teams through focus groups and observations during team meetings. Document analysis was performed on artifacts that were collected during the observations. Data were triangulated in order to reveal emerging and prevalent themes regarding the perceptions of teachers about interdisciplinary teaming. There is a need to explore effective interdisciplinary teaming and its effect and impact on teaching practices and teacher efficacy in a middle school environment. Proponents suggest that teachers on interdisciplinary teams in middle schools will have a strong sense of belonging and that their teaching practices will be changed and influenced by each other. In addition, teachers and students feel part of this small community team, which will lead to success for both groups. The National Forum, National Association of Middle Schools, and Essential Elements Schools-to-Watch believe that interdisciplinary teaming is a

middle school best practice. Therefore, this study explored the impact of different factors that contribute to a successful interdisciplinary team that emerge through the teachers' perceptions regarding practices and efficacy.

DEDICATION

A Message to Heaven

Dear Mom and Dad,

As I finish this part of my educational journey, I reflect on all the values you taught me and how you instilled the importance of education in me my entire life. This dissertation is dedicated to the both of you. I wish you were here to see me receive my doctorate and walk across the stage, but I know you are looking down on me and proud of this accomplishment. You are always with me, and I could not have done this without everything you have done for me. You are the best parents a child could ask for. Both of you have always been my cheerleaders, and, unfortunately, dad you were taken way too early from us. Mom, you also were taken too soon from me. You were not only the best mom but my best friend. You have made me into the woman I have become today. I could not do any of it without you. You were always there for me, pushing me and guiding me to succeed. You were the strongest person I know, and you were always there for me. You taught me right from wrong and to be a strong, independent woman and everything in between. You showed me that no star was out of reach and that I can accomplish anything I sought out to do in life. Even in your final hours, you asked me if I went to class to ensure that I continued on this doctoral path. Your voice gave me the drive to finish the program.

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Love always,

Your Daughter (A.K.A. - Your Professional Student)

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CHAPTER 1: INTRODUCTION

The world is constantly changing and evolving; therefore, educational systems have to adapt in order to prepare students for the world after they leave the four walls of their secondary educational institutions. In 1989, the New York State Board of Regents adopted a policy on middle level education, and, in 1998, the deputy commissioner for education requested that staff identify essential elements in this area. By 2000, a research-based document named the Essential Elements of Standards Focused Middle Level Schools and Programs was developed in collaboration with the Statewide Network of Middle Level Education Liaisons and the New York State Middle School Association (www.eestw.org). This document serves as a reference and resource for best middle level practices. In 2003, the New York Board of Regents adopted a revised version of this policy.

The Essential Elements Schools-to-Watch state seven essential elements in middle level education (Essential Elements Schools-to-Watch, 2015):

> 1) A philosophy and mission that reflects intellectual and developmental needs of young adolescents; 2) an educational program that is comprehensive, challenging, purposeful, integrated, relevant, and standards-based; 3) an organization and structure that supports academic excellence and personal development; 4) classroom instruction that is appropriate to the needs of young adolescents provided by skilled teachers; 5) educational leadership that encourages, facilitates, and sustains involvement, participation, and partnerships; 6) a network of academic and personal supports available for all students; 7) professional learning

and development that are ongoing, planned, purposeful, and collaboratively developed for all staff.

The second, third, and fourth elements set expectations for interdisciplinary teaming, common planning, and curriculum integration. The fifth element discusses the role of the administrator in creating the ideal middle level learning environment for students. The third essential element revolves around interdisciplinary teams as a middle level best practice. Essential Elements Schools-to-Watch – Essential Element 3 (Organization and Structure) states:

> Young adolescents learn and develop best in a school that is organized and structured to promote academic achievement and personal development. Standards-focused schools with middle level grades are organized to promote academic excellence and personal development, to establish within staff and students a feeling of belonging and a sense of personal identification with the school and its purposes, and to help young adolescents make a successful transition from the elementary grades to the high school grades and from childhood to adolescence. (Essential Elements Schools-to-Watch, 2015)

The second and fourth essential elements connect the educational program and classroom instruction together. Essential Element 2 (2015) states that "every young adolescent needs a challenging, standards-based course of study that is comprehensive, integrated, and relevant." Essential Element 4 (2015) states that "every young adolescent requires skilled and caring teachers who have a thorough understanding of their subject(s) and of the students they teach." The third element of education leadership discusses the

importance of involving faculty in the decision-making process. In this study, these elements will be explored in-depth through perceptions of teachers and administrators.

After the adoption of research-based criteria, it is important to research the perceptions of teachers and how the criteria are being implemented in schools. This case study examined the effects and impact of interdisciplinary teaming on teacher practices and efficacy. It explored different components of interdisciplinary teaming while studying the change process and group development and dynamics of the teams. The findings of this study seek to assist educational leaders and teachers to enhance interdisciplinary teaming in middle level schools.

Previous studies have explored different facets of interdisciplinary teaming. As educational reforms occur in schools, the manner in which the change occurs is important. The way people interact and develop as a group may determine if the change is successful. Some studies have shown that distributed leadership accounts for teacher autonomy and creates a collaborative environment for teachers to thrive in interdisciplinary teams. Research has also shown impacts of interdisciplinary teaming on curriculum and teaching practices. Most research looked at pieces in isolation; this study examined the whole process, including multiple essential components of teaming, as an organizational and cultural shift through teacher perceptions.

Purpose of the Study

The purpose of this study was to explore the effects and impacts of interdisciplinary teaming on teacher practices and efficacy. Over half of the middle schools nationwide have interdisciplinary teaming as part of their school structure because it is considered a middle school best practice. Although teaming has increased

over the past 30 years, it is often poorly organized and implemented (Dickinson & Erb, 1997). Traditional school structures have to undergo a major organizational and cultural shift when teams are created within schools. This raises the question of whether schools do this with intentionality and go through the three phases of change to be successful. The way to determine if the shift to interdisciplinary teams is successful is to study the effects and impacts teaming has on teacher practices and efficacy. Arnold and Stevenson (1998) found that teachers' determination and vision are crucial to building effective teams.

This study was guided by Lewin's (1947) Change Management Theory to help determine if the factors involved with change in organizational structure in order to implement interdisciplinary teaming will affect and impact teacher practices and efficacy. In addition, Tuckman's (1965) Group Development Model was explored in this study to analyze the development of the teams and determine its impact on both teaming and teachers. The study explored the group dynamics within a team and whether the dynamics affect teachers and their practices and efficacy. Prior research does not explore the impact that these two theoretical frameworks may have on interdisciplinary teaming.

Theoretical Framework

Change is inevitable for people—whether it is in their professional or personal life. For businesses and people to continue to be successful, they must evolve from these changes. Pettigrew et al. (2001) viewed change as a sequence of events and actions that are individual or collective that develop over time and describe how organizations change. The educational field has transformed throughout its inception in order to meet the needs of students. Traditionally, teachers and students worked individually on tasks;

however, focus has now shifted to collaboration between teachers and students. Success is often determined by how schools make these shifts. In middle level education, schools look to dissolve teacher isolation by creating interdisciplinary teaming that benefits both the teachers and students. In this change, group dynamics need to be explored, as this is an integral factor in the operations of these teams. Interdisciplinary teams bring together colleagues to work toward a common goal by flattening their walls of their classrooms and creating a community for themselves and students to develop and thrive professionally, academically, and socially.

Two theoretical frameworks guided this research on interdisciplinary teaming. The first was the work of Lewin's (1947) Change Management Theory, which consists of three steps: unfreeze, change, and refreeze. Lewin, who is considered the founding father of change management, used the analogy of changing the shape of an ice cube. One must unfreeze the ice, change the shape with another mold, and then refreeze in order to keep the new shape. This change process allows a person or organization to prepare, plan, and reflect in order to manage the transition. Lewin (1947) viewed change as a dynamic system of driving (favorable) and resisting forces (unfavorable). Zand and Sorenson (1975) found that favorable forces are positively correlated to successful outcomes, and unfavorable forces are negatively correlated to success. Kloot (1997) found that an organization's capacity for learning may affect the ability of an organization to implement change. This research will analyze the results through the Change Management Theory to determine if this process affects interdisciplinary teaming within a middle school.

The second framework was Tuckman's (1965) Stages of Group Development

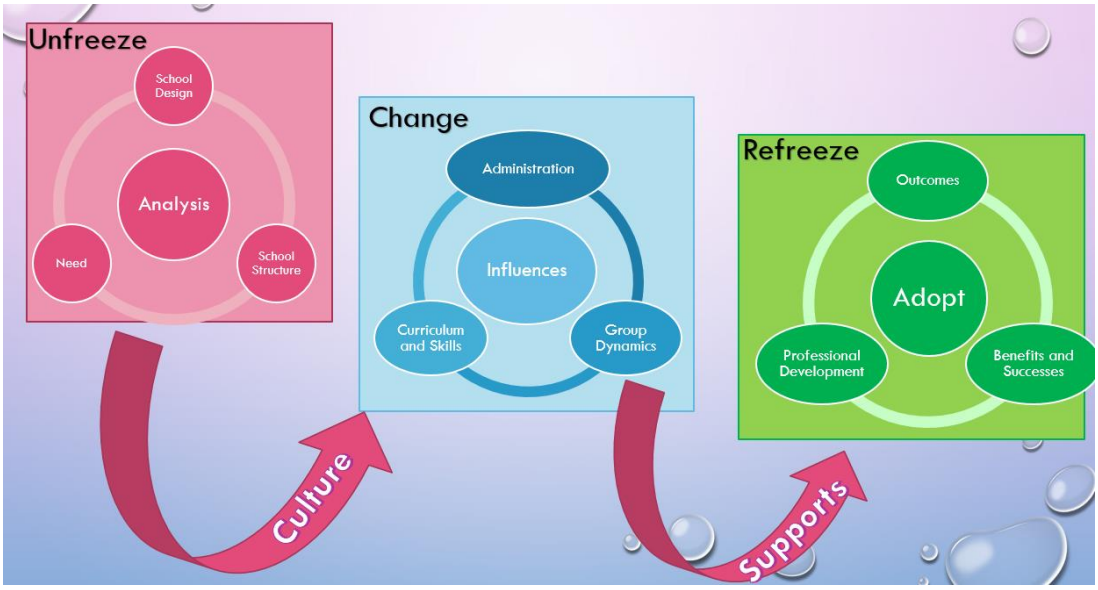
Model. Four stages were abstracted from over 70 studies on group development. This model consists of four stages: 1) forming – testing and dependency; 2) storming – conflict; 3) norming – cohesion and consensus; 4) performing – functional role relatedness. In 1977, Tuckman and Jensen updated the 1965 model to include a fifth stage called adjourning. Tuckman's research was relevant to the changing times in organizations in which there was an emphasis on people working together in the workplace. This model describes the way people work together under the development process among group members and predict stages of the group's growth. Rickards and Moger (2000) found this model to be a means of exploring group dynamics. In Tuckman's model, each stage needs to be explored in order to reach effective group functioning (Bonebright, 2010). This study explored the group development and dynamics of the interdisciplinary teams using the Tuckman's Group Development Model.

Conceptual Framework

In Lewin's Change Theory (1947), there are three phases: unfreeze, change, and refreeze. Within these phases, this conceptual framework, *Organizational Change for Interdisciplinary Teams* (See Figure 1), explored different components and their influence on interdisciplinary teaming.

Figure 1

Organizational Change for Interdisciplinary Teams



When unfreezing occurs in an educational system, stakeholders need to analyze the need and the school's organizational structure and teaming design. The culture of a building will either help or hinder the organization to move from the unfreeze to the change phase. In this next phase, influences of administration, curriculum, and group dynamics will be examined to determine their effects on interdisciplinary teaming. With proper supports, the organization needs to move to the final stage of refreeze, in which members must adopt the change. Administrators and teachers would have to reflect on the outcomes, benefits, and successes. Once the school has structures and processes in place that are adopted by the stakeholders, continuous reflection and professional development needs to be provided to the faculty in order to ensure success.

Significance/Importance of the Study

As schools prepare students to be 21st Century learners, it is necessary to provide students with interdisciplinary experiences relevant to the real world through different

forms of learning and assessments. Teachers are charged to develop students' 21st Century skills (collaboration, critical thinking, creativity, and communication) while delivering content. Interdisciplinary teaming is one factor in secondary schools, especially at the middle level, through which teachers and schools develop these skills in their students. Other factors include how the administration forms the teams and how the time is used by the teachers during teaming. Lastly, schools need to determine a team's purpose and, most importantly, the effects on both teachers and students. Undoubtedly, there is a need to explore effective interdisciplinary teaming and its effect and impact on teacher practices and efficacy.

The National Association of Secondary School Principals (NASSP) (www.nassp.org) reported that 60 percent of middle level schools were using interdisciplinary teams; however, they all do not take full advantage of this type of structure. According to Lounsbury and Clark (1990), teachers on interdisciplinary teams rarely use team autonomy to create flexible approaches for instruction, interdisciplinary curriculum and thematic units, and to actively engage students. Two questions that remain are: what structures and supports will help teachers in interdisciplinary teaming receive the full benefits of teaming, and how will those affect their perceptions of teaming, their practices, and their overall efficacy?

The researcher explored the effects and impact of interdisciplinary teaming on teacher practices and efficacy. Proponents suggest that teachers on interdisciplinary teams worked more collaboratively when there was the presence of administrative support and commitment to team practices at the individual, team, and school levels. They also suggest that the success of interdisciplinary teams is based on continuous

reflection, planning, evaluation, and leadership (Brouwer et al., 2012; Dever & Lash, 2013; Harris, 2005; Kain, 1998; Katzenbach & Smith, 1999; Spillane et al., 2004).

This research will help administrators and teachers analyze and reflect on interdisciplinary structures, designs, processes, and outcomes that best meet the needs of all stakeholders. It will help strengthen interdisciplinary teaming through reflections and observations. Most related research looked at pieces of interdisciplinary teaming in isolation, instead of the whole process as an organizational and cultural shift. Previous research also lacks recommendations for how to implement and sustain supports to create successful teaming. Additionally, previous research is limited in exploring the impact of group development and dynamics of teams on interdisciplinary teams and the teachers. The results of this study may be applied to practical use in the educational field by continuing to help with cultural shifts and reforms in education and enhancing the middle level practice of interdisciplinary teaming.

Research Questions

This study explored the effectiveness and impact of interdisciplinary teaming on teacher practices and efficacy. The study addressed the following research questions:

1) How does the design of the teaming program impact the effectiveness of the interdisciplinary teams and teacher efficacy?
2) What is the role of administrators in supporting teaming and advocating distributive leadership among team members?
3) How do teachers perceive the teaming program's effects on instructional practices?
4) What are the teachers' perspectives on the group dynamics within a team?

Design and Methods

Research Design and Data Analysis

The researcher chose to employ a single instrumental case study to analyze the impact and effectiveness of interdisciplinary teaming on teaching practices and efficacy within a middle school. This study was conducted in one Essential Elements Schools-to-Watch Middle School in Nassau County, Long Island, New York. This school received this recognition in 2019. As the organization makes educational shifts, the researcher examined the impact of the design and structure of the school's interdisciplinary teaming, the role of the administrator in creating and supporting teaming, and teacher perspectives about teaming. The researcher also explored the teachers' perceptions of the group dynamics within the team and their teacher efficacy.

Qualitative Studies

This case was studied in real-time. The research questions were as follows: 1) How does the design of the teaming program impact the effectiveness of the interdisciplinary teams and teacher efficacy? 2) What is the role of administrators in supporting teaming and advocating distributive leadership among team members? 3) How do teachers perceive the teaming program's effects on instructional practices? 4) What are the teachers' perspectives on the group dynamics within a team?

To obtain an in-depth understanding of this case and determine emerging themes, the researcher interviewed the principal and eight teachers who teach different subjects in 7^{th} and 8^{th} grade. Furthermore, the researcher conducted a focus group with the 7^{th} and 8^{th} grade team members, observed team meetings, and collected artifacts such as agendas, student work, and curriculum-related materials. This data helped develop an

understanding of these various factors and their relationship to interdisciplinary teaming and group dynamics.

Sample and Population

Population

The population for this study was comprised of middle school teachers from an Essential Elements School-to-Watch in Bethpage, New York. The District is located in Massapequa, New York in Nassau County. The District has one high school, one middle school, and three elementary schools. The Middle School has students from the geographic regions of Massapequa, Seaford, Bethpage, Farmingdale, and Levittown. The faculty consists of 74 teachers: 11 general education (K-6) certified teachers, 22 content area (7-12) certified teachers, 15 special education certified teachers, and 26 special area (K-12) certified teachers. All teachers are placed on interdisciplinary teams, except for special area teachers.

Sample

The sample of this study for the individual interviews was eight teachers and one administrator from this middle school. There were 18 participants for the focus groups, including the eight teachers who participated in individual interview. Participants were purposefully selected from the volunteers from the middle school. The number of teachers sampled was based on the population of teachers, their placement on interdisciplinary teams, and their grade level. The criteria for this sample population was that the person was working in a school that has interdisciplinary team structure and the school has been designated as an Essential Elements School-to-Watch. Only teachers

who participated in the interviews, focus groups, and team meetings were included in data analysis.

Data Collection

All 7th and 8th grade middle school teachers were sent a letter of consent and asked to volunteer to be interviewed for the study and/or be part of the focus group. A sample of eight middle school teachers was obtained out of 74 teachers from this middle school. Interviews with the principal and eight 7th and 8th grade teachers were conducted using the interview questions protocol. Focus groups with all the 7th and 8th grade teachers were conducted during professional periods using the focus group questions protocol. Team meetings were observed throughout the semester. All interactions with the teachers and principal were virtually through Zoom. The researcher collected artifacts that were produced from the meetings and performed the document analysis protocols.

This study used data from four sources: individual interviews, focus group interviews, observations of team meetings, and documents from team meetings. Protocols were developed for the interviews, focus group, team meetings, and document analysis (Appendices B–G). The researcher tested these protocols on professional colleagues to ensure that they were open-ended without being leading in nature.

Data Analysis

In order to collect data, the researcher conducted eight teacher interviews, an administrator interview, and two focus group interviews. In addition, the researcher observed and transcribed all interviews and team meetings. After reading the transcriptions, the researcher developed a start list of codes. The transcriptions were then all uploaded into Dedoose, a qualitative software. Once the upload was complete, all the

codes were entered, defined, and color-coded into Dedoose. The researcher then reread the transcripts and applied all applicable codes to each line from the transcripts.

The methods of coding used were descriptive and In Vivo. After the label was created, it was assigned to part of the transcript in order to have a detailed description and to construct a narrative for the case. After the coding, the researcher added descriptors with levels to each interview. The descriptors included types of certifications (elementary, secondary, special education, administrator), number of years in education (0-9, 10-19, 20-29, over 30), subject area (core academic, special area, special education, supervision), and gender (male, female).

Once all the codes and descriptors were entered and identified in Dedoose, the researcher used various ways to analyze the data and discover patterns and themes. The qualitative word cloud and other qualitative charts, which are arranged in matrix format in Dedoose, were used for this analysis. The researcher also used the code application and the code co-occurrence, which were arranged in two dimensions.

When examining the data, the researcher found emerging themes that developed from this analysis. Once these themes emerged, they were analyzed to determine the findings of the study, which was used to make a closing vignette.

Definition of Terms

- **Common Planning Time (CPT)** - "Kellough and Kellough (2008) defined common planning as a regularly scheduled time during the school day when teachers who teach the same students meet for joint planning, parent conferences, materials preparation, and student evaluation" (Mertens et al., 2010, p. 50).

- **Common Planning Time (CPT) Teams** - "a group of teachers from different subject areas who plan and work together and who share the same students for a significant portion of the school day" (Flowers et al., 2003, p. 58).
- **Distributive Leadership -** "A form of collective agency incorporating the activities of many individuals in a school who work at mobilising and guiding other teachers in the process of instructional change" (Harris, 2005, p. 11).
- **Follower** - individuals who participate and are engaged in the activities but do not hold a formal position (Spillane, 2006).
- **Formal Leader –** individuals in a school system who could hold the role of administrators, coordinators, or interdisciplinary team leaders (Spillane, 2006).
- **Interdisciplinary Teams** - "Kellough and Kellough (2008) defined an interdisciplinary team as an organizational pattern of two or more teachers representing different core curriculum areas such as science, mathematics, language arts, and social studies" (Mertens et al., 2010, p. 50).
- **Personal Efficacy -** "A belief that one has the skills and abilities to bring about student learning" (Gibson & Dembo, 1984, p. 573).
- **Professional Learning Community (PLC)** – communities of learning, practices, and/or continuous inquiry of improvement who comprise of a wide range of participants from teachers on grade level teams to teachers in departments, to school committees, to professional organizations to teachers in a school district (DuFour, 200; InPraxis, 2006).

- **Teacher Efficacy** - "Teacher efficacy was defined as "teachers' belief or conviction that they can influence how well students learn" (Guskey & Passaro, 1994, p. 628).
- **Teacher Community -** "a group of teachers who are socially interdependent, who participate together in discussion and decision making, and share and build knowledge with a group identity, shared domain, goals and interactional repertoire" (Brouwer et al., 2012, p. 320).
- **Teaching Efficacy** - "A belief that any teacher's ability to bring about change is significantly limited by factors external to the teacher, such as the home environment, family background, and parental influences" (Gibson & Dembo, 1984, p.573).
- **Team** – a small group of members who have complementary skills and are accountable for their actions to achieve a common purpose (Egolf, 2013).

CHAPTER 2: LITERATURE REVIEW

This chapter presents findings from existing research on the theoretical frameworks of Lewin (1947) and Tuckman (1965) and studies on interdisciplinary teams in education. Lewin's Change Management Process and Tuckman's Group Development Model were reviewed in order to determine the connection between the two and with interdisciplinary teams in middle schools. The literature review is organized into the following themes: 1) interdisciplinary teams; 2) structures and roles in interdisciplinary teams; 3) effective team practices and essential elements; 4) common planning; 5) curriculum integration; 6) training and professional development; 7) teacher efficacy; 8) Essential Elements Schools-to-Watch.

Theoretical Framework

The two theoretical frameworks that guided this study are Lewin's Change Management Process (1947) and Tuckman's Group Development Model (1965).

Lewin's Change Management Process

The first theoretical framework that this study used was Lewin's Change Management Process to determine if it impacts interdisciplinary teams. Kurt Lewin's (1947) Change Management Process is also known as Changing as Three Steps (CATS) and explains striving forces (driving and resisting) to maintain status quo while pushing for planned change. An organization may increase or decrease striving forces for change and/or maintain status quo, which changes the "quasi-stationary equilibrium" stage (Hussain et al., 2018). This movement would allow for proactive and reactive change through knowledge sharing and changing of leadership style (Hussain et al., 2018). Watson (1997) believed that organizations should rely on shared values, culture, and the

empowerment of employees for effective implementation throughout the entire change process. Employees should be involved in the process and guided by leaders during this process (Hussain et al., 2018).

Rosch (2002) believed that since Lewin (1947) used differential calculus in his approach to change, it was smooth, continuous, and analyzable at very small time intervals and did not think forces could have discontinuous jumps. The equation is a function of distance, to a goal, (dx) to time (dt). Lewin believed that people move as a locomotion through their "life space", a unified construct that is continuously created moment-to-moment from interactions between people and the environment (Rosch, 2002). According to Lewin and University of Michigan's Research Center for Group Dynamics (1951), there are two regions of "life space": one that does not affect a person's "life space", and the other is a boundary zone where an influential transition occurs and awareness begins. Forces then move and change the direction of the organization and the resultant is unpredictable. According to Glieck (1987), change can create organized chaos because the environment and a number of variables could be changing with possible resistant forces, which makes it impossible to predict the outcomes.

The first stage, unfreezing, consists of observing and questioning the current state, and once a change is determined to be necessary, the equilibrium needs to be destabilized (Ford & Greer, 2006). Schein (1996) found that processes of destabilization motivate learning and change. It is important to prepare an organization to accept change by showing the reason for change. When unfreezing, an organization should challenge the current system, values, and behaviors. This can create controlled chaos, which can

motivate people to find a new equilibrium. Ford and Greer (2006) used setting goals and objectives as a destabilizing mechanism. This process used scales to determine the extent the goals were related to the change. Pierce et al. (2002) found that to stimulate change, leaders have to address the change and educate, communicate, and involve employees in the process.

The second stage (change) consists of making modifications to the prior state and introducing new approaches to replace the old state (Ford & Greer, 2006). To move to this stage, time and communication are key elements to implement change successfully. The Change Curve, which has four stages, shows how people need time to embrace and partake in the change. Here, destabilization has already occurred, which allows forces to move the organization to an improved state (Ford & Greer, 2006; Lewin, 1947; Zand & Sorenson, 1975). In the change stage, there is uncertainty among members, who then try to fix this feeling by finding new ways to accomplish the goals of the organization. When change occurs in an organization, there is movement, skill development, and behavioral adjustments (Ford & Greer, 2006). During the change process, employee involvement, knowledge sharing, and leadership are key components to lead to successful change (Hussain et al., 2018). Employee involvement is input of employees into decisions affecting an organization and an employee's well-being and is more effective if they are empowered in authority and responsibility (Glew et al., 1995; Mathieu et al., 2008). Furst and Cable (2008) found this involvement led to positive feelings among employees and acceptance of the change. Organizations rely on the expertise, knowledge, skills, beliefs, and experiences of their employees; therefore, knowledge sharing is crucial when change is occurring in the organization (Ambrosini & Bowman, 2001; Brown & Duguid, 1991;

Wenger et al., 2002). According to Bock & Kim (2002), knowledge sharing starts at the individual level, then transfers to the group level, and culminates at the organizational level.

Leadership is essential in the change phase. Cummings and Worley (2015) identified five key elements of leadership in the change process: motivating change, creating a vision, developing political support, managing the transition, and sustaining momentum. According to Laura and Stephen (2002), "the leadership in change context can be defined as 'the process of diagnosing where the work group is now, and where it needs to be in the future, and formulating a strategy to get there'" (as cited in Hussain et al., 2018, p.125). Leaders need to influence, motivate, and support followers over obstacles to change (Laura & Stephen, 2002).

The third stage (refreeze) requires the new activities and behaviors to be established and integrated in the organization, which then stabilizes the organization at a new equilibrium to perform at new levels and avoid regression (Ford & Greer, 2006; Lewin, 1947). Schein (1996) found that activities in this phase must be confirmatory in nature. Zand and Sorenson (1975) define confirmation as feedback that performance is effective. The feedback may come from different formal or informal sources, such as measurements, comments, and rewards (Tichy, 1983). Kotter (1996) found that in order to drive change to systems, feedback about successes is necessary and creates credibility for the change. Suchman (1987) stated feedback is built into actions as it reacts to actions and circles back to inform future action; therefore, this concept must be taken into account. Zand and Sorenson (1975) found refreezing activities and outcomes have a strong relationship. Refreezing activities include monitoring and controlling, which are

critical to the success of the change (Kotter & Scheisinger, 1979). Refreeze gives employees a sense of stability, confidence, and comfortability. Beckhard and Harris (1987) found that activity planning, commitment planning, and change management structures need to be in place to implement the change and provide direction, structure, support, and promotion of the change.

Ford and Greer (2006) found that organizations that engage in Lewin's general progression of change from unfreeze to change to refreeze achieve higher levels of implementation at higher levels of intensity. To implement change, one must unfreeze by creating motivation to change, then effectively communicate with employees in order to empower and involve them to accept the change, and then refreeze to create a stable organization.

In later years, other researchers interpreted and adapted Lewin's Change Management Process. Schein (1961) called Lewin's three stages 'phases of influence' and focused on movement and not change. Schein also used Kelman's (1958) 'mechanisms of attitude change' as subcategories within the three phases. Then, Schein and Bennis (1965) created a seven-stage 'model of attitude change'. Kolb and Frohman's (1970) Planned Change Model had eight parts consisting of assessing need for change, scouting for change agents, diagnosis, develop a plan, action, evaluate, and terminate. Tichy and Devanna's (1986) '3 Acts of Transformation' has two acts in the unfreeze stage, which was recognize need for revitalization and create a new vision. In change, there were two acts of mobilization: commitment and transition. The final act of institutionalizing change was in the refreeze stage. In 1996, Kotter's 8-Steps of Change was released. The eight steps were as follows: 1) establish a sense of urgency; 2) form

guiding coalition; 3) create vision; 4) communicate vision; 5) empower others; 6) plan short term wins; 7) consolidate; and 8) institutionalize the new. In 2010, Schein adapted his original work to the 'Lewinian' Model of Change/Learning. The first stage was unfreezing by creating the motivation to change. In the next stage of change, there was learning new concepts. In the last stage of refreeze, there was institutionalizing new concepts.

In order for change to occur, group dynamics were explored by researchers and considered to be a factor in the outcomes of change. According to Cummings et al. (2016):

> Lewin was adamant that group dynamics must not be seen in simplistic or static terms and believed that groups were never in a steady state, seeing them instead as being in continuous movement, albeit having periods of relative stability or 'quasi-stationary equilibria'. (p. 38)

Tuckman's Group Development Model

The second theoretical framework that this study used was Tuckman's (1965) Group Development Model to analyze the development of the group through interactions and dynamics to determine if it impacts interdisciplinary teams. Theorists believe that interdisciplinary teams must pass through a sequence of developmental stages in order to effectively function as a team (Farrell et al., 2001). Bruce Tuckman (1965) created a group development model based on observations of group behavior in different settings. Team development is synonymous with natural maturation and suggests that a set of group structures and relationships will form over time (Farrell et al., 2001). Within Tuckman's Group Development Model, there are four distinct stages that a group must

go through together in order to develop and grow as a team: forming, storming, norming, and performing. Tuckman then added another stage called adjourning (or mourning) with Jensen in 1977. They believed that awareness at different stages could positively affect the team's process and productivity (Tuckman & Jensen, 1977). The phases are fluid, not linear in nature. This model is descriptive in nature rather than causal. Each stage has its own structure, climate, and interdependent informal roles that change in predictable ways during the team's development (Farrell et al., 2001).

The first stage of this model is forming, in which there is testing and dependence. As Bonebright (2010) describes, "In this stage, the group becomes oriented to the task, creates ground rules, and tests the boundaries for interpersonal and task behaviours" (p. 113). Barnett and O'Mahony (2006) suggest that members are usually cordial and congenial and question each other's abilities. The team also has to establish relationships with each other and leaders. Farrell et al. (2001) suggest that a team in this stage lacks clarity and a shared vision of the team's mission and roles, summarizing that "a developed team is one in which members have achieved consensus about their mission, their division of labor, and what they expect of one another with regards to cycles of work" (p. 283).

The second stage is storming, which represents conflict within the group. Bonebright (2010) characterizes this phase by "lack of unity and polarization around interpersonal issues (p. 114). Farrell et al. (2001) suggest that power struggles form between subgroups in a team due to different views and disagreements regarding the mission, team structure, and control. Barnett and O'Mahony (2006) suggest that members question participation and investment in outcomes. Tuckman (1965) stated that groups

begin to resist and become hostile towards one another, creating emotional responses to the task. Bonebright (2010) believed that there are less emotional responses in groups that work towards impersonal and intellectual tasks.

The third phase is norming, in which the group becomes cohesive, accepts each other and their opinions, and establishes roles and norms (Bonebright, 2010). Barnett and O'Mahony (2006) describe this stage as one in which, "Clarity of purpose and direction are established, leading to more productive involvement and commitment" (p. 506). Neuman and Wright (1999) suggest that this allows groups to find effective ways to work with each other and create shared mental models. Groups become an entity and task conflicts are avoided in this stage to maintain the group (Tuckman, 1965). According to Farrell et al. (2001), team members analyze past successes, failures, and conflicts when negotiating and creating a foundation for the culture of the group with a set of norms and mission. Within these negotiations, the group comes to a consensus about authority, roles, rights, and responsibilities. As Farrell (2001) explains, "The emergent rules and expectations become the core of the team culture, and they are referred to during times of crises or conflict" (p. 284).

The fourth stage is performing. Tuckman (1965) shows this stage as a functional role relatedness and problem solving together. Team members monitor their progress, resolve conflicts, and celebrate accomplishments during team meetings (Farrell et al., 2001). The roles within the team become flexible and members adapt to enhance the tasks. Leadership during the meetings change depending on a person's skills, expertise, and strengths, which creates solidarity, respect, and equality in participation among members (Farrell et al., 2001). Barnett and O'Mahony (2006) state that as team members

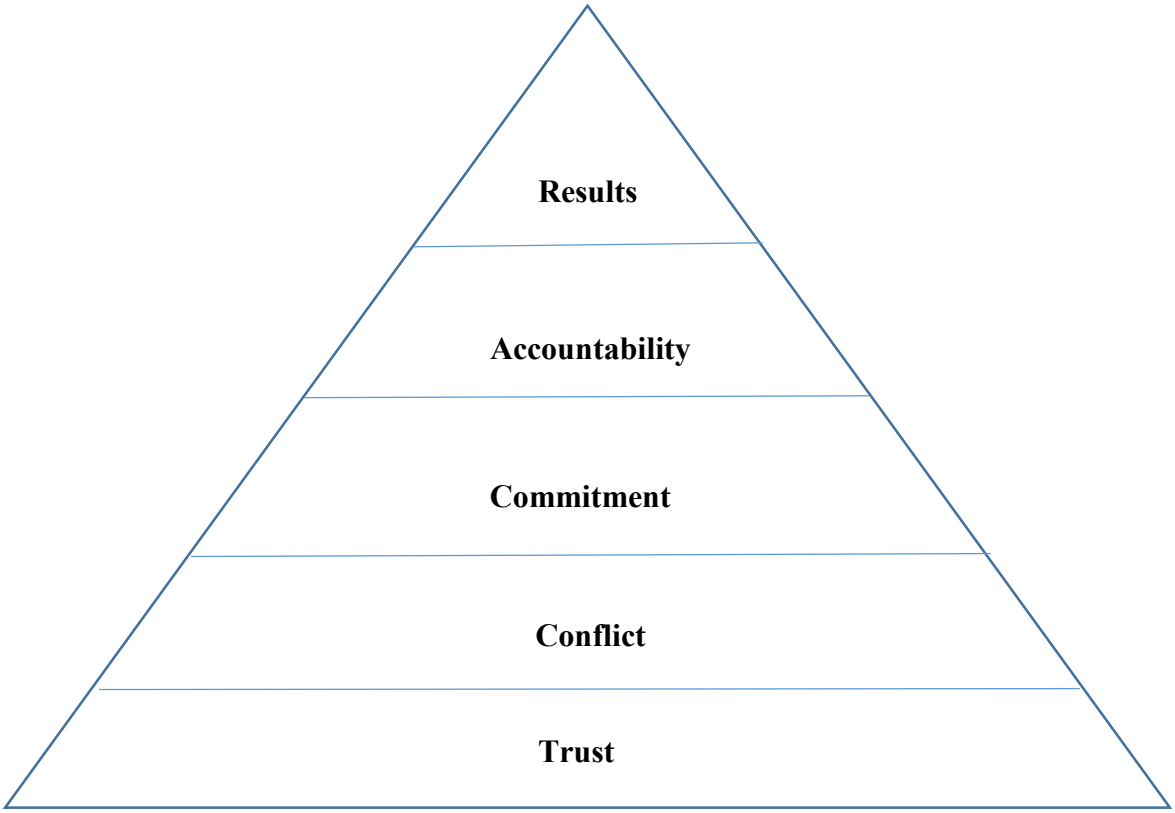
learn how to work together efficiently, they increase productivity.

The fifth stage is adjourning, also called mourning. This is a reflective stage in which separation of the group commences as part of the group life cycle (Bonebright, 2010). As teams mature, reflection becomes part of the organization's structure. Several principles exist that can improve or impede team functioning (Barnett & O'Mahony, 2006). These principles include initial and ongoing team development, team accomplishments, reflective questioning, and collaborative efforts. Tuckman's model is used by many practitioners because it is flexible, accessible, easy to understand and applicable to many situations (Bonebright, 2010).

Within these stages, members need to be cognizant of Lencioni's Five Dysfunctions of a Team (2007) (Figure 2): 1) absence of trust; 2) fear of conflict; 3) lack of commitment; 4) avoidance of accountability; and 5) inattention to results. Awareness and avoidance of these dysfunctions can lead teams to greater success.

Figure 2

Lencioni's Five Dysfunctions of a Team (2007)



Trust needs to be built among team members. This takes time through shared experiences, team building exercises, and moments of vulnerability. Conflict is a concern within a team and takes shape in different forms. Not all conflict is bad; teams can partake in conflict that is a passionate debate where all members are heard and solutions are developed by the team. Fighting and passive aggressiveness would be destructive conflict. Lencioni (2007) states that conflict norming should entail rules of engagement, and discussions should be objective and emotion-free. When establishing team norms, the leader must use a measure of judgment and take into consideration team members' attitudes and capabilities (Lencioni, 2007). According to Lencioni (2007):

> Good conflict among team members requires trust, which is all about engaging in unfiltered, passionate debate around issues. Even among the best teams, conflict will be at times uncomfortable. Conflict norms, though they will vary from team to team, must be discussed and made clear among the team. The fear of occasional personal conflict should not deter a team from having regular, productive debate. (p. 50)

Eicher (2020) further argues, "Healthy conflict allows a team to avoid the next dysfunction: lack of commitment" (p. 78). Teams need to commit to decisions and standards through buy-in and clarity. As Lencioni (2007) states, "Commitment is not consensus" (p. 50). Buying-in at times means having the ability to defy the lack of consensus. Lencioni (2007) believes clarity and alignment around a decision needs to take place in order to prevent confusion and frustration. According to Lencioni (2007):

> Commitment requires clarity and buy-in. Clarity requires that teams avoid assumptions and ambiguity, and that they end discussions with a clear understanding about what they've decided upon. Buy-in does not require consensus. Members of great teams learn to disagree with one another and still commit to a decision. (p. 59)

The fourth dysfunction, avoidance of accountability, can be avoided through the actions of team leader and peer pressure. In addition, the team leader can assist with avoiding the last dysfunction of inattention to results by keeping the team focused on team results and not individual results. (Eicher, 2020)

Secondary schools across the globe are facing educational reform related to changing the school's structures, frameworks for curriculum, designs for professional

development, and the teacher's role (Darling-Hammond & McLaughlin, 1995). Within these changes, there is a call for an increase in the "collective action between teachers including collective teaching, development of comprehensive lesson material, and coherence between subject areas and distributed lesson material" (Brouwer et al., 2012, p. 320). An important factor in creating success with these reforms is the ongoing collaboration; the approach schools use to accomplish this will be reviewed in this study. In addition, how schools change and operate and the way teachers work together and feel in this new model of collaboration through teaming will be explored in this study.

Review of Related Research

Interdisciplinary Teaming

The structure of interdisciplinary disciplinary teams is meant to break down the boundaries and isolation of teachers to work together to create an ideal learning environment (Clark & Clark, 1995). In the 1960s, the Pontoon Transitional Design was the model for interdisciplinary teaming because it was designed to bridge the gaps between mass education and individualized education (Clark & Clark, 1992). There are different types of interdisciplinary teams that exist in middle schools; however, most schools organize the teams around the four required core subjects. As Mertens et al. (2010) explain, "Kellough and Kellough (2008) defined an interdisciplinary team as an organizational pattern of two or more teachers representing different core curriculum areas such as science, mathematics, language arts, and social studies" (p. 50). According to Clark and Clark (1994), interdisciplinary teaming consists of teachers from two or more disciplines who use a wide array of instructional strategies and resources to instruct and evaluate students. These interdisciplinary teams form a teacher community, which is

"a group of teachers who are socially interdependent, who participate together in discussion and decision making, and share and build knowledge with a group identity, shared domain, goals, and interactional repertoire" (Brouwer et al., 2012, p. 320).

The structure of interdisciplinary teaming should promote teachers interacting with each other and focusing on curriculum decisions and student achievement (Clark & Clark, 1997). Ellerbock and Kiefer (2014) found that interdisciplinary teaming along with common planning time, flexible scheduling, and homeroom were key components of a middle level organizational structure for promoting adolescent-centered learning environments to meet student needs. This fosters teacher-student relationships because of the team promoting a community feel. Researchers found that collaboration in teacher communities has positive effects on teachers and students (Brouwer et al., 2012). Teams created fun and educational activities for their students; this increased student motivation and engagement, which is essential in adolescent learning. According to Erb and Doda (1989), teaming can transform the operations of schools for teachers and students by facilitating communication and collaboration and creating reform by fostering collegial relationships, which changes instruction and professional dynamics.

Vescio et al. (2008) stated that creating a teacher community was a method to embed collaboration into a school's culture, as this is a shift in teacher instruction. Collaboration should be ongoing and be expected to occur in these communities (Seashore et al., 2003). Grenda and Hackmann (2014) found teams create a learning community by collaborating to deliver curriculum and make learning connections across disciplines.

Teaming Structure and Roles - Distributive Leadership

Administrators create teams, determine team leadership, and provide a space for meetings; teachers have to be present and available for their team members (Brouwer et al., 2012). Teaming cannot be organized by convenience, as it will not create effective learning communities (Kain, 1998). Conley et al. (2004) found that well-designed teams support improvements in teaching practices. In order to have structure to a team, the members may create roles to assist the team with its work that they seek to accomplish for the year. According to Arnold and Stevenson (1998), organizing people into a team does not guarantee positive outcomes. As Dever and Lash (2013) state, "A team does not simply materialize because a group of people are placed in a room to work together" (p. 15); lack of training leads to a lack of motivation in some members. Katzenbach and Smith (1999) believe that teams who do not produce outcomes may lack discipline, will, and vision; therefore, they are not effective teams. In a study conducted by Dever and Lash (2013), teachers looked for more guidance and support from their administrators. The principal in that study believed that the teachers would not respond to a top-down approach, so he only attended two team meetings. Administrators have to find a balance of teacher-driven approach and providing administrative direction, guidance, and support.

Scribner et al. (2007) found that teaming may facilitate leadership development among teachers, which creates a professional learning community. Since this is a unique structure within traditional school structures, distributive leadership was explored by researchers. According to Spillane et al. (2004), distributive leadership "incorporates the activities of many individuals in a school who work at guiding and mobilising staff in the instructional change process" (as cited in Harris, 2005, p. 11). According to Firestone

(1996), instead of leadership being attached to one individual, it is spread within the organization among different individuals. In schools, this model emphasizes the team and not the individual; teachers become the leaders (Harris, 2005).

Harris (2005) suggests that distributive leadership has increased in popularity for three reasons: descriptive power, representational power, normative power. Descriptive power "captures the forms of practice implicit in professional learning communities and communities of practice" (p.10). In representational power, the organizational structure and basis for schools have changed to meet the learning needs of 21st Century learners. New models have formed based on collaborations and networking and vary from place to place. However, one thing that is constant is distributive leadership accommodates these new structures and requires leadership to be lateral rather than vertical. It incorporates numerous sources of influence and guidance (Harris, 2005).

Within distributive leadership, different members of the school community assume leadership positions. Goleman et al. (2002) created a conceptual framework that focuses on the interactions of people and situations shaping leadership and that every person in one way or another acts as a leader. Spillane et al. (2004) focuses on interactions and social practices whereas the practice is spread across leaders, followers, and their situation. According to Grenda and Hackmann (2014), there are formal leaders and followers in this structure. It is important to focus on how the leadership is distributed among the stakeholders (Spillane, 2006). The formal leaders consist of administrators, coordinators, and interdisciplinary team leaders. Followers are individuals who participate and are engaged in the activities but do not hold a formal position (Spillane, 2006). Harris (2005) suggested that followers may be co-producers of

leadership through interactions with others and have a greater influence than formal leadership positions. Distributive leadership "creates open boundaries that encourage the leadership team to adapt to changes and expand its membership" (Grenda & Hackmann, 2014, p. 55). Teacher leaders are responsible for coordination and management of planning events and curriculum work, professional development, promoting organizational change, supporting collegial relationships, and advocating for children (Grenda & Hackmann, 2014). They are also responsible for communicating issues that come from team meetings to building administration. This allows the administration to respond and enhance the school.

As Harris (2005) further emphasizes, "Distributive leadership 'incorporates the activities of multiple groups of individuals in a school who work at guiding and mobilizing staff in the instructional change process'" (p. 11). In order to create distributive leadership, the principal has to develop a culture of shared leadership that allows teachers to have input and feedback on school decisions (Grenda & Hackmann, 2014). Teachers must respect each other and work together to accomplish the mission of the school. As Grenda and Hackmann (2014) described, "Communication between groups resembled a chain. In core groups, like the interdisciplinary teams, different team members would be responsible for gathering and passing on information from various committees and efforts" (p. 66). Spillane et al. (2004) suggested that social distribution of leadership is spread among numerous individuals who accomplish the task through interactions of multiple leaders creating inter-dependency rather than dependency.

Research has found that distributive (shared) leadership is associated with improved learning outcomes (Fullan, 2001; Hopkins, 2001). Distributive teacher

leadership has also been found to produce improvements in teaching and learning (Harris & Muijs, 2004). In schools with distributive leadership, teachers contribute to and shape leadership practices more than those in formal leadership positions (Harris & Muijs, 2004). The Essential Elements Schools-to-Watch program's fifth essential element of educational leadership has the following two requirements that are related to distributive leadership:

> [1] Involve staff and others in the operation of the school or program, empowering and encouraging them to contribute and to make decisions that benefit students; [2] Support and encourage teachers, individually and collectively, to take risks, to explore, to question, to try new instructional approaches, to continue as learners, and to grow. (Essential Elements Schools-to-Watch, 2016)

Effective Team Practices

Interdisciplinary teaming is a change for many teachers, as they are now asked to work together instead of in isolation. Therefore, according to Main (2012), factors that affect the success of the implementation of teams are at individual, team, and school levels. At the individual level, Main (2012) found that the absence of explicit training in interpersonal skills and curriculum integration skills was a hindrance to successful team implementation. Thomas (1992) found that teachers lacked knowledge about team processes, and, in order to be successful, teams have to establish goals, roles, rules, and expectations. At the school level, the National Middle School Association (2004) stated that reform needs to be embedded in school culture (Main, 2012). Clark and Clark (1997) identified the organization of interdisciplinary teams, team leadership, common planning,

team goals and objectives, and organizational procedures as key characteristics. They then developed questions to ask teachers to conduct action research to collect in an informal manner. Clark and Clark (1997) found that success of interdisciplinary teams is based on continuous reflection, planning, and evaluation and leadership.

Success of teams is not only measured by outcomes but by the processes used to complete them. Main (2012) identified three necessary processes: task, team, and relationships. Jones and Bearley (1994) found that effective team practices form when these three overlap and have interdependency between them. According to Main (2012), in research conducted in 2007, team effectiveness can be measured by teachers' positive feelings and perceptions about colleagues and student outcomes and are related to teacher's efficacy. Each of these processes is significant; however, they occur at different stages of team development. In 1965, Tuckman published a Team Development model of the Forming, Storming, Norming, Performing Theory. Tuckman (1965) found that team and relationships processes are evident in the forming and storming stages, while task processes are in the later phase of the norming stage. This model is not a linear path but one that continually goes back and forth between stages as teams and new situations evolve throughout time.

Main (2012) conducted a study that observed 24 teachers on middle school teams. The teachers participated in interviews with questions focused on the areas of attitudes towards teaming, understanding of roles and expectations, perceived teacher and student benefits, and individual communication skills. The study's findings suggested that the following six characteristics helped or hindered the effectiveness of a team:

> (a) training (i.e. both pre-service and in-service); (b) administrative support throughout the team process (i.e. from formation to establishment and maintenance); (c) attitudes of team members to teaming (i.e. a willingness to participate in a team as well as experience and confidence in contributing to the team); (d) relationship building; (e) conflict; and (f) school culture. (p. 81)

To be effective, the team needed to focus on these characteristics, along with ensuring that they are actively engaged in the task, team, and school processes simultaneously. At the individual level, teachers needed to feel like part of a team and have pre-service and in-service training in teamwork. At the team level, teachers needed to plan and work together, as well as understand and implement task, team, and relationship processes. At the school level, teams needed to focus on expectations and routines, physical space, and human resources. It was found that teams worked more collaboratively when there was the presence of administrative support and commitment to team practices at the individual, team, and school levels (Main, 2012).

Clark and Clark (1997) explored different options in interdisciplinary teaming, as well as its benefits. These teams created more focused groups with strong support, flexible time, and cross-curricular connections. Positive climates influenced psychosocial development directly and achievement indirectly. Another added benefit was the increased time to collaborate, which led to higher satisfaction, innovation, and instructional strategies.

Common Planning

Schools with interdisciplinary teams have common planning, while others do not have the time allocated in their schedules. Kellough and Kellough (2008) defined

common planning as “a regularly scheduled time during the school day when teachers who teach the same students meet for joint planning, parent conferences, materials preparation, and student evaluation” (as cited in Mertens et al., 2010, p. 50). All teachers on the team should share the same common planning period; otherwise, it weakens the team’s ability to develop a strong and coherent instructional program (Oxley & Luers, 2010). Mac Iver (1990) found that teams who have frequent common planning are successful and effective. Common planning time creates a safe place for teachers to share ideas and concerns by speaking candidly, which allows multiple perspectives on items (Grenda & Hackmann, 2014). Teaming promotes growth, change, and reform by allowing teachers to plan, work, solve, and reflect with each other (Mills & Pollak, 1993). Oxley and Luers (2010) found that teachers used this time to discuss the students’ learning styles, gaps in knowledge and skills, and life circumstances, which helped them tailor their instruction and respond to student behavior; as they described, “Teachers in successful schools used increased collaboration time to expand their role in student support and accountability for student outcomes” (p. 64).

The common planning meetings need to be focused in order to get the expected outcomes. Teams should create ground rules such as start and end times, eliminate interruptions, and each member equally contributes to the team. This process will have an impact on team dynamics and performance (Rottier, 2000). Merenbloom (1991) stated that teams should set goals (weekly, quarterly, and yearly) to help structure their work and planning. Rottier (2000) suggested that team leaders create weekly and daily agendas in advance to increase productivity. McQuaide (1994) did a study that observed common planning times in schools in Pennsylvania and assessed the time allotted for specific

topics. The original results were as follows: students (47.5%), policy (40.5%), pedagogy (8%), evaluation (2.5%), and subject matter (1.5%). During meetings months after initial implementation, the discussions shifted more towards students and less on policy. In a similar study by Shaw (1993), seven categories were established for effective common planning. The seven categories were reflection, keeping track of students, logistics, conferences, instruction, housekeeping, and miscellaneous (as cited in Mertens et al., 2010).

A study conducted by Warren and Muth (1995) showed that the impact on students in schools with interdisciplinary teams with common planning was higher self-concept, school satisfaction, commitment, and positive perceptions to teachers and school climate. In addition, teachers had more positive perceptions of the work environment and job satisfaction (as cited in Mertens et al., 2010). Advantages of interdisciplinary teaming are strong support for students and teachers that enables innovation and autonomy, flexible learning time, and opportunities to make connections across different disciplines (Clark & Clark, 1997).

Common planning brings about major changes in how teachers perform their daily activities and instructional practices. When teachers feel that their time is being used effectively, they are more likely to accept and embrace the changes that are associated with educational leaders and the nature of the work and its possible outcomes. Common planning meetings empower teachers to make decisions about curriculum, instruction, and assessments. Mertens et al. (2010) identified areas in need of additional research. The first area is the use of time and defining roles and responsibilities. The second is the quality of collaboration and the establishment of group norms. The third

area pertains to teachers' professional goals and their knowledge, skills, and preparation regarding common planning.

Mertens et al. (2010) looked to the Common Planning Time Project to address the areas in need of more research. In the Common Planning Time Project, 60 researchers collected data on protocols to observe and evaluate team meetings. This research showed that smaller teams, consisting of approximately 113 students, spent more time working on curriculum and instruction; however, larger teams, consisting of approximately 157 students, spent more time on discussions regarding the students. According to Thompson et al. (2009), additional findings identified barriers to successful implementation. These barriers consist of teacher buy-in, off-task behaviors, and lack of administrative leadership, team leader, agenda, and norms.

A similar study by Cook et al. (2010) was conducted in a case study in two Kentucky Essential Elements Schools-to-Watch. They found that successful common planning can be attributed to teams with a clearly defined purpose and expectations and schools with financial resources, professional development, emphasis on scheduling, and teacher knowledge of effective common planning time. Regularly scheduled common planning time led to positive effects on teacher morale (Cook et al., 2010). Also, they found that common planning needs to enhance instructional practices while fostering a collegial environment and addressing students' academic and social needs (Mertens et al., 2010). According to Cook et al. (2010), "Common vision and mission, clearly defined goals for all types of planning (interdisciplinary team planning, grade level planning, and professional learning communities), and effective building leadership are factors for enhancing the effectiveness of common planning time" (p. 1).

Mac Iver (1990) found that increased time in common planning is strongly related to time spent on coordinating content, diagnosing student needs, and planning events. Benefits of common planning were social support for teachers from team members, more effective instruction from increased coordinated cross-curricular experiences, teachers identified and solved students' needs more effectively and efficiently, and students identified with the team by developing team spirit and improving both their behaviors and work (Mac Iver, 1990).

The Essential Elements Schools-to-Watch third essential element of organization and structure requires common planning time for teachers who share a common group of students. It also requires having schedules that have assigned times for teachers to meet to encourage interdisciplinary programs and creative use of time.

Curriculum Integration

One domain of team teaching is curriculum integration to help students see the totality of learning (Merenbloom, 1996). Lewbel (1989) suggested that an effective method for addressing young adolescents' developmental needs was implementing interdisciplinary teams which integrated curriculum. Muth and Alverman (1999) found that when students are on teams in middle school, they comprehend the cross curriculum connections with their teachers' assistance. Teachers can identify prototypes in various models and practices for curriculum integration. According to Merenbloom (1996), the following approaches can be used to effectively integrate curriculum:

> connecting topics in one subject with related topics in other subjects; curriculum mapping; interdisciplinary activities; interdisciplinary units; pursuit of an outcome that has been identified outside the school or by personnel within the team; a skill-

> of-the-week focus on a basic learning skill such as reading for main ideas, sequencing, or outline; a skill-of –the-week focus on a thinking skill such as formulating questions, comparing, ordering, or classifying; reinforcement of home-base advisory topic such as decision making or conflict resolution in the context of each subject area; and reinforcement of a values topic such as loyalty or responsibility in the context of every subject. (p. 47)

Clark and Clark (1997) found that the most important advantage is the autonomy to make choices regarding curriculum integration and instructional strategies, which fosters cooperative work and trying new ideas leading to higher self-efficacy. Interdisciplinary teams break down boundaries and the isolation of single subjects and allow for systematic planning (Clark & Clark, 1995). This collaborative planning among teachers fosters creative and diverse options and activities for students through active synthesis and application of facts across the different subjects (Clark & Clark, 1997).

The Essential Elements Schools-to-Watch fourth essential element, classroom instruction, places emphasis on curriculum integration. This element requires the following:

> (a) Use a range of successful, research-based teaching strategies that are developmentally and cognitively appropriate, matching instruction to the students' varied learning styles and different intelligences; (b) Vary activities to maintain student interest; (c) Focus instruction on thinking, reasoning, and problem solving and, at the same time, ensure that students acquire necessary content and subject matter; (d) Use interdisciplinary approaches to help students integrate their studies and meet learning standards. (Essential Elements Schools-to-Watch, 2016)

Sandholtz (2000) found that curriculum development is a key aspect in enhancing professional development in team teaching. It promotes experimentation and draws on the strengths, skills, and expertise of each member. This provides the team a conduit to develop a curriculum by combining their subjects through collaboration. Team teaching creates an environment where each teacher becomes, in some degree, a novice (Sandholtz, 2000).

Training and Professional Development

In numerous studies, teachers in interdisciplinary teams have expressed that they were never trained in teaming practices (Brickmore et al., 2005; Jackson & Davis, 2000; Schamber, 1999; Wilson, 2007). Wilson (2007) conducted a study that simulated a virtual interdisciplinary teaming experience among 24 preservice teachers. Research has shown benefits of interdisciplinary teams for teachers as well as students. Teams take work to make them successful. According to Schamber (1999), there needs to be deliberate effort, and Jackson and Davis (2000) reported that there needs to be deliberate effort and chemistry. An area of need is to prepare teachers for teaming and creating an authentic experience. According to Wilson (2007), "Jackson and Davis (2000) asserted that preservice teachers should arrive at their first middle school teaching experience with 'an understanding of how effective interdisciplinary teams work and how they can best contribute to effective teams' (p. 96)" (p. 2).

Wilson (2007) conducted an action research study through her course named Teaching, Engaging, and Assessing Middle Level Learners (TEAMS). She placed 24 preservice teachers on interdisciplinary teams and collected three forms of data: reflective journals on pedagogy and social interactions, artifacts with descriptive data, and

reflective writing activities with prompts. She explains in her results, “As teams evolved, there were three overlapping themes in the data: (a) teams built cohesiveness and community, (b) preservice teachers developed skills necessary for working on effective teams, and (c) preservice teachers recognized and valued the authenticity of the experience” (p. 6). In order for there to be team cohesiveness, there needs to be respect, a feeling of value, support, chemistry, and team dynamics and identity. Wilson (2007) found that collaboration and compromise were the most prevalent interpersonal skills. When analyzing data for authenticity, Wilson (2007) identified challenges, virtual teaming, and concerns about reality.

Bickmore et al. (2005) explored the role that interdisciplinary teaming plays in the induction process of new teachers. There were two middle schools located in the Southeast that were suburban (formerly rural). Each school’s induction process consisted of five elements: orientation, mentoring, interdisciplinary teams, professional development, and administrators. In addition, both schools had interdisciplinary teams, which were made up of three or four teachers from the four content areas (math, language arts, science, and social studies). These teams met during common planning times and attended grade level and content area meetings. Both schools also grouped their special area teachers (ex. art, music, physical education) together and called them “connection teams”. Principals in both schools assigned mentors to new teachers by pairing them with a teacher in the same content area.

In this mixed method design, Bickmore et al. (2005) analyzed the perceptions of new teachers, mentors, and principals of the interdisciplinary teaming supporting their personal and professional needs. The researchers collected data from written surveys to

new teachers (n = 27) and mentors (n = 16) and interviews with new teachers (n = 27), mentors (n = 16), and principals (n = 2). The survey response rate was 81.5% for new teachers and 93.8% for mentors.

In the surveys, participants were asked questions regarding the five elements of the schools' induction programs. The survey consisted of 27 parallel Likert-type items and 7 parallel short-answer questions. The researchers ran a one-way analysis of variance (ANOVA) to analyze the responses between the new teachers and mentors. Then, they conducted a second one-way ANOVA to analyze the responses between the two schools' teacher groups. The data showed that mentors (M = 3.43), interdisciplinary teams (M = 3.48), and administrators (M = 3.38) had a significantly greater influence in the induction program of new teachers than activities, which were professional development (M = 3.05) and orientation (M = 3.06). There was also a significant difference between mentors and new teachers regarding the orientation materials for the induction program, F (1,41) = 3.1, $p < .05$. In the open-ended component of the survey, new teachers stated that teams (31.8%) and mentors (31.8%) were the most helpful.

To analyze the data from interviews, the researchers used a method by Denzin (1978) that combined inductive and deductive methods called typology. This process divides responses into groups or chains of concepts, which were identified as personal or professional needs or actual needs. The results from the interviews showed teachers, mentors, and administrators believed that all the elements of the induction were helpful and beneficial. They perceived differently how each element contributed to personal and professional needs. Mentors and administrators contributed to the personal needs of new

teachers across all participant groups. They also contributed the mentors, interdisciplinary teams, and professional development to the professional needs of new teachers.

This study showed significant benefits of teachers being on interdisciplinary teams with mentors during the induction process in middle schools. Teachers on these teams felt their personal and professional needs were being met across different elements. Teachers felt the interdisciplinary teams met their personal needs because they provided emotional support and provided a sense of competence. Their professional needs were met through management practices (school policies and procedures, clerical requirements, classroom management) within the team and meeting curriculum and instructional needs (Bickmore et al., 2005). This provided them with a place to share and collaborate with each other. According to Arhar et al. (1989), teachers enjoy increased opportunities for collaboration, which facilitated communication and enhanced satisfaction. Three issues that were presented in this study included the following: (a) lack of strong team leaders; (b) need to improve communication; (c) need to improve curriculum integration.

Team teaching provides colleagues opportunities to continuously learn from each other about content and teaching, while emphasizing the processes of learning (Shibley, 2006). Researchers have explored how common planning time is used to foster professional development among teachers. According to Dever and Lash (2013), administrators want to change their professional development models from ones in which teachers receive knowledge passively from a presenter to ones that are collaborative and allow for active participation. This model allows for teachers to apply, experiment, and adapt (Sparks & Hirsch, 1997). Sandholtz (2000) found that teaming can motivate

professional development among teachers and the combination of support, ideas, and criticism promotes improving teacher practices. Teachers are more likely to turn to each other for professional support than administrators. Schools have created professional learning communities (PLCs) to accomplish this goal. PLCs are communities of learning, practices, and/or continuous inquiry of improvement that include a wide range of participants such as teachers on grade level teams, teachers in departments, school committees, professional organizations, or teachers in a school district (DuFour, 2004; InPraxis, 2006). Middle schools have created common planning time (CPT) teams, which are "a group of teachers from different subject areas who plan and work together and who share the same students for a significant portion of the school day" (Flowers et al., 2003, p. 58). PLCs and CPT teams are similar in nature because they both bring educators together to collaborate to better meet the needs of their students. Mertens et al. (2010) stated that existing research does not determine if a link exists between the two communities. The question remains: when do schools have time to implement professional development? Many middle schools try to use common planning time for professional development. However, Mertens et al. (2010) found that even when middle schools had CPT teams, they did not have sufficient amounts of time for focused and ongoing professional conversations.

Dever and Lash (2013) conducted an observational case study in a suburban Midwest middle school to explore the roles of CPT teams and PLCs in professional development. In this school, members of CPT teams met with their department teachers twice a week during common planning time to have content-specific PLC meetings. The study found that interdisciplinary CPT meetings focused on academic, social, behavioral,

and parent issues and team and school events. During the content-specific PLCs, the following were evident: purpose was to benefit students; cohesiveness that teaching should impact student learning; unit planning and sharing of resources; content-related discussions; minimal student-specific discussions and nonacademic talk (Dever & Lash, 2013). The two different types of teams worked together to improve student learning; however, during the interdisciplinary CPT meetings, most of the time was spent discussing student issues with no specific action plans. Dever and Lash (2013) found that the interdisciplinary teams were reactive towards students' academic and behavior issues and did not adopt a proactive approach. The teachers did not collaborate about teaching practices or creating interdisciplinary units, and the conversations veered off-task and became non-academic in nature. During the content-specific PLC, Dever and Lash (2013) found that the conversations were proactive because they focused on what the teachers were doing and they gained knowledge from each other. Teachers collaborated, created lessons and common assessments, and shared resources, teaching practices, and strategies. The middle school in this study meant for the CPT to be a form of a PLC; however, the teachers felt the teams were different and had different purposes, which caused them to struggle with the two concepts. Dever and Lash (2013) believed that this may have been caused by lack of training.

Even when schools provide training and professional development, one problem that arises from professional development among educators is that it is a one-time event, and there is not any follow-up from administrators; therefore, results may not be seen in teacher and/or student performance. Guskey (2002) found that in order for professional development to be effective and result in significant educational improvements, it must:

a) recognize change is gradual and difficult for teachers; ensure teachers receive regular feedback on the progress of student learning; c) provide continued follow-up, support, and pressure. When teachers partake in professional development, it is important for them to reflect with each other and administrators. Barnett and O'Mahony (2006) created five levels of reflection to help evaluate professional development. The first two levels are participants' reactions and learning. These levels examine reactions and perceptions of the experience and the materials that they learned during the professional development. The third level is organization support and change to determine how the school either supports or inhibits the professional development following the session. The fourth level is participants' use of knowledge and skills to determine and analyze if the new skills and/or practices are being used throughout the school year. In the fifth level of student learning outcomes, teachers and administrators assess the effects on student learning throughout the year (Barnett & O'Mahony, 2006). Stoll et al. (2006) found that effective teacher communities had an impact on professional development and student achievement.

Teacher Efficacy

Guskey and Passaro (1994) defined teacher efficacy as "teachers' belief or conviction that they can influence how well students learn" (p. 628). Warren and Payne (1997) explored the impact of organizational patterns and their impact on teachers' efficacy and perceptions of their work environment in middle grades. There were 82 participants who taught 8th grade from 12 middle schools in two southeastern states (Georgia and North Carolina). The makeup of the schools varied: four schools had interdisciplinary teams with common planning, four schools had interdisciplinary teams

without common planning, and four schools had traditional departments. The researchers used two instruments in this study. The first was the Teacher Efficacy Scale (Gibson & Dembo, 1984) to assess teachers' efficacy on a Likert scale consisting of 30 items. The second was the Teacher Opinion Questionnaire to assess perceptions of the work environment across 78 items using a Likert Scale.

Using these instruments, one-way ANOVAs were performed to analyze the effects of organizational patterns on teachers' efficacy and perceptions of work environments. There was a significant difference found among organizational patterns, $F(2, 79) = 8.21$, $p < .001$. Teachers on interdisciplinary teams with common planning had higher personal teacher efficacy ($M = 39.61$ SD = 4.65) than those on interdisciplinary teams without common planning ($M = 34.60$, SD = 5.26) and who just had departments ($M = 35.76$ SD = 4.69). The Teacher Opinion Questionnaire used ten subscales: 1) homogeneity/shared values; 2) managing student behavior; 3) instructional coordination; 4) cohesiveness; 5) organizational rigidity; 6) goal setting; 7) decision making; 8) satisfaction/commitment; 9) buffering; and 10) collaboration.

One-way ANOVAs were performed to analyze the effects of these subscales among the organizational patterns. Tukey tests were then performed for each significance at $\alpha = .05$. Teachers on interdisciplinary teams with common planning time had significantly more positive perceptions of homogeneity/shared values, cohesiveness, goal setting, and decision making than those who were in traditional departments. Teams reduce teacher isolation, which proved to be beneficial to teachers, but also lessened teacher autonomy (Crow & Pounder, 2000). Teachers on interdisciplinary teams with common planning had more positive perceptions of managing student behavior,

instructional coordination, organizational rigidity, goal setting, satisfaction/commitment, buffering, and collaboration than teachers on interdisciplinary teams without common planning and who were in traditional departments. This study shows that there are significant benefits of teachers being on interdisciplinary teams with common planning. Teachers on these teams had higher personal teacher efficacy and positive perceptions of the working environment than those on interdisciplinary teams without common planning and those with traditional departments. Common planning allows teachers to work together and collaborate during a dedicated time.

Essential Elements: Schools-to-Watch

Essential Elements: Schools-to-Watch (EE:STW) is both a national and state recognition for schools with exemplary middle level practices. There are 465 Schools-to-Watch across the country. Out of those 350 schools, there are 35 in New York, 10 of which are on Long Island. The Schools-to-Watch Program was developed by the National Forum, which is an alliance of educators, national associations, and professional organizations and foundations. The EE:STW is affiliated with the National Forum, the New York State Middle School Association, the New York State Education Department, the Statewide Network of Middle Level Education Liaisons, the EE:STW Principals, Institutions of Higher Education, and the K-12 educational community.

The designation recognizes exemplary middle level schools and programs. EE:STW identifies diverse, high-performing, and growth-oriented middle schools that excel in four domains: academic excellence, developmental responsiveness, social equity, and organizational structures and processes. Schools must meet 37 elements under these

four domains. Under the domain of academic excellence, the EE:STW rubric identifies the following criteria:

> Curriculum, Instruction, Assessment, and AIS are aligned with high standards that challenge students; Curriculum emphasizes deep understanding; Instructional strategies include a variety of challenging and engaging activities; Teachers use variety of assessment and progress monitoring methods; Master schedule provides students time to meet academic standards; Students are provided support they need to meet academic standards; Adults in the school are provided with Common Time to enhance student achievement, deepen their knowledge, and improve their standards-based practice. (Essential Elements Schools-to-Watch, 2016)

In the developmental responsiveness domain, the rubric identifies the following criteria:

> A student's intellectual, ethical, social, and physical development are addressed through: personalized classroom environments and comprehensive services; Curriculum is socially significant and relative to the personal and career interests of young adolescents; Teachers use an interdisciplinary approach to reinforce important concepts, skills, and address real world problems; All teachers foster curiosity, creativity, and development of social skills; Students are provided multiple opportunities to explore a rich variety of topics and interests, develop their identity, learn about their strengths, discover and demonstrate their own competence, plan for their future, develop citizenship skills, and engage in the community; Students have a voice; School develops alliances with families to enhance and support the well-being of students; School provides age appropriate

> co-curricular activities to foster social skills and character and to develop interests beyond the classroom environment. (Essential Elements Schools-to-Watch, 2016)

In the social equity domain, the rubric identifies the following criteria:

> All students participate in heterogeneous classes with high academic and behavioral expectations; Students are provided the opportunity to use a variety of approaches to achieve and demonstrate competence and mastery of standards and to learn about and appreciate their own and other's cultures; Teachers adapt curriculum, instruction, and assessment to meet students' needs; Faculty welcomes and encourages active participation of all its families; School's reward system is designed to value diversity, service, and citizenship; Staff members understand and support the families' backgrounds and values; All students have equal access in all classes and activities; School rules are clear, fair, and consistent; School community knows every student well. (Essential Elements Schools-to-Watch, 2016)

In the domain related to organizational structures, the rubric identifies the following criteria:

> Shared vision; Principal holds the school-improvement enterprise together; Learning, experimentation, and reflection are school norms; School and District devote resources to professional learning; Families and community members are included in supporting school's high performance; School holds itself accountable for student success; District and school partner with colleges and universities; District and school cultivate and persevere to increase student achievement and

development; School is part of a larger educational system. (Essential Elements Schools-to-Watch, 2016)

EE:STW schools have an application process that involves reflection of practices and collection and analysis of data. After the application review, the school may be selected to receive a site visit by a team of professionals who conduct a two-day visit to determine the designation. The process involves all stakeholders, including students, teachers, district and building administration, support staff, families, and community members.

It is an honor to be recognized as a forward-thinking, achievement and equity-driven organization committed to the development of learners for the school's adolescents and adults. Being a designated school, the school is provided with more opportunities for self-reflection and a focus for future professional development and consultation. Recognized schools serve as a model of successful work of effective middle school grades and a host for school visits. Members of the school team present at local, state, and national conferences.

Receiving the EE:STW designation is due to the fact that the teachers and administrators continually raise the bar, hold the students to high expectations and standards, and always look to enhance instruction to develop each child academically and socially. This designation promotes continuous school improvement, in which the school must be re-designated after three years.

Conclusion

Throughout the review of previous research, researchers sampled schools of different structures and cultures. Previous research explored specific components of

interdisciplinary teams. However, this body of research lacks analysis of the team model in its entirety from inception to execution. This study looked at teacher perceptions on practices and efficacy of interdisciplinary teams in one school with structure that has interdisciplinary teams and departments. Having the culture remain a constant in the research will better help the understanding of teacher perceptions of teaming in an Essential Elements: Schools-to-Watch middle school. This research provided a comprehensive view of the change necessary for successful team while examining the role group development and dynamics play in affecting teacher practices and efficacy.

CHAPTER 3: METHODS AND PROCEDURES

The purpose of this study was to examine the effects and impact of interdisciplinary teaming on teacher practices and efficacy. This qualitative study explored the effects and impact through teacher perceptions, observations of team meetings, and document analysis. This chapter discusses the research questions, the setting, the participants, data collection procedures, data analysis, trustworthiness of the design, research ethics, and the role of the researcher.

Research Design

A single instrumental case study was used to analyze the impact and effectiveness of interdisciplinary teaming on teaching practices and efficacy within a middle school. As Creswell and Poth (2018) explain, "A single instrumental case study focuses on an issue or concern and then selects one bounded case to illustrate this issue" (p.157). Therefore, this study was conducted in one Essential Elements: Schools-to-Watch Middle School in Nassau County, Long Island, New York. This school received this recognition in 2019. The researcher examined the impact of the design and structure of the school's interdisciplinary teaming, the role of the administrator in creating and supporting teaming, and teacher perspectives about teaming. The researcher also explored the teachers' perceptions of the group dynamics within the team and their teacher efficacy.

This case was studied in real-time, as "Case study researchers study current, real-life cases that are in progress so they can gather accurate information not lost by time" (Creswell & Poth, 2018, p. 155). The research questions were as follows: 1) How does the design of the teaming program impact the effectiveness of the interdisciplinary teams and teacher efficacy? 2) What is the role of administrators in supporting teaming and

advocating distributive leadership among team members? 3) How do teachers perceive the teaming program's effects on instructional practices? 4) What are the teachers' perspectives on the group dynamics within a team?

To obtain an in-depth understanding of this case and determine emerging themes, the researcher interviewed the principal, eight 7th 8th grade teachers who teach different subjects. In addition, the researcher conducted a focus group with 7th and 8th grade team members, observed team meetings, and collected artifacts such as agendas, student work, and curriculum-related materials. This data helped develop an understanding of these various factors and their relationship to interdisciplinary teaming and group dynamics.

Research Questions

This study explored the effectiveness and impact of interdisciplinary teaming on teachers and their practices and efficacy. The study addressed the following research questions:

1) How does the design of the teaming program impact the effectiveness of the interdisciplinary teams and teacher efficacy?
2) What is the role of administrators in supporting teaming and advocating distributive leadership among team members?
3) How do teachers perceive the teaming program's effects on instructional practices?
4) What are the teachers' perspectives on the group dynamics within a team?

Field Setting

This study was conducted in the Spring of 2022 at a suburban middle school in Nassau County in Long Island, New York. Access to this site was granted through the

Superintendent of schools and the middle school principal. This school was nationally recognized as an Essential Elements: School-to-Watch. This recognition is for middle schools that demonstrate continuous improvement and excellence in the domains of academic excellence, developmental responsiveness, social equity, and organizational structure. At the time of this study, the school had an enrollment of 640 students. The make-up of the school was 88% White, 7% Hispanic, 4% Asian, and 1% Multiracial. The school sits in a neighborhood where the median annual income is $139,201, as of 2021.

The Sample and Population

Population

The population for this study was comprised of middle school teachers from an Essential Elements: School-to-Watch in Bethpage, New York. The district is located in Massapequa, New York in Nassau County. The district has one high school, one middle school, and three elementary schools. The middle school has students from the geographic regions of Massapequa, Seaford, Bethpage, Farmingdale, and Levittown. The faculty consists of 74 teachers: 11 general education (K-6) certified teachers, 22 content area (7-12) certified teachers, 15 special education certified teachers, and 26 special area (K-12) certified teachers. All teachers are placed on interdisciplinary teams, except for special area teachers. Demographic information for faculty members is illustrated in Table 1.

Table 1

Faculty Population Demographics at Site School

Roles/Certification	Number of Teachers
Grade 6 Teachers (K-6 Certification)	11
Grade 7-8 Content Teachers (7-12 Certification)	22
Special Education Teachers	26
Special Area Teachers	15
Administrators	3

Sample

The sample of this study was eight teachers and one administrator purposefully selected from the volunteers from this middle school. There were a total of 18 teachers in both the 7th and 8th grade focus groups. The number of teachers sampled was based on the population of teachers, their placement on interdisciplinary teams, and their grade level. See tables below for sample details:

Table 2

Interdisciplinary Sample (Interview and Focus Group Participants)

Professional Role	Number of Teachers	Percent of Sample
Interdisciplinary Team Member – 7th grade	9	47%
Interdisciplinary Team Member – 8th grade	8	42%
Interdisciplinary Team Member – 7th and 8th grade	1	5%

Table 3

Interdisciplinary Sample Demographics (Interview Participants)

Participant	Years in Education	Certification Type	Gender
Teacher 1	21	Mathematics 7-12 Pre K-6 School District Admin School Business Admin	Female
Teacher 2	21	Social Studies 7-12	Male
Teacher 3	18	ELA 7-12 Childhood Ed 1-6	Female
Teacher 4	19	Earth Science & Gen Science 7-12	Female
Teacher 5	29	Social Studies 7-12	Female
Teacher 6	25	Mathematics 7-12	Male
Teacher 7	29	Mathematics 7-12	Female
Teacher 8	12	ELA 7-12	Male
Administrator	30	School District Leader School Building Leader	Male

The criteria for this sample population was that the person was working in a school that has interdisciplinary team structure and the school has been designated as an Essential Elements: School-to-Watch. Only teachers who participated in the interviews, focus groups, and team meetings were included in data analysis.

The differences in the participants allowed triangulation and trustworthiness in the data collected through the discussions in the interviews and focus groups. The goal in choosing participants with different certifications was to see how their different experiences in those areas affected their perceptions and practices in interdisciplinary teaming.

Data Collection

The researcher received permission from the Superintendent of Schools and the principal to conduct the study, distribute all relevant paperwork and questions, and collect artifacts. An email was sent to inform the teachers that participation was voluntary and all the responses were anonymous and confidential. All participants in the interviews, focus groups, and observations were given a letter of consent. The data collected will help the school continue to enhance programs, teaming structures, and teacher practices and efficacy. It will also increase teacher efficacy and continue to help the school maintain the status of an Essential Elements: School-to-Watch.

A sample of eight middle school teachers was obtained out of 74 teachers at a middle school in Nassau County, New York for this study. All 7th and 8th grade middle school teachers who volunteered to be interviewed for the study and/or focus group were sent a letter of consent. Interviews with the principal and eight 7th and 8th grade teachers were conducted using the interview questions protocol. Focus groups with all the 7th and 8th grade teachers who volunteered were conducted during professional periods using the focus group questions protocol. Interview and focus group participants were asked questions regarding demographic information (certification area, years of experience, primary subject they teach, grade they primarily teach, and placement on a team), perceptions of administrative support, teaching practices, group dynamics, and efficacy. Team meetings were observed throughout the semester. The researcher collected artifacts that were produced from the meetings and performed document analysis protocols. All interactions were virtual through Zoom.

This study used data from four sources: individual interviews, focus group interviews, observations of team meetings, and documents from team meetings. Creswell and Poth (2018) state that a good qualitative case study uses various qualitative data such as interviews, observations, documents, and audiovisuals to develop an in-depth understanding on a case. Protocols were developed for the interviews, focus group, and team meetings, and document analysis (Appendices B–G). These protocols were tested on professional colleagues to ensure that they were open-ended without being leading in nature.

Individual interviews of eight 7th and 8th grade teachers and the principal were used to help understand perceptions of interdisciplinary teaming. The interviews consisted of semi-structured, open-ended questions regarding interdisciplinary teaming and teacher experiences and perceptions. Each participant was interviewed individually via Zoom and for approximately 30 minutes. All interviews were audio recorded with the participants' consent using Otter.ai and Voice Memos on an iPhone.

A focus group was also conducted for this study. It included the eight teachers who were individually interviewed and the rest of that interdisciplinary team who volunteered for the study. The focus group took place virtually; however, the teachers met in the classroom that the group normally meets in during their team meetings adhering to the Centers for Disease Control (CDC) and New York State Department of Health guidelines for COVID-19. All the teachers maintained social distancing of six feet apart and wore masks as they normally do for their meetings. Focus group questions focused on interdisciplinary teaming and group dynamics through semi-structured, open-ended questions. The duration of the focus group was 40 minutes. All participants gave

written consent to have the focus group discussion audio recorded using Otter.ai and Voice Memos on an iPhone.

The teams meet daily in the same classroom during the same period. During these team meetings, teachers adhere to CDC and New York State Department of Health guidelines for COVID-19. All the teachers maintained social distancing of six feet apart and wore masks as they normally do for their meetings. The researcher observed these team meetings virtually. The meetings were 40 minutes in duration. The researcher observed four of these meetings and audio recorded them using Otter.ai and Voice Memos on an iPhone with the consent of all members. An observation protocol checklist, with a section for notes, was used to evaluate components of the meeting. The structure of the meeting, group dynamics, and leader dynamics were used as the overarching topics for observable measures.

Data Analysis

In order to collect data, the researcher conducted eight teacher interviews, an administrator interview, and two focus group interviews. In addition, the researcher observed and transcribed all individual interviews and team meetings. After reading the transcriptions, the researcher developed a start list of codes. According to Miles et al. (2014), coding is a method of discovery and the analysis of data that helps the researcher interpret the data. Data are chunked together to form a code to find recurring patterns. After coding, data were clustered to help draw conclusions. The transcriptions were then uploaded into Dedoose, a qualitative software. Once the upload was complete, all the codes were entered, defined, and color-coded into Dedoose. The researcher then reread the transcriptions and applied all applicable codes to each line from the transcriptions.

The methods of coding used were descriptive and In Vivo. Miles et al. (2014) describe that "A descriptive code assigns labels to data to summarize in a word or short phrase" (p. 80). After a label was created, it was assigned to part of the transcript in order to have a detailed description and to construct a narrative for the case. According to Miles et al. (2014), In Vivo coding uses words or phrases from the participants, such as "we collaborate".

After the coding, the researcher added descriptors with levels to each interview. The descriptors included types of certifications (elementary, secondary, special education, administrator), number of years in education (0-9, 10-19, 20-29, over 30), subject area (core academic, special area, special education, supervision), and gender (male, female).

Once all the codes and descriptors were entered and identified in Dedoose, the researcher used various ways to analyze the data and discover patterns and themes. The qualitative word cloud and other qualitative charts, which are arranged in matrix format in Dedoose, were used for this analysis. Miles et al. (2014) state that "The matrix is a tabular format that collects and arranges data for easy viewing in one place, permits detailed analysis, and sets the stage for later cross-case analysis with other comparable cases or sites" (p.108). The researcher also used the code application and the code co-occurrence, which are arranged in two dimensions. According to Miles et al. (2014), matrices that are organized in two dimensions are the simplest.

According to Miles et al. (2014), to draw first conclusions, one should note patterns and themes, compare and contrast, and cluster and count. In using this to examine the data, the researcher found emerging themes that develop from this analysis.

Once these themes emerged, they were analyzed to determine the findings of the study, which were used to make a closing vignette. According to Creswell and Poth (2018), this provides a final experience for a reader.

Trustworthiness of the Research Design

In the analysis of data, it was important to show trustworthiness to increase the validity of the findings. As Creswell and Poth (2018) define, "Validity is the outcome goal of research and is based on trustworthiness and external reviews" (p. 455). One form of trustworthiness used was triangulation between data sources and methods of individual interviews, focus groups, team meeting observations, and artifacts. According to Miles et al. (2014), triangulation shows a minimum of three sources agreeing with each other and does not show contradiction; it is "a way to get to the findings in the first place-by seeing or hearing multiple instances of it from different sources by using different methods" (p. 262). This case study sought to explore the effectiveness of interdisciplinary teaming on teacher practices and efficacy.

In addition, the data were peer-checked by critical educational professionals, who reviewed the transcripts consisting of individual interviews, focus group interviews, and team meetings to determine code words. This strategy strengthens the study through an "intercoder agreement based on the use of multiple coders to analyze transcript data" (Creswell & Poth, 2018, p. 345). This helped the researcher find consistency of codes and themes between the coders and strengthen the findings in this case.

The feedback from peers reduced the bias that existed due to the researcher's position as the Assistant Superintendent for Curriculum and Instruction. During the interviews, the researcher asked questions pertaining to trust and relationships between

teachers and administrators. The researcher was curious to see how the teachers were going to answer that question since there was prior knowledge of such relationships due to the researcher's previous observations and interactions. Since the teachers answered it truthfully, even though it was not in a positive light, the researcher felt that the validity existed in the responses. This allowed the researcher to check the balance of power in the conversations, which strengthens the validity and trustworthiness in the data and its analysis.

Research Ethics

For this study, ethical considerations were taken to ensure the protectiveness of the participants. All guidelines from St. John's University Institutional Review Board were utilized in this research. The researcher gained access to the site from the Superintendent and the principal. The name of the school was not mentioned in this case study. The entire 7th and 8th grade faculty were emailed in order to gauge voluntary interest in the study. All participants were given a St. John's Letter of Consent (Appendix B). The researcher reviewed the consent form and ensured their anonymity in this study. The researcher also emphasized that there were no risks in partaking in this, and there were no job-related effects or impacts. After reviewing it together, the participants in the individual interviews, focus group interviews, and team meetings provided written consent by signing the letter of consent.

Role of Researcher

The researcher is the current Assistant Superintendent of Curriculum and Instruction in the district where the interviews, focus groups, and observations took place. According to Merton (1972), we are all both insiders and outsiders, depending on the

situation and continuous changes over time. Banks (1998) developed four typologies of cross-cultural researchers. Due to the researcher's position as an assistant superintendent, it is her belief that the researcher represents two of these types, the indigenous-insider and the indigenous-outsider. According to Banks (1998):

> Indigenous insiders are perceived by significant others and opinion leaders within the community as a legitimate member of the community who has a perspective and knowledge that will promote the well-being of the community, enhance its power, and enable it to maintain cultural integrity and survive. (p. 8)

The participants were aware of the researcher's past experiences in former districts and recognized the accomplishments and enhancements that were created through her work in this school district. As a teacher, the researcher helped develop the first small learning community (SLC) in a diverse New York City Public School in which interdisciplinary teaming was the foundation of the formation. During the researcher's tenure in this district, the researcher intimately worked with the building administration and teachers to become an Essential Elements: School-to-Watch. This process also had interdisciplinary teaming at the forefront of its mission. Therefore, the researcher hoped they considered her a person who could speak with authority on middle level education and interdisciplinary work. However, in conversations with the teachers, the researcher did not speak about experiences or knowledge of the topic. The researcher did not want to potentially taint any responses or reactions from the participants.

During the individual teacher, administrator, and focus group interviews, the researcher asked open-ended questions in order to help the participants feel a sense of

ease in answering them. This allowed them to respond with candid feelings, perceptions, and/or specific experiences. In addition, the researcher has built a rapport with these teachers and administrator over the years and believed that they would be comfortable answering the questions. During the team meetings, the researcher was a non-participant observer. The researcher listened, observed, and recorded notes of reactions and body language from the participants. The researcher chose not to partake in order to prevent bias in the operations of the team. This reflective process helped the researcher engage in reflection and clarify research bias (Creswell & Poth, 2018).

Even though the researcher had a great rapport with each participant, there was recognition that her position may affect responses to the questions. Banks states that "the indigenous-outsider was socialized within the cultural community but has experienced high levels of desocialization and cultural assimilation into an outside or oppositional culture or community" (Banks, 1998, p. 8). Even though the researcher is part of this school community and culture and has experience and knowledge in this area, participants may view the researcher as an outsider due to her role as part of the central administration team. The researcher ensured all members that their answers were confidential and that their responses would not affect their job in any manner. There was a discussion with them that the information from this study could possibly enhance interdisciplinary teaming.

As Banks (1998) explains, "Biographical journeys of researchers greatly influence their values, their research questions, and the knowledge they construct. The knowledge they construct mirrors their life experiences and their values" (p. 4). One's

past can create bias, but as long as one is aware of it, a person can try to mitigate the potential effects on the research. Banks further states, “Researchers should strive for objectivity even though it is an unattainable, idealized goal” (p. 6). The researcher is very interconnected with interdisciplinary teaming, and, in order for the researcher to strive for objectivity, triangulation was used between four sources to strengthen the trustworthiness. These four sources included teacher interviews, focus group interviews, observations of team meetings, and analysis of artifacts from team meetings.

Conclusion

This study consists of four research questions that were explored through a single instrumental case study in a middle school in Nassau County, New York. The researcher triangulated data from four sources: individual interviews, focus group interviews, team meetings, and documents from team meetings. The findings of this study regarding the impact and effectiveness of interdisciplinary teams on teacher practices and efficacy will be explored in the next chapter.

CHAPTER 4: FINDINGS

The purpose of this study was to explore the effects of interdisciplinary teaming on teacher practices and efficacy in an Essential Elements: School-to-Watch for grades 7 and 8. Throughout the research process, the researcher conducted individual interviews and focus groups, observed team meetings, and analyzed documents from team meetings. The study addressed the following research questions:

1) How does the design of the teaming program impact the effectiveness of the interdisciplinary teams and teacher efficacy?
2) What is the role of administrators in supporting teaming and advocating distributive leadership among team members?
3) How do teachers perceive the teaming program's effects on instructional practices?
4) What are the teachers' perspectives on the group dynamics within a team?

As each research question was explored during the study, themes emerged to provide a comprehensive look into the effects and impact of interdisciplinary teaming.

An interdisciplinary team in education is like a baseball team; each player has a specific skill and expertise that contributes to the success of a team. In order for the success to be gained, the team's players need to come together, meet, practice, gel on the field (meetings), and enhance their craft to have an amazing game and experience for the fans (students and classrooms).

This case study sought to explore the effectiveness of interdisciplinary teaming on teachers and their practices. Seven main themes emerged from this study: a) scheduling common planning is important in the team's success; b) sense of belonging impacts

teacher efficacy; c) distributive leadership and trust are factors in teacher efficacy and school culture; d) collaboration and support impact the team and its curriculum and interdisciplinary work, which is dependent on the flexibility of the teachers; e) students are impacted by the collaboration and interdisciplinary work of a team; f) teaming fosters professional development; and g) group dynamics play an integral role in interdisciplinary teaming. Throughout the findings, teacher and administrator voices expressed their experiences and feelings.

Participants' Profiles

The participants were purposefully selected from the random sample. The intended differences in the participants allowed triangulation and trustworthiness in the data collected through the discussions in the interviews and focus groups. The goal in choosing participants with different certifications was to see how their different experiences in those areas affected their perceptions and practices in interdisciplinary teaming.

Teacher 1

Teacher 1 is a female teacher who is certified in general education K-6, 7-12 mathematics, School District Administration, and School Business Administration. She has been teaching for 21 years. She taught in two other towns in Long Island, New York, but her experience before this district was in private schools. This teacher only uses her 7-12 mathematics certification and teaches algebra, which is a high school course, in middle school. In the past, she has also taught 6th grade, 7th grade, and high school math. She also holds a leadership position in the school as a department coordinator.

Teacher 2

Teacher 2 is a male teacher who is certified in 7-12 social studies. He has been teaching for 21 years. He has spent his entire career in this district. He has taught 7th and 8th grade social studies and, currently, only teaches 8th grade. He also holds a leadership position in the school as a department coordinator.

Teacher 3

Teacher 3 is a female teacher who is certified in 7-12 English Language Arts and K-6 general education. She has been teaching for 18 years. She has spent her entire career in this district. She currently teaches eighth grade English. This teacher also serves as a building representative for the teachers union and as a team leader.

Teacher 4

Teacher 4 is a female teacher who is certified in 7-12 Earth science and general science. She has been teaching for 19 years in this school district and taught six years in a college. She teaches eighth grade Earth Science, which is a high school level course. This teacher also serves as a department coordinator.

Teacher 5

Teacher 5 is a female teacher who is certified in 7-12 social studies. She has been teaching for 29 years. She has taught in four districts across Long Island, New York. She has taught and currently teaches 7th and 8th grade social studies. She is one of the teachers who is cross-teamed and currently teaches multiple grade levels.

Teacher 6

Teacher 6 is a male teacher who is certified in 7-12 mathematics. He has been teaching for 25 years. He has only taught on Long Island, New York in two different

districts. Before he came to this middle school, he taught high school mathematics. He currently teaches 7th grade math and 8th grade math extension classes. He also serves as a team leader.

Teacher 7

Teacher 7 is a female teacher who is certified in 7-12 mathematics. She has been teaching for 29 years. Out of her years teaching, three years were in Oregon, two years were in Louisiana, and 24 were in New York. The 24 years in New York have been in this same school on Long Island. She has taught 7th and 8th grade math but currently teaches only 7th grade. This teacher also serves as a building representative for the teachers union and as a team leader.

Teacher 8

Teacher 8 is a male teacher who is certified in 7-12 English Language Arts. He also holds certifications in School District Leadership and School Building Leadership but is not currently using these certifications. He has been teaching for 12 years. This teacher began his career in Catholic schools in Brooklyn and Queens for four years and then the New York City public schools, where he remained for four years. He then transitioned to Long Island and has been in two different districts throughout four years. This teacher currently teaches 7th grade English at this middle school and is a team leader.

Administrator

The administrator in this study is a male principal. He has spent the last 17 years of his career as an administrator in this district, 13 of which have been as the principal of this middle school. Before becoming an administrator, he was a secondary mathematics

teacher for 13 years. He has served in both a teacher role and administrator role in this district. He did not have any prior experiences with teaming before becoming an administrator.

Focus Group Participants

All the teachers who participated in the individual interviews also volunteered for the focus groups. In addition to those eight teachers, there were ten more teachers in the focus groups. In the 7th grade focus group, the additional members consisted of two science teachers (1 female; 1 male), one social studies teacher (female), one math teacher (male), and one special education teacher (female). In the 8th grade focus group, the additional members consisted of two science teachers (1 female; 1 male), one special education teacher (female), one mathematics teacher (male), and one English teacher (female).

The transcripts from the individual interviews and focus groups were uploaded and coded in Dedoose. The data are presented as a summary of the number of references for each of the individual categories for all participants and focus groups in Table 4. To help develop themes, those with the highest number of references were used in the analysis. Some of them include Team (110), Collaboration (97), Students (90), Group Dynamics (88), Belonging (86), Conversations (77), Common Planning (76), and Change (74). None of the teachers referenced every single category; however, they referenced the majority of them.

Table 4

Summary of Individual Categories Regarding Interdisciplinary Teams by Participants

Interdisciplinary Category	Participant											
	7 FG	8 FG	A1	T1	T2	T3	T4	T5	T6	T7	T8	Total
Administrative Support	3	5	11	4	4	6	5	2	7	5	4	56
Advisory	0	3	2	9	2	1	0	5	1	0	0	23
Belonging	10	18	1	11	8	5	5	7	6	8	7	86
Challenge	7	3	5	1	5	12	3	5	5	19	8	73
Change	5	5	11	11	1	16	3	6	9	4	3	74
Collaboration	17	15	2	9	7	12	11	5	10	3	6	97
Common Planning	8	15	4	4	6	14	1	4	6	8	6	76
Conversations	12	8	6	6	6	17	6	2	6	5	3	77
Culture	4	11	10	3	2	3	0	0	4	2	2	41
Curriculum	0	0	2	3	0	1	2	0	2	0	0	10
Curriculum Connections	8	1	3	11	2	7	9	5	8	4	8	66
Distributive Leadership	1	1	3	2	0	3	2	0	2	2	0	16
Empowerment	2	2	7	5	1	4	1	0	3	1	2	28
Flexibility	0	3	1	2	0	5	2	0	3	0	0	16
Group Dynamics	5	10	9	7	5	12	6	5	8	10	11	88
Interdisciplinary	8	9	5	8	3	9	8	1	6	2	7	66
Professional Development	3	10	6	7	1	6	1	2	1	1	3	41
Reflective	5	4	5	1	4	13	12	4	2	9	5	64
Scheduling	8	9	2	1	0	0	1	4	1	5	3	34
Social Emotional	6	4	6	1	0	2	0	1	0	0	1	21
Strategies	13	2	4	1	9	10	10	5	6	3	7	70
Students	12	15	9	12	5	8	6	8	3	7	5	90
Teacher Support	12	11	2	5	4	10	2	1	5	13	7	72
Team	11	23	0	15	11	8	8	7	9	9	9	110
Team Leader	2	1	6	4	0	4	4	4	4	4	2	35
Trust	0	0	4	5	4	4	3	3	2	7	4	36
Total	162	188	126	148	90	192	111	86	119	131	113	1466

Note. Participant identifiers are abbreviated as follows: 7 FG=7th grade focus group, 8 FG=8th grade focus group, A1=Administrator, T1=Teacher 1, T2=Teacher 2, T3=Teacher 3, T4=Teacher 4, T5=Teacher 5, T6=Teacher 6, T7=Teacher 7, and T8=Teacher 8.

In order to identify themes, the researcher used data from the code co-occurrence charts in Dedoose. From the references, the findings from the code co-occurrences were analyzed to determine which codes were linked together with the highest frequencies (Table 5). Those with the highest number of references include belonging x team (55), belonging x students (30), curriculum connections x interdisciplinary (38), and conversations x students (30). However, two of the lowest number of references were professional development x teacher support (13), empowerment x administrative support (21), and common planning x scheduling (20). These were challenges, and teachers felt they need to improve on these areas for successful teaming. These data were used in the creation of the themes presented in this study.

Table 5

Code Co-Occurrences of Interdisciplinary Team Categories

Code Co-Occurrence	Number of References
Belonging X Students	30
Belonging X Teacher Support	24
Belonging X Team	55
Collaboration X Common Planning	29
Collaboration X Conversation	29
Collaboration X Interdisciplinary Skills	22
Collaboration X Teacher Support	28
Common Planning X Group Dynamics	25
Common Planning X Scheduling	20
Conversations X Students	30
Curriculum Connections X Interdisciplinary	38
Empowerment X Administrative Support	21
Group Dynamics X Challenge	22
Group Dynamics X Team	21
Professional Develop X Teacher support	13
Strategies X Teacher Support	25
Students X Team	28
Team X Teacher Support	23

Research Question 1

How does the design of the teaming program impact the effectiveness of the interdisciplinary teams and teacher efficacy?

Scheduling Common Planning is Important in the Team's Success

Common planning is scheduled as an assigned period of time for 40 minutes in a teacher's daily schedule. During that time, teachers who are placed on specific teams meet to collaborate on interdisciplinary work and student behavior and progress. Teacher 1 conveyed:

> They are giving us team meeting time; they are giving us a room to meet in too, so we're able to discuss our students, openly. We have an assigned team time, and we have an agenda usually of what is expected, but it's flexible.

From observation notes from one of the team meetings, it was apparent that the meeting time was very important to the teachers. All members were there on time, and it started immediately. The meetings take place in a designated room, which is not assigned to any specific teacher. Teacher 8 spoke about the dedicated room:

> It is neutral ground, which is helpful. No one feels beholden to someone else, or at least it appears so. There is a dedicated time. 6th period, every day, you know, we all meet, and we all respect the time.

The administrator felt that this change impacted teaming this year in a positive way. He stated:

> Teachers actually have a neutral site to go to, which is something I always wanted to put in place to support teaming. This year, we actually got to do it where there's no home-based teacher; it's the team's room. In the past, they would meet

> in a particular teacher's room, and it would be that teacher sitting at his or her desk and people spread out over the room. Now, they go to the team's room and sit around a conference table facing each other.

This affected the dynamics, operations, and outcomes of the common planning meeting for teaming. Teachers in the focus groups shared that it was nice to be in a conference-type room where they can all face one another and communicate openly and easily.

As a part of the change with teaming and common planning meetings, the district had the teams create norms to help structure their meetings. From the teams' interactions and the teams' Google Classroom, it was evident they jointly created norms and followed them at each of the meetings. The teachers arranged their seats in a circle, which fosters open communication and collaboration. There were set agendas, and all members came prepared with documents for the topics being addressed in the meetings in order to have outcomes by the end. Teachers had input in the agenda setting process. The team leaders set the agendas a week in advance in order to have this input and feedback from the other members. The agenda was organized in priority order; however, not all the items on the agenda were addressed due to time constraints. Teachers in the focus groups felt the agenda kept them on task and accountable more than in years past.

The administrator and the teachers felt scheduling common planning time was essential for the success of the team. Common planning time is the period of time a teacher is scheduled in his or her day to work with his or her colleagues who are part of the same interdisciplinary team. The administrator expressed how common planning was the starting point and the center of creating the middle school schedule. He stated:

> It is the most important facet. We start with teaming, but it's never perfect. There are always issues with teaming. We'd like to get it better, but there are just some constraints that I'm really not sure we can ever truly get over. Those are discussions we can have going forward.

From the interview with the administrator, the constraints that cause issues with the scheduling are teachers who are shared by the middle school and high school; some teach 7th and 8th grade, and some teach special electives. The administrator shared the assistant principal in charge of scheduling has been meeting with other Essential Elements: Schools-to-Watch to get different outlooks and ideas on how to create pure teams.

The administrator and teachers valued the importance of common planning time. The administrator felt it gives teachers an opportunity to work collaboratively and create interdisciplinary, culminating projects. He stated, "It helps them know their students better and collaborate about students. It leads to a healthy middle school environment. There is meaningful output from these meetings." Through conversations with the teachers, they really like having a common planning period in their schedule and find it beneficial to both them and the students. In both the focus groups and individual interviews, the teachers found this time invaluable and wished for more time to common plan with their colleagues. They were appreciative how administration values that time and ensures the teams get the period in their schedule. A teacher in the focus group stated, "Without a common team period, it would be very difficult to address everything that we do for our students to make them successful." Another teacher in the focus group expressed that time was really important because "it really helps me get a better understanding of how I can help [students]."

In both individual and focus group interviews, teachers expressed the schedule has been a challenge. The administrator did not create pure teams, and many teachers are cross-teamed and sometimes scheduled across grade levels. Therefore, there are days the whole team is not present during common planning meetings. Teacher 5 expressed dismay: "The most challenging (about teaming) is being on more than one team. I'm on three teams, and I can never meet with the eighth grade team due to the schedule." Some teachers in the focus group recognized they were lucky because they get to meet with their team every day, but they know and understand the frustration that others do not have that opportunity because of the schedule. Teachers also relayed they are constantly teaming throughout the day, night, weekends, and the summer by communicating through Google Classroom, email, texts, phone calls, and the Remind app. These forms of communication allow members to also stay abreast on the students and topics being covered during meetings when they are either absent or not in attendance due to cross-teaming.

The focus group revealed that last year the administration gave additional time to interdisciplinary teams with special area teachers during afterschool meetings. They felt it would be great if administration could incorporate special area teachers in their common planning meetings. This year, the school implemented an advisory program, which incorporates special area teachers into teaming. Teacher 1 shared, "I do know special teachers always felt isolated; so, having this advisory now kind of brings them into a team. So, they definitely feel part of a team."

Every participant saw value in the common planning and was grateful how the district placed importance on this time to benefit teachers and students. The common

planning time was used in different ways on certain days. This was seen through the observations of their team meetings and the analysis of their agendas in Google Classroom. Days were allocated to focusing on student behavior and social emotional needs, planning interdisciplinary units and skills, analyzing students' grades across subject areas, building team unity, and communicating with parents. This year, the district created team leader positions, and one of the expectations was a set agenda for every meeting. The agendas were placed in Google Classroom for everyone to have input and be prepared for the meeting, which made each team member accountable. The administrator believed the Google Classroom with agenda, minutes, and other resources not only benefited the teachers, but it allowed him to get a better look at what was being accomplished daily for the students. It also helped him know what additional supports they may need as a team. The teachers and administrator recognized the importance and role of common planning in their success as a team. Essential Elements: Schools-to-Watch also places heavy emphasis on this as an essential element of a successful middle school.

Sense of Belonging Impacts Teacher Efficacy

"Teaming gives us a better sense of community and belonging" was expressed in the focus groups. Participants also shared that teaming does not allow anyone to feel isolated or alone. They felt there is a level of comfort knowing they can go to their teammates for help, especially when they do not how to do something. They truly value each other's support.

In this school, the administration decides the makeup of each team on the different grade levels. During one of the focus groups, teachers expressed they wished

they had some input when the administration assigns teachers to a team. Teacher 2 stated, "You are forced to be with teachers because you're on the team, and maybe in this particular case, you might be better off with a different science teacher." Therefore, they felt administrators may want to seek teacher input when creating teams in order to have more successful outcomes.

Even though there were different personalities that sometimes did not mesh well, all teachers felt that being on a team of teachers allowed them to have a sense of belonging, which positively affected their efficacy at work. Teacher 7 expressed "teaming is like the setting to get to know people, not just, you know, to help the students but also to support each other."

Team meetings provided the teachers a designated time to feel like human beings and connect to other adults. Teacher 7 relayed:

> Sometimes we need a little personal attention, and I think during team if we have the five minutes saying just checking in with each other, it just makes it even more, you know, welcoming and wanting to be in a team.

Teachers spend most of their day with children, so teaming allotted time for them to share personal anecdotes as well as professional successes, concerns, and questions. This time allowed teachers to form different types of bonds. Teacher 2 felt "when you're on a true team, you form really close relationships." Teachers formed friendships they would not have otherwise had if it was not for teaming. Also, they created a safe and supportive environment for each other, both personally and professionally. Teacher 4 stated, "I feel like people know that they're not alone, and they can come to the team if

they have an issue. They can come and say hey, this is happening, can you help me? We're sounding boards." Teacher 7 expressed:

> I don't have to do everything on my own. So teaming definitely helps with your management and the kids, which is, you know our priority. We're, you know, human beings, and we need to talk about things too. I think it is very helpful. It just gives us an extra support, not just having lunch buddies, but you know having the support of other colleagues that teach the same children.

The teams are supportive of each other and look to be cheerleaders for one another, which was evident when Teacher 2 said, "I'm proud of the teachers I work with on my team," and Teacher 1 loved the fact that "you get to hear other educators' perspectives rather than being in a room by yourself." If the teachers did not have team time in their schedule, they would find it difficult to implement middle school best practices and enhance their craft. Teacher 7 told the interviewer, "I think it just makes it harder to be thinking by myself." Teacher 6 said:

> I think if we were given the opportunity, we would probably all probably stay in our classroom and do our job and not necessarily physically talk unless it's the lunch period, but having that moment in that 40 minutes where we have to talk to each other is actually really great for us.

Therefore, teams look forward to this common planning meeting every day. Teacher 3 stated, "I can't imagine not even having that (common planning) or proceeding through the whole day just you. It's nice that I know third period, I'm going to sit down with people who share my kids." Now that the school has an additional component of the program's structure with the creation of advisory, the teachers have a greater sense of

belonging. The thoughts of Teacher 8 were, “just allowing that kind of stuff to occur is wonderful because I think it's going to bring adult fun and atmosphere of belonging to everyone.”

In the individual and focus group interviews, as well as the team meetings, it was evident the school has created an environment to reduce isolation in the profession of teaching, and teachers have a high level of efficacy due to teaming. Teacher 1 stated:

> You're definitely not isolated being part of team because you have somewhere to be. I don't feel isolated because I feel like I can turn to people or if I have a suggestion or if I need something, I have somebody that I can turn to at work. I was always big in sports and being part of a team was always a nice thing because there is no I in team; you can't do everything yourself, and I think being part of a team makes you more successful in your own classroom.

Teacher 4 concluded:

> I don't think there's any person that doesn't like teaming. I really don't. I mean, I've never heard anybody complain about it because not only is it good for the kids, but it's good for us. We don't work in isolation. We do work as a team. What's not to like about that? I mean you can be on your own.

Research Question 2

What is the role of administrators in supporting teaming and advocating distributive leadership among team members?

Distributive Leadership and Trust are Factors in Teacher Efficacy and School Culture

In this school, there was a change and shift in interdisciplinary teaming. With change, support was necessary in order to have successful outcomes. When interviewing the administrator, he stated, "I get wonderful support from my central administration." He felt this was so important because they were always there for every need in the middle school to achieve success. He also expressed how the two assistant principals are supportive and integral in the teaming process with scheduling, developing activities for faculty, grade level and PLC meetings, and assisting and supporting teachers during team meetings.

A part of the culture in this middle school is one of openness and shared ideas. The administrator expressed "there is a level of shared decision making, and I will listen and implement worthy ideas." There is a high level of trust the administrator has in his teachers, and he empowers and supports the teachers to make decisions that are in the best interest of students. When the administrator was asked about the empowerment of teachers, he stated:

> This is probably my biggest asset as an administrator. I love their ideas. There's probably nothing I've done in this building, because so much of what we've done in this building has come to be because a teacher came into my office and told me they had an idea.

Teachers feel this empowerment in their classrooms and teams. Teacher 3 expressed:

> We're very much given free rein of like what works in your classroom. I think that's also like in departmental meetings. I don't feel at all that we're ever like

> forced to do anything. I think the principal's management style is actually pretty flexible, especially if you go down there and you're thinking of trying a new thing; he's very flexible that way.

In the interviews, it was clear all the teachers felt supported by the administrators in the building and able to go to administrators with ideas and/or concerns. Teacher 6 stated:

> If I have an idea, I feel comfortable approaching my leadership and not worrying about getting shot down, because if I do get shot down, I feel like we can kind of talk about it, but it's that kind of personalities that I'm working with, which is nice. I think it's wonderful. I think it's welcoming. I've had really good experiences just proposing ideas to everyone, you know, and just getting either a positive reaction like, 'Yeah, let's do this,' or like, 'if it's not, let's try to find other ways to make things happen,' but I feel like I'm supported.

Also, Teacher 2 expressed, "I feel comfortable speaking to any of them about anything. I think they're doing the best they can. I think that they're fair; I think they're sensitive to our needs, both as people and as teachers."

The administrator also emphasized the importance of teaming in the teachers' actions and support. Each administrator (principal, two assistant principals, and two curriculum associates) is assigned teams to help support during common planning. The teams are also provided support by the Assistant Superintendent for Curriculum and Instruction. Administration is not present at all meetings but available to the teams in order to empower the teachers to make professional decisions that are best for them and their students. Teacher 6 said that, with administration, there is "the expectation that we're doing it on a schedule." Teacher 8 said, "When administrators are available, we can

grab the assistant principal out of the hallway whenever we need to. He kind of bounces back and forth between the different team meetings and comes in; he's always been helpful." Teacher 4 expressed:

> I think our administration is good. They empower us to make decisions, for the most part, if we're doing our job. We are making our own decisions, and if it's something that needs addressing, we go to administration, but honestly, I think they were pretty autonomous. We know what we have to do; we all have a goal. I think it works well.

This type of environment leads to greater output of the teachers. Teacher 7 stated, "We contribute; we do our best. This faculty is amazing. I feel like every member here works their butt off, and they just want to contribute as much as they can."

Some teachers felt the administration provides them different opportunities to grow professionally and take on leadership positions. Teacher 8 expressed:

> I respect the leaders in my building very much. They have done wonders for my career. I am a way better teacher today than I was when I started here five years ago because of the value of professional development, the support and freedom to grow, and the freedom to make mistakes. I've even been chosen to be a leader. As the new guy here, it shows that my skills are respected and it means a lot.

Teacher 1 stated:

> I presented at Essential Elements, so, I think during that presentation, I got to know administrators, outside of my building, and they honestly made me grow as an individual. So, I think there was that trust level. They're not always in my

> classroom, but by me presenting, they got to see what I do every day in my classroom, that when I bring an idea, maybe it's not a far-fetched idea.

All teachers believed the administration provides them with all the necessary resources and tools to be successful. Teacher 6 conveyed, “Our leadership is really good about bringing us like, you know, clinometers or whatever things that are really helpful for what we do.”

When honing in on administrative trust and distributive leadership in the building, there were mixed feelings regarding those aspects throughout the individual and focus group interviews. Teacher 4 expressed, “There is a level of trust. I think that they have your back. The teacher should be able to depend on their administration to have their backs.” Teacher 6 added, “There's a great level of trust. It’s also helpful I think knowing that the administrators have been here as teachers and really truly understand our kids.” Teacher 2 assured the researcher about the level of trust regarding administration. “It is high. Look, administrators are administrators right, but bottom line, I trust my administrators, I do.”

A few teachers had differing views on trusting their administrators. Even though many feel trust exists, some teachers keep their guard up regarding this topic. Teacher 7 expressed:

> I feel, in general, they have their heart in the right place. They claim to have an open door to come at any time and express our concerns. Some people when they go in expressing concerns feel like they're brushed off and they really don't address it. The trust that you're supposed to have between your administration and

> my colleagues is not there because they feel like maybe they're focusing in on some; they have their, I guess I can say, favorites.

Teacher 5 said, "I don't completely not trust them. There's a lot of inconsistency." Since Teacher 3 held a union leadership role, she felt that she saw things differently than some other teachers. Teacher 3 said:

> The trust is low. I actually feel I trust you [the researcher – the assistant superintendent] more. It's not been an easy road, and I think my role as a rep has made that even more of a difficult road. There are times that I feel like they really try. Sometimes, the efforts are, I think, misguided, but I think they do try. Some think there's favoritism, which divides us as a whole.

The trust level varied and was inconsistent among members of all teams.

Research Question 3

How do teachers perceive the teaming program's effects on instructional practices?

Collaboration and Teacher Support Impact the Team and its Curriculum and Interdisciplinary Work, Which is Dependent on the Flexibility of the Teachers

Interdisciplinary work allows the teachers to align skills and curriculum across at least the four core subject areas of mathematics, English, science, and social studies. Teacher 4 relayed, "I think it's a great way to teach in that you're together. You have a common goal for them to be successful. It shows you a different way to do something. Yeah, a different language to use in my head."

Through the conversations with the teachers, it was evident the collaboration was effortless, due to the fact they feel support from both each other and their administrators.

In the focus groups, when asked to describe the culture of the building, the unanimous response was collaborative, which enhances their craft. Teacher 4 said, “Do I think I'm a better teacher by collaborating with other people? Yeah, I do. It gives you a different insight.” Each member of the team makes unique contributions that leads to the team’s success.

From the focus groups, it was clear the teachers have a common goal this year to identify interdisciplinary skills which cross all subject areas. Students will see the intersections of the disciplines naturally and make them stronger. This will allow students to have a common language and a variety of resources in their toolbox in order to be successful in all classes. Teacher 8 stated:

> It’s always very helpful when teachers talk about things the same way. We're really focusing on making that language consistent. Next, we're going to start working on an interdisciplinary unit, and we’re starting to kind of build something together, which is an exciting prospect.

One skill all the teachers felt passionately about to be coherent across all their classes was the ability for students to answer questions formally and not in text message lingo. Teacher 4 also shared, “We do talk about how we want the questions answered (in full sentences), and we're discussing all things that we can do to have a commonality so that it's not strange in each class; it's not different.” Teacher 2 found:

> The most effective is common terminology. We've done this in the past. We're all talking the same and using the same language speaking about the same skill set. I think that's important that it is reinforced from class to class.

In the analysis of documents from the teams in their Google Classrooms, both teams had tuning protocol sheets for the interdisciplinary skills they chose as a group. The document showed the process/steps the team went through when analyzing student work for the skills. It allowed them to identify the skill level of each student and determine which instructional strategies and next steps would be most appropriate for each student sub-group (high, expected, low). This document not only helps the students, but it also helps the teachers reflect on their own teaching practice and determine if changes need to be made in their execution. In the focus group, a teacher stated, "I've definitely changed certain things I do with them. It allowed the students to hear it the same in different places."

While collaborating with each other, the consensus of the teachers was being flexible is a necessity in order to have successful outcomes when planning interdisciplinary skills and units. Flexibility of the teachers was noted in their acceptance of moving curriculum around to ensure the effectiveness of the interdisciplinary unit. Teacher 6 stated, "You need to kind of reach beyond what you normally do." In the focus groups, teachers explained they talk about topics they teach and look for flexibility in the curriculums' scopes and sequences to determine how they can relate them from discipline to discipline. They also expressed these conversations helped them to understand what was going on in the other subjects and to increase academic vocabulary among the students.

Some teachers struggle with flexibility and the ability to share with their colleagues. The teams had other documents in their Google Classroom which pertained to interdisciplinary projects. Originally, the math and science teachers in the 8th grade

created a holiday brochure assignment for the students which incorporated different skills from both content areas. The English and social studies teachers wanted to build on this project to incorporate their subjects. At first, there was resistance, but, eventually, the leader was able to get all members on board, and they created an interdisciplinary project that had components from all subject areas. They then had the opportunity in one of the meetings to reflect on the process and student outcomes and discussed future adjustments to enhance the project.

The district fosters a growth mindset for students and teachers. Therefore, it creates an environment where teachers take risks because they do not fear negative consequences from their supervisors or peers. This allowed the teachers to experiment new techniques and strategies in order to enhance the opportunities to connect their curriculums. Teacher 1 said:

> I like all aspects of education and to challenge myself; interdisciplinary teams allow you to see outside the box and not be honed in to your own curriculum to make learning more meaningful for students, make connections. I find when students make connections, it's deeper, the learning.

Teacher 6 relayed, “Just finding those connections within each content, I think makes it so much, like I said earlier, more interesting and each of us can rethink the way we approach it.”

Challenges do exist, though, in the team when attempting to make the connections. Some teachers feel, at times, it may be forced, so they try to make it authentic by analyzing the scope and sequence of the curriculum and related skills within the content. Teacher 6 felt that “this is challenging to change our curriculum to, you

know, to make it more interdisciplinary or just more agreeable among the different subject areas."

The interdisciplinary work among the teachers impacted their knowledge, practices and strategies. It has increased their level of efficacy as teachers. Teacher 2 expressed, "It gives me a more varied approach to teaching and my knowledge base expands because we're meeting every day." Teacher 8 added, "I am a better teacher because of the time I spend with my colleagues and do this type of work." Teacher 5 supported the other comments with "I think our confidence as teachers are higher. I just think it's better." Teacher 6 also commented on how teaming affects them professionally:

> It helps a lot because I get to talk to different subject area teachers and people who are experts in all these areas that I'm not at all; so, I learn a lot, directly from them and their teaching styles and the way they handle kids. We each bounce ideas off of each other.

Teacher 4 agreed with that and added:

> It is one of our strengths … someone else might have a different way to do it and approaches how to help the kid in a different way; it gives you ideas that you can bounce off each other. I actually think it's one of our strengths.

Interdisciplinary work not only increases the amount of tools for students but for teachers as well. Teacher 6 noted, "You kind of grab all these things and kind of take it with you." It also provides teachers with varied approaches for the classroom. Teacher 2 stated:

> You get different perspectives on different kids, and because of that, you have different ways of attacking a problem. I also get a lot of information from other

teachers and different ways of presenting things that I would have never known about without them.

Teacher 3 added, “There's always somebody who has more experience and also somebody who has a better suggestion of how to do something. People teach you better ways to do things. It's impacted my style in the classroom.”

In the focus groups, teachers all agreed they borrow techniques from their colleagues, and it impacts their efficacy and teaching practices.

Students are Impacted by the Collaboration and Interdisciplinary Work of the Team

“Our teams are communities” was a sentiment from a focus group. They expressed, “We all work together (teachers, administrators, and parents) for the best interest of the students.” During all the interviews and meetings, it was evident the main focus was students. Teacher 3 expressed, “It's nice to work on a team with people that share the same kids because then you can talk about kids, you could talk to parents, and you share that commonality.” The administrator felt that teaming proves to be invaluable due to the effects on students both academically and socially, especially through the team’s collaboration with Pupil Personnel Services (PPS) and guidance, who are part of that “community”.

The interdisciplinary work that occurs as a result of collaboration impacts the students. The teachers felt during the beginning of interdisciplinary work, it was not authentic; therefore, they worked on that together. When developing authentic experiences, the students will see the connectivity of the subjects to real-world applications. The teachers continue to improve and enhance their craft by making these

connections in the classroom.

The teachers strive for the students to see the importance of the connectivity and continuity of skills and content in various ways and styles from different teachers. In addition, the teachers want the students to apply these skills to real-world applications. Teachers shared they want their students to use a strategy and/or skill across all content areas and not just be able to use it in one classroom. Students are impacted by this interdisciplinary work because they are seeing it more than once and the same thing in different contexts, which will lead to a deeper understanding. Teacher 8 said, "Then, the kids say, 'Ah, this is connected to this connected to this.'" Teacher 6 added, "I think it improves all those things; I think, achievement, knowing something from different angles and different applications is going to certainly impact their understanding and then hopefully to grades to self-concept."

Besides interdisciplinary work, team members have constant conversations regarding students' academic, behavioral, and social emotional status. The focus groups emphasized they give the kids extra supports in all these areas. Teacher 2 said, "You're talking about kids all the time." Teacher 8 explained, "During common planning time, we spend a lot of our time talking about students and doing things in terms of interventions." Teacher 7 felt it was important that "working on a team is really helpful because then you get an insight of what the kids are in other classes."

In the teams' Google Classrooms, the teachers created a Google Slide for each student which tracks academic progress, behavior concerns, and parental contact. Teachers in the focus groups found this beneficial because it keeps all the information organized and easily accessible in one location. It allows teachers, administrators, and

guidance counselors to all be on the same page regarding each individual student. This information was also discussed in numerous team meetings.

Teachers expressed in the focus group that students feel more supported in a team of teachers. They know teachers discuss curriculum and them in these meetings to help them achieve success. Teacher 4 noted, “They (the students) know that we're all there to help. We are a team, and they're part of that team. They know that we're on top of them, that it's not, we're not all working separately, that we're working as a team.” Teacher 7 added, “It helps to build relationships with the kids, which, you know, I think, later on helps them do better in my class.” Similarly, teachers communicate with parents as a whole group during team meetings. They give the parents a consistent message. Teacher 3 said:

> I think we have productive conversations with parents that help kids and their families. I think it is a good outcome of team. I think we really always try to do our best for the kids. I think a lot of that comes out of the time together.

This school district took feedback from the Essential Elements: Schools-to-Watch program and implemented one of their suggestions, which was the implementation of advisory. This program assigns students in a team to a point person, so they always feel like they have at least one connection with an adult in the building. In regards to teaming and the advisory, Teacher 5 stated, “I think we're headed in that direction where the students will feel more like this is a safe space, and they can talk to us.” Teacher 1 expressed:

> Advisory that's getting under way now, because I think something that's always lacked is really knowing you're part of a team. … Now you could do so much

more with, team building; kids that don't feel they have a place, feel they have somebody to go to with advisory.

Students this year know their team. Teacher 1 stated, “We're a team, and the kids feel it.” The school invested time in having students develop team names, logos, colors, and mottos. The school began to implement team building activities and team spirit. According to Teacher 6, “I heard people out in the hall cheering about they love their name, so it gives them just a feeling of belonging and working by just acknowledging the fact that they're on a team.”

In secondary schools, it is sometimes hard for students to feel like they belong and to make friends. Both teaming and advisory allow students to have supports from their teachers and fellow classmates. Teacher 6 shared, “Just having kids, be aware of their larger team just gives them more of a sense of belonging in a much bigger school.” On the topic of student friendships, Teacher 3 spoke about two students who were unlikely to have become friends if it was not for the structure of the middle school by saying, “I actually thought to myself, I'm like, I wonder if you two would have found your tribe like had you not been on the same team.”

There was an overall consensus among the teachers that students gain a sense of belonging and identity through their teams. Teacher 2 stated:

> True teams are awesome. Kids develop a greater sense of belonging, identity, and there's an increased level of responsibility, cooperation, and empathy. It is a unified group of kids and teachers. We love our students, and they love their teachers, and that's what teaming does. It gives them a closer sense of belonging, unity, and place.

Teachers were excited about the advisory program because, as Teacher 1 said, “You reach more kids.” However, they did express it is in its infancy stages and needs to continue to be developed in order to enhance the experience for both students and teachers.

Teaming Fosters Professional Development

One aspect of teaming is the inherent professional development built within it. All the teachers expressed how teaming allows them to grow professionally because they are continuously learning from each other. Teachers felt they are supported by their teammates and are open to learning different strategies and practices from each other. They also felt their team meetings provide a safe place for them to ask for help when they are experiencing difficulties implementing and executing a new initiative and/or program. The teachers in the focus groups described how the time spent teaming allows them to share and learn from each other, and they would not have that opportunity if teaming did not exist.

The administrator mentioned that “the best PD for other teachers is going on in the room right next door. They have to trust each other, and they have to be open to each other’s ideas.” Therefore, one of the initiatives supported by the district is called “pineappling,” which encourages teachers to open their doors and to invite each other into their classrooms to observe and share different instructional strategies and practices in action. This allows the teachers to continuously flatten the walls of their classroom. The administrator champions this initiative because “[Teachers] watch different pedagogies, so other teachers can learn and hopefully bring it back to their own classroom.” Teacher 1 commented on “pineappling”: “I enjoyed that because that's where

I learned actually workshop model through an ELA teacher. I always welcome anyone in my room. So I feel something like that is where you can bounce off ideas off each other."

Besides visiting each other's classrooms, common planning time also serves as a medium for professional development for teachers. In these meetings, they discussed various resources and strategies. Even more so with the pandemic, the teachers relied on each other to learn many of the new technologies including devices and applications. These devices include touchscreen Chromebooks and apps, such as Kami, Equatio, Nearpod, Screencastify, Edpuzzles, etc. Teacher 8 reported:

> The best professional development is in the classroom next door. Teaching is very isolating, you know, just as a nature of the profession; the door closes and it is you and the kids, and if that happens day after day, you're not getting any better. I'm constantly trolling the internet for new things. I'm bringing new things to the table. Other teachers are doing the same at the benefit of other people. Their file cabinet full of treasures and their experiences make a huge difference. I definitely feel that I have fewer blind spots now because I know the other teachers on my team have my back.

The teachers in the focus group felt the district provides sufficient resources and supports to new and veteran teachers. The district has a very strong Teacher Center that offers a robust variety of professional development workshops throughout the year. These workshops are related to all different areas of teaching. However, the teachers in the individual interviews and focus groups expressed interest in workshops that specifically pertain to teaming. They felt there were a few professional development opportunities, but they need more to become better at teaming. In the past, there were workshops by

Nancy Doda on interdisciplinary teaming, but not everyone had the opportunity to attend them. This year, with the changes the district implemented in regards to teaming, there were PLCs on advisory, identifying and assessing interdisciplinary skills, and tuning protocols. Teacher 2 valued the importance of professional development and informed the researcher:

> We have our team meetings daily, our PLCs (Professional Learning Communities), and department meetings. We have plenty of time to work on it there. So, there's a lot of time for us to develop teams. You will have a more cohesive group of people that really get to know each other well, strengths and weaknesses; then, you could bounce off different ideas with each other.

Research Question 4

What are the teachers' perspectives on the group dynamics within a team?

Group Dynamics Play an Integral Role in Interdisciplinary Teaming

There is no "I" in "team". Therefore, a group of teachers who are selected to be on a team must come together and work every day with each other. This is not always an easy task, especially at the beginning of the year and in a career that has been known in the past to be more individual in nature than team-based. It takes some time to get to know each other's personalities, strengths, and weaknesses. Teacher 1 said, "Being part of a team means working together, and something I always say is you don't get to pick your boss, so you have to learn to work with everybody." Personalities add a different dimension to the dynamics of a group. Teacher 6 expressed that "different personality types are always challenging. I mean, I think that adds wonderful things too, you know, because we have such different personalities." The teams in the focus groups expressed

that everyone must engage professionally with each other as they navigate the differences in their personalities. In the interview with the administrator, he shared that personalities are always a challenge, and people do not always work well together. However, with the creation of team leaders, he believes it will help bring teams together. This also provides a different group of teachers to hold leadership roles in the district.

During common planning time, teams collaborate with each other on various topics. From observation notes of the team meetings, teachers collaborated and were engaged from beginning to end through respectful interactions. This was evident by each member having time to speak and share his or her ideas, which provided equity of voice. Positive body language and signs of trust were noted through these interactions. Body language observed in the meetings were members sitting upright with open posture, maintaining good eye contact with each other, nodding heads when in agreement, and leaning in while speaking and listening. The environment had a laidback feeling, as all members took turns sharing ideas, opinions, and feedback throughout the meeting.

A leadership role was clearly defined in the group, which contributed to the district creating a team leader position. In the meetings, the team leader focused the attention on each agenda item, which kept all members on-task. In addition, they provided guidance, instruction, direction, and leadership for the purpose of achieving the various results. There was mutual trust between the leader and team members. Some teams looked for the approval of the leader and other veteran teachers when proposing ideas. One team leader (Teacher 3) referred to herself as the mom of the team, even before she took on the leadership role. In addition, at the end of the meeting, the team recapped the future course of actions for each member.

In a group to improve dynamics, there needs to be a level of flexibility among the members regarding curriculum, assessments, strategies, resources, and styles. Teacher 1 believed that "people being open to your ideas" was a necessity, but it also proved to be a challenge. Teacher 4 added, "I think you have to bring to the team, a viewpoint, but it's got to be able to be changed. You have to be flexible, and you have to kind of see that there is a different way you can approach something." When the teachers spoke about flexibility, it was not only about curriculum but also about assessments and methods. In the focus group, the teachers spoke about the way they schedule their assessments. They use Google Calendar in their Google Classroom in order to ensure students are not administered too many assessments in one day or week. They like to spread things out to decrease students' anxiety. This shows how collaboration keeps in mind the students' stress levels and makes assessments manageable. Teacher 1 agreed about personalities, the ability to be flexible, and the benefits of being open-minded in a group:

> People need to have an open-mind. You need a wide variety of personalities, because somebody is going to maybe be a leader, somebody is going to be an organizer, somebody is going to be a creative brain. You need to be flexible, you need to be open, you can have your opinion but understand that other people have an opinion as well, and actually something that you never thought of. They might let you see it in a different way.

Within a group, there must be trust among its members. Trust is one of the pillars of a successful team. Teacher 1 exclaimed:

> I think there's a strong level of trust. We are a new team this year for a few of us, and I can already see what we bring to the table. A lot of people might not agree,

> but they disagree in a respectful manner, or if they do agree, it's like, everybody's okay to say somebody's got a good idea. It's open and honest.

With trust, teachers respect and value each other's opinions, expertise, and experiences. Teacher 8 expressed, "Camaraderie is extremely important. Respecting everyone's not only opinions, but their methods, the way they operate is very important. Respecting everyone's time. Sometimes, personalities clash, and those issues have to be handled professionally, and not personally." On the other hand, Teacher 7 felt "having the time to talk to everybody, respecting their opinions and working with each other, you know, could be a challenge sometimes." Teacher 3 also felt different personalities are a huge challenge for teaming to be successful:

> I've been on teams where there's several very strong personalities, which is hard. I've been on teams where I'm the strong personality and everybody's very passive, which is also hard because sometimes you need decisions to be made, and you don't want to always be the one that decides everything. You want everyone to have equal input, and it to be equally important to everybody.

Some members want strong personalities because they feel they get more accomplished and achieve the team outcomes. However, some view strong personalities negatively. Teacher 3 expressed, "I've got a strong personality, so I always end up kind of being the one in charge of whatever because that's just my personality. Sometimes you have that pushback from people that don't want the strong personality."

Once trust and respect are present, relationships can begin to form among the team. Teacher 7 spoke about her team relationships:

> They all get along, and they all, you know, do what they are supposed to do. I feel like there's always somebody in the team that is like the person that kind of leads that takes over and then says, you know, let's talk about this instead. But if two people don't get along it's just, you know, it makes it feel uncomfortable. I think there's always that argument of we should do this instead of that, or you guys don't listen to what I have to say. So, it's hard to form relationships when they're bumping heads about just basic stuff; we all just have to talk.

Building trust takes time and can be a challenge. It may, at times, never be reached among all members of a team. Teacher 3 said:

> It very much depends on who's on your team. There are people that I think look, to tell on other people to make trouble, and it's hard to have open conversations with those people and not be concerned. The team that I'm on this year are people that I know for a long time that I know well. So, there's a very high level of trust. I've been on other teams where I didn't have that level of trust, and that made it harder.

New teachers feel trust from different viewpoints and ask themselves questions, such as who can I trust, and do they trust me? Teacher 9 began by saying:

> I'm the new guy here. So coming in, I was an unknown quantity, and with the level of trust, people are suspicious, and rightfully so. You know, who is this guy? You know, who and which Master does he serve? You know, is he someone I can trust? It's taken a lot of time to build trust. Trust comes slowly and is shattered very quickly.

Even when trust exists among team members, conflict can still arise due to different opinions of various topics. The way conflict and disagreements are handled by the group will determine whether or not the team will be successful. Teacher 4 believed "trust is important." "You have to be able to trust your colleagues. But I also think if you have an issue, you have to say something. It doesn't have to be confrontational; yes, it is confrontation, but it can be done in a way that it doesn't alienate somebody." A type of conflict expressed in the focus group was resistance to change in how teaming operates, as well as to implement changes in curriculum and instructional practices. However, Teacher 7, who is a team leader, said:

> My team, happens to be, you know, a group of good ladies; we get together and we talk about what we need to talk about, and I did not have any resistance; we are all adults. The relationship that we have is, it's a good one.

All teachers felt any type of conflict had to be dealt with professionally, and a mutual agreement had to be the ultimate outcome. Teacher 3 shared, "I've never had a time where we couldn't talk it out when we didn't agree."

In the meetings, it was observed that trust existed among the team members. This was evident, as everyone openly engaged in the meeting, and there was a comfort level in sharing thoughts and ideas that were different from each other. Team members respectfully disagreed and challenged each other at times. They listened to each other as they presented ideas/opinions, and then came to a consensus before the end of the meeting. Other interactions that showed a level of trust were they laughed often and celebrated each other's efforts and successes. An example was when the math/science

special education teacher commended the science and math teachers for the amount of time they spent on a well-planned interdisciplinary project.

This year, the district created team leader positions. Teacher 7 believed in the importance that “one person needs to be the main person, the contact person, and then, you know, going from there.” Teacher 6 agreed and added:

> The creation of team leader is a huge thing because now, we have someone that's helping the team focus for every team. Someone's keeping record of what's going on. There's someone who's kind of reminding certain off-task people to get back. Some people have like really strong planning skills and looking ahead.

Teacher 4 commented on her team leader with, “She's helping guide us along. She tries to keep us on track, so we're more successful and more efficient.”

The new structure in this school distributed the leadership among the teachers and gave a new direction for the teachers to enhance teaming. Teacher 6 relayed that “in the past, it was a little bit looser. I don't think we always accomplished everything we could accomplish, and I think this is going to give us a little bit more drive to do it.” Teacher 8, who is a team leader, shared the following on the group structure of teaming:

> There is a clear vision and set of goals. You know, we're here in this room, we're here for kids. You know sometimes we have to put egos aside because the number one priority is kids. Establishing those norms is really the foundation that everything builds upon. You know, if all members of a team are not pulling in the same direction, or, worse, if there's someone who is undermining the team, it can be devastating. You're really limiting the progress a team can make. You know, I've seen this in different areas. The first step in a successful team, I found is

> getting buy-in, you know, sometimes that happens right away; sometimes it takes time.

The team norms became an expectation of this new structure. An essential component of the norms was to have input from all members and to be created at the beginning of the school year. This holds teachers accountable for their interactions with each other during the meeting. Teacher 8 stated:

> The way I structured the team norms is basically the same way that I do the community agreements with my students, you know? How do we want to feel more together? What are the things we need to do to feel that way? Then, for the adults, I added another part, which is, you know, if we go astray, what are we promised to do? And one of those things on our team charter is that we promise to be honest and open and not let issues fester. I've had conversations about the way teachers conduct themselves and remind them of expectations. Professional respect comes from, just like you don't call out a kid in class, having the respect to have a private conversation, treating people like the grown-ups; it goes and it's gone a long way.

This new structure increased productivity and efficiency of the team. Team leaders worked hard to set agendas with input from the team, which assisted in the buy-in of teaming for some teachers. Teacher 5 felt this was a valuable addition by stating:

> I think, this year, it's going so much better because we have an outline. We have a little more people accountable in that you have to be there; so, I definitely think where we're using the time, and we're using it to the best of our ability and getting

so much more done this year than we think we have in the last few years; that makes you happy. I think the team leaders are doing a whole lot of work.

Teacher 3 stated:

> This time to be a little more structured is also essential to being productive, and it's not just being everybody sits down and like complains about kids, or does their own work, or gets their like, 'Oh I had to make copies of this or I got there late.' You know, having the structure in place, has really made it, I think more of a beneficial time together. I think it's made people focus. This is a real period where I actually am accountable for what I'm doing, and someone is writing down what we're talking about. I think it's really tightened things up this year in terms of how we can make it better; I think you could always make it better, but I think we have to use what we have now, and then see where that goes at the end of the year. Then, say, 'Okay, how could that be even better than it was this year?"

Another component of this new direction with team leaders was that the district added a layer in which the team leaders for all the grades meet with building and district administrators. The objectives were to have vertical alignment, as well as cohesion and consistency among the teams. Teacher 3 explained this change in teaming and said:

> I think this year, like I said, there's been a change, and there's been like a seriousness to it that I don't think existed before. We never really interact as teams, outside of our own team, and I think that that's something that would be a helpful thing to do even like once a week to articulate with the other eighth grade team, because so many people share kids and see them in different ways. I think it could be positive.

One challenge that emerged out of individual interviews and focus groups was the administrators change the teams too frequently. It was brought up how it takes time to gel as a team, and just when a team of teachers felt they had a good groove and momentum, they were placed on different teams for the next year, and the process began all over again.

Conclusion

This qualitative instrumental case study explored the following research questions:

1) How does the design of the teaming program impact the effectiveness of the interdisciplinary teams and teacher efficacy?
2) What is the role of administrators in supporting teaming and advocating distributive leadership among team members?
3) How do teachers perceive the teaming program's effects on instructional practices?
4) What are the teachers' perspectives on the group dynamics within a team?

After speaking with and observing teachers and an administrator in interviews and meetings and analyzing team documents, the researcher concluded: a) scheduling common planning is important in the team's success; b) sense of belonging impacts teacher efficacy; c) distributive leadership and trust are factors in teacher efficacy and school culture; d) collaboration and support impact the team and its curriculum and interdisciplinary work, which is dependent on the flexibility of the teachers; e) students are impacted by the collaboration and interdisciplinary work of a team, f) teaming fosters

professional development; and g) group dynamics play an integral role in interdisciplinary teaming.

The triangulation and analysis of the data supported the findings. This research indicated the design and structure of a school impacts interdisciplinary teaming. Teachers value and need the common planning time created in their teaching schedules. There is a desire to have more time built in the day to collaborate with the special area teachers to extend interdisciplinary practices. Teachers feel administrator support and trust are important. They feel supportive in their decisions they make as a team. In addition, they feel safe to try new things. They receive support and training they request in order to enhance their craft. However, some feel trust is an issue with administration, and there needs to be equity in the empowerment and distributive leadership among the teachers. Additionally, the teachers feel there could be more professional development focusing on teaming and how to implement some of the initiatives associated with it.

In this school, administration built a culture of collaboration, which is evident in both the interactions and relationships between administrators and teachers, as well as teachers with other teachers. Ultimately, this will lead to innovative cross-curricular experiences for 21st century learners. Administration fosters a growth mindset not only with the students but with the teachers as well. Teachers felt interdisciplinary teams affected their practices and strategies in the classrooms. Collaboration is an integral factor in successful teaming. Teams of teachers collaborate to find authentic cross-curricular experiences, which include interdisciplinary skills, units, and projects, for students. Teacher flexibility and support are important factors to teachers and help their interdisciplinary work and dynamics of their team. Group dynamics are an interesting

component of teaming that continuously evolve and change throughout the year. Teams have to learn to respect each other, even in the face of conflicts and disagreements. They need to go through stages of learning each other's personalities and developing trust in order to create a system in which they work efficiently and effectively towards the common goal of supporting and educating children. The new structures of teaming, including team norms, agendas, tuning protocols, and team leaders, have helped improve dynamics and output. The support teachers received from each other was invaluable to them. The feeling they got knowing someone was there to listen and help increased their efficacy. In addition, professional development was a crucial component in teachers being successful. They received professional development from their colleagues during teaming, as well as from the district; however, they need more that specifically focuses on interdisciplinary teaming. Overall, factors related to teaming allow the teachers to learn new strategies and practices to use in the classroom, to grow as professionals, and have a sense of belonging.

In the next chapter, the implications of the findings will be presented as they relate to previous research and theoretical and conceptual frameworks. In addition, recommendations will be discussed for future practices and research.

CHAPTER 5: DISCUSSION

This chapter includes the analysis, interpretations, and implications of the findings related to each research question. It will also discuss how the findings relate to prior research and the conceptual and theoretical frameworks. The final parts of this chapter will state the limitations of the study and provide recommendations for future practices and research. This qualitative instrumental case study explored the following research questions:

1) How does the design of the teaming program impact the effectiveness of the interdisciplinary teams and teacher efficacy?
2) What is the role of administrators in supporting teaming and advocating distributive leadership among team members?
3) How do teachers perceive the teaming program's effects on instructional practices?
4) What are the teachers' perspectives on the group dynamics within a team?

Implications of Findings

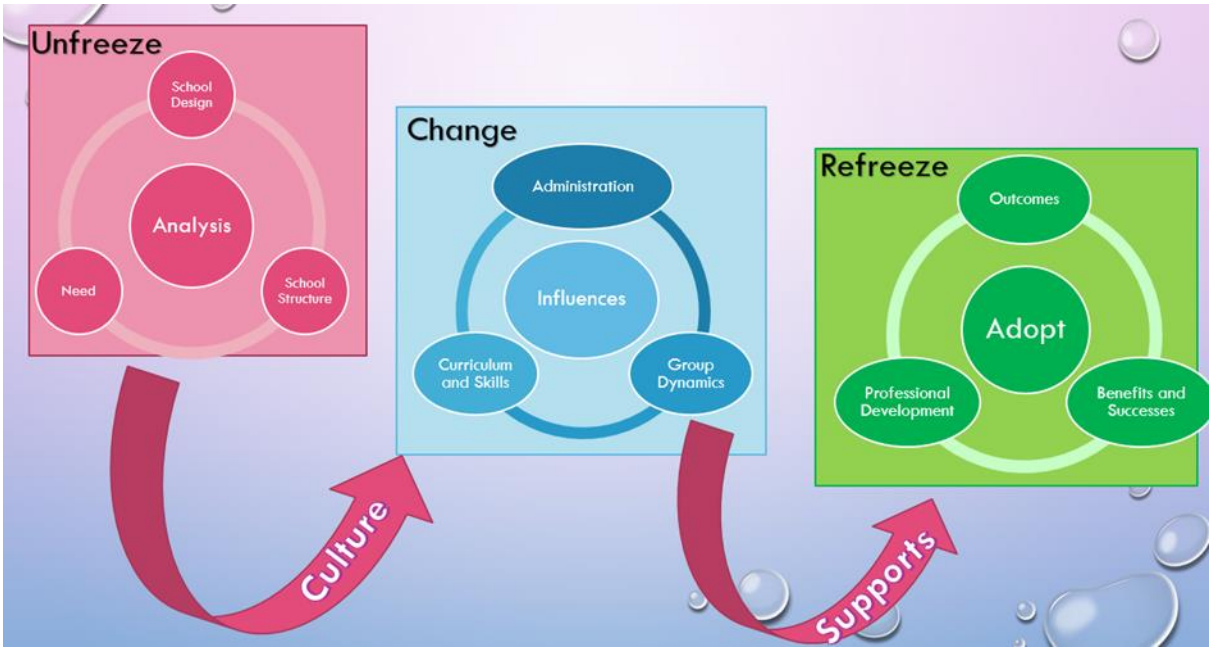
The implications of the findings are initially organized through the lens of the conceptual and theoretical frameworks. In the following section, the researcher linked the findings in the study to previous studies and literature that were presented in Chapter 2.

In this study, the school district was in the process of an organizational change, which was related to different components of interdisciplinary teaming. The conceptual framework in Figure 3 was based on findings from the works of Kurt Lewin's Change Management Process (1947), also known as Changing as Three Steps (CATS),

Bruce Tuckman's Group Development Model (1965), and Lencioni's Five Dysfunctions of a Team (2007).

Figure 3

Organizational Change for Interdisciplinary Teams



Lewin (1947) explained change with striving forces (driving and resisting) to maintain status quo while pushing for planned change. According to Hussain et al. (2018), this movement from Lewin would allow for proactive and reactive change through sharing knowledge and changing leadership style. Lewin's Change Management Process (1947) consists of three phases: unfreeze, change, and refreeze. In this study, the school progressed through these phases through the movement of the school's culture and supports.

Unfreeze

When unfreezing occurs in an educational system, stakeholders must analyze the need of the change and the school's organizational structure and teaming design. According to Glieck (1987), this can create controlled chaos. During this phase, destabilization occurs and motivates learning and change (Schein, 1996).

The district in this study had to unfreeze and conduct an analysis of the need, structure, and design in its middle school. It needed to prepare the organization to accept change by showing the reason for change. Pierce et al. (2002) found in order to stimulate change, leaders have to address the change, as well as educate, communicate, and involve employees in the process.

In this unfreeze stage, one of the themes that emerged from the study was that scheduling common planning is important in the team's success. This school tried to have common planning times when every member of a team could attend; however, this was not always the case because some teachers were cross-teamed and a few taught across grade levels and buildings. The administrator valued this time and believed it to be the most important facet and both the central and starting point of creating a middle school schedule. The administration acknowledged that creating common planning time is a major challenge and is exploring various ways to eliminate constraints in the schedule in order to create purer teams.

The school looked at other components of teaming that need to be addressed in order to successfully implement change in its teaming practices. One of the changes in the structure of the meetings was moving the location of the teams' meetings. The teachers originally met in a specific teacher's classroom; however, the meeting was

moved to a conference room, which was considered to be a neutral site. The furniture in this room was set-up in a circular figure, leading to a more welcoming and collaborative setting. All team members found this to be a benefit and enhanced their teaming. Another component of team meetings that needed improvement was the lack of structure during the 40-minute period. Therefore, the district created team leader positions to facilitate a more structured meeting, including agendas, minutes, team Google Classrooms, and student analysis tuning protocols. The research found teachers came to the realization that a set agenda of goals allowed the team members to be focused, prepared, accountable, and productive. Overall, the teams also found them to be more efficient due to this new structure.

To get to the second phase (change), organizations rely on the expertise, knowledge, skills, beliefs and experiences of their employees; therefore, knowledge sharing is crucial when change is occurring in the organization (Ambrosini & Bowman, 2001; Brown & Duguid, 1991; Wenger et al., 2002). According to Bock and Kim (2002), knowledge sharing starts at the individual level, then transfers to the group level, and culminates at the organizational level. The culture of a building will either help or hinder the organization to move from the unfreeze to the change phase.

The theme of distributive leadership and trust are factors in teacher efficacy, and the school's culture impacted the organization to move from the unfreeze to the change stage. In this school, the findings showed the building's culture is one of openness and shared ideas and is overall positive and student-centered. However, teachers were divided in their trust level of the administrators and the equity of distributive leadership. The administrator and the teachers felt the culture is collaborative and believed in the growth

mindset. There are opportunities in the school for teachers to hold various forms of leadership positions and share, develop, and implement ideas. However, some teachers felt there is favoritism, and certain individuals are heard more than others. The teachers felt among each other they exhibit openness and collaboration when meeting as a team. Teachers felt empowered in their teams to make decisions for students and their learning. This gave most teachers a comfortable feeling to approach administration with new ideas for the classroom and the building. This culture motivates the teachers with high trust levels to work as hard as they can for the administration; on the contrary, the teachers with the lower levels of trust proceed with caution and do not always share their ideas and/or concerns, which could lead to the betterment of the school and students.

Change

In this discussion of the change phase, influences of administration, curriculum, and group dynamics will be examined to determine their effects on interdisciplinary teaming. Leaders need to influence, motivate, and support followers over obstacles to change (Laura & Stephen, 2002). This study found the teams had support from their administrators, but they need better directed guidance and expectations in how to enhance teaming and its output. This study found the group dynamics and curriculum for the students to be the biggest influences in this phase. The theme of group dynamics playing an integral role in interdisciplinary teaming emerged as the research explored this topic. An old adage states, "There is no 'I' in team"; therefore, the teachers who are assigned to a group with their colleagues must get along and work together for the best interest of their students. The findings showed that it takes time to get to know one's teammates and develop a level of trust. Until the trust is formed within the group, teammates are not

operating at full capacity. Once trust and respect are present, true relationships form within the group. Since this can take an extended period of time, the research found when administration changes the teams frequently, their success is hindered because the process has to start all over the following year. Teachers found different personalities can be challenging, especially when there was a lack of flexibility among some members to change their practices. The findings showed teams were successful when the members were open to new ideas and really listened to each other in a professional, respectful manner. This was evident through the interviews and the observance of team meetings, in which there was equity of voice, positive body language (open posture, good eye contact, nods of agreeance), and opportunities to share ideas, opinions, and feedback. The school created the team leader position in order to improve group dynamics by facilitating structured meetings. The research found this enhanced the dynamics because the teachers found this to hold every member accountable, to keep everyone focused, and to help mediate any member who was not contributing or working well with others. The added dynamic of the team leader position led to the team being more productive and provided better consistency and cohesion with other teams across the different grades.

As a result of the group dynamics, teachers began to develop a sense of belonging that impacted their teacher efficacy, which was another theme that emerged in this study. Tuckman (1965) created a group development model based on observations of group behavior in different settings. There are five distinct stages a group must go through together in order to develop and grow as a team. These stages are forming, storming, norming, performing, and adjourning (or mourning) (Tuckman, 1965; Tuckman & Jensen, 1977). The phases are fluid, not linear in nature. Within these stages, members

need to be cognizant of Lencioni's Five Dysfunctions of a Team (2007): 1) absence of trust; 2) fear of conflict; 3) lack of commitment; 4) avoidance of accountability; and 5) inattention to results. Awareness of these dysfunctions can lead to teams avoiding these in order to be successful.

The findings of this study suggested that teams created small communities in which strong relationships were formed, within a large building of teachers. These communities supported each other and helped enhance teaching practices and strategies inside and outside the classroom. Since teaching has historically been a career in which teachers spend most of their day in their classroom with students, the time spent with their team improves their efficacy because this allotted time allows teachers to connect with adults. Most of their time in team meetings is spent talking about students, but they also share personal and professional successes and concerns. The research found the time spent teaming provided teachers with a safe, supportive environment allowing for teachers to share and be open to new ideas and work together through challenges. This study showed every teacher had a sense of belonging, which, in turn, improved their teacher efficacy after they developed a trust of one another. Ultimately, this helped the team avoid the first dysfunction of teams mentioned by Lencioni (2007), the absence of trust.

Tuckman & Jensen (1977) believed awareness at different stages could positively affect the team's process and productivity. The teachers found it beneficial to work together to grow as professionals by enhancing their craft through each other's experiences, skills, and strategies and practices by setting norms, developing trust, navigating through challenges, and being flexible to adapt the old and adopt the new.

This allowed them to be not only efficient but productive as well. In the new structure of teaming, the team went through the phase of forming by creating norms, expectations, and ground rules the group developed together. As Farrell et al. (2001) explained, "A developed team is one in which members have achieved consensus about their mission, their division of labor, and what they expect of one another with regards to cycles of work" (p. 283).

While the teams in this school formed, different personalities were shown through their interactions with each other. The teachers found this to be a big challenge because some people could not work well together, some were disrespectful, and some were inflexible. Tuckman (1965) stated that groups begin to resist and become hostile towards one another, creating emotional responses to the task. Conflict is a concern within a team and takes shape in numerous forms. Not all conflict is bad; teams can partake in conflict via a passionate debate in which all members are heard, and solutions are developed by the team. Lencioni (2007) believes fighting and passive aggressiveness would be destructive conflict. Lencioni (2007) states that conflict norming should entail rules of engagement, and discussions should be objective and emotion-free. When establishing team norms, the leader must use a measure of judgment and take into consideration team members' attitudes and capabilities (Lencioni, 2007). According to Lencioni (2007), good conflict among team members requires trust. Therefore, the teams began to develop a method to deal with different forms of conflict and be able to accomplish this task through the third stage of forming. When there was an issue, the teams were redirected by the team leader to refer to the team norms and expectations of respecting each other and accepting other's opinions and ideas to ultimately come to a solution everyone felt

acceptable for both the group and students. As Farrell et al. (2001) suggest, "The emergent rules and expectations become the core of the team culture, and they are referred to during times of crises or conflict" (p. 284). The team needs to develop solutions and standards in order to have buy-in from the team, which will prevent Lencioni's (2007) dysfunction of lack of commitment.

In Tuckman's fourth stage, performing, the school's teams have become functional, efficient, and productive. This is aligned with the findings of Barnett and O'Mahony (2006), which suggest that as team members learn to work together efficiently, they increase productivity. These teams have been able to monitor their progress, resolve conflicts, and celebrate accomplishments during team meetings, which Farrell et al. (2001) found to be characteristic of performing successfully as a team. As this new structure continues to evolve, the team members will have to share leadership roles and change depending on members' skills, expertise, and strengths, which creates solidarity, respect, and equality in participation among members (Farrell et al., 2001). Currently, this is the role of team leaders; they can keep the team focused and avoid the last two dysfunctions of a team stated by Lencioni (2007): avoidance of accountability and inattention to results.

In this school, teams have already begun the fifth stage, adjourning, by continuously reflecting on their output and practices. They will need to continue to be reflective on the following principles: initial and ongoing team development, team accomplishments, questioning, curriculum connections, and collaborative efforts.

Another theme emerged as these communities formed among the teachers: students were impacted by teachers' collaboration and interdisciplinary work as a team.

The research found teachers worked hard to find authentic experiences and connections for the students across the different disciplines. The findings showed the importance placed on the connectivity and continuity of skills and content for students to develop a deeper understanding and an ability to apply these skills to real-world applications. The curriculum connections allowed students to see the teachers working together and conversing about them. This translated to the students, which provided them with a sense of belonging to the team (both teachers and students). The school in this study also created a new advisory program, which led to an increase in the level of belonging among teachers. The findings show teachers believed this also improved the students' sense of belonging by being able to identify with a team of students and teachers, as well as an advisor who was not their guidance counselor.

Refreeze

With proper supports, the organization needs to move to the final stage of refreeze, in which members must adopt the change. This third stage requires the new activities and behaviors to be established and integrated in the organization, which then stabilizes the organization at a new equilibrium to perform at new levels and avoid regression (Ford & Greer, 2006; Lewin, 1947). The theme of collaboration and support impacting the team and its curriculum and interdisciplinary work, which is dependent on the flexibility of the teachers, allows the school to continue in the direction of best teaming practices. While collaborating with each other, the consensus of the teachers was being flexible is a necessity in order to have successful outcomes when planning interdisciplinary skills and units. The findings showed teachers making new curriculum connections and identifying new skills that cross multiple contents. These skills and

connections are being analyzed and assessed through tuning protocols during team time to enhance the teachers' crafts and the students' outcomes. Teachers felt the district created an environment fostering a growth mindset for students and teachers; therefore, they were comfortable taking risks and trying new ideas and ways to connect the curricula and skills to the students. Interdisciplinary work not only increases the amount of tools for students but for teachers as well.

Administrators and teachers would have to reflect on the outcomes, benefits, and successes. Team members and administrators provide feedback to each other regarding practices, curriculum, and students both during the day and afterschool. According to Tichy (1983), feedback may come from different formal or informal sources, such as measurements, comments, and rewards. Now that the school has new structures and processes in place that are adopted by the stakeholders, continuous reflection and professional development need to be provided to the faculty in order to ensure success. In this study, the researcher found through the individual interviews, focus groups, team meetings, and documents that the teams and administrators continually reflected on their practices and made necessary changes. In addition, the last theme that emerged from the data was teaming fosters professional development. In this study, the district provided many professional development opportunities for teachers both from outside organizations and inside the district through workshops offered by its Teacher Center. Teachers provided feedback regarding a lack of workshop offerings specific to interdisciplinary teaming. However, some of the best professional development the teachers felt they received was during common planning time and PLCs, since they share best teaching practices and learn from each other. The teachers found the best

professional development is sometimes happening right next door, and the district supports that notion by allowing inter-visitations, also called "pineappling" by the district. The research showed teaming has inherent professional development built within it. All the teachers expressed how teaming allows them to grow professionally because they are continuously learning from each other and supported by their teammates. Team meetings also provided a safe place for them to learn by asking for help when they experience difficulties implementing and executing a new initiative and/or program.

Relationships Between Results and Prior Research

Research Question 1: How Does the Design of the Teaming Program Impact the Effectiveness of the Interdisciplinary Teams and Teacher Efficacy?

The first research question explored how the design of the teaming program impacted the effectiveness of the interdisciplinary teams and teacher efficacy. The findings found scheduling common planning was important in the team's success and a sense of belonging impacted teacher efficacy.

Scheduling Common Planning was Important in the Team's Success

The Essential Elements Schools-to-Watch (2016) third essential element of organization and structure requires common planning time for teachers who share a common group of students. It also requires having schedules that have assigned times for teachers to meet to encourage interdisciplinary programs and creative use of time. Previous research found all teachers on the team should share the same common planning period; otherwise, it weakens the team's ability to develop a strong and coherent instructional program (Oxley & Luers, 2010). Mac Iver (1990) found that teams who have frequent common planning are successful and effective. The findings of these

previous studies were supported in the study of this Essential Elements: School-to-Watch. Administration and teachers felt scheduling common planning time was essential for the team's success and recognized that restraints in the schedule have created challenges for teams whose members cannot meet together on a daily basis. This supports the notion that it weakens the team and affects its operation and ability to be as successful as the others.

Clark and Clark (1997) identified the organization of interdisciplinary teams, team leadership, common planning, team goals and objectives, and organizational procedures as key characteristics. Administrators create teams, determine team leadership, and provide a space for meetings; teachers have to be present and available for their team members (Brouwer et al., 2012). This study supported the importance of common planning and both the organization and structure of these meetings. The teachers reflected valuing the importance and structure of the meetings through their interviews and interactions during the meetings. It also found having a designated neutral meeting place that fostered a more collaborative environment was more conducive to keeping members on-task and accountable, as well as producing more results. However, teachers found the predetermined teams by administration a disadvantage and believed teacher input should be involved in the process to link teachers together.

According to Cook et al. (2010), clearly defined goals for all types of planning (interdisciplinary team planning, grade level planning, and professional learning communities) are factors for enhancing the effectiveness of common planning time. The school in this study accomplished this by creating team leader positions to structure this scheduled time of common planning. Rottier (2000) suggested that team leaders create

weekly and daily agendas in advance to increase productivity. This practice was supported in this study by the team leaders creating daily agendas a week ahead of time in order to have input and feedback on the topics from all team members before the common planning meeting. McQuaide (1994) did a study that observed common planning times in schools in Pennsylvania and assessed the time allotted for specific topics. The original results were as follows: students (47.5%), policy (40.5%), pedagogy (8%), evaluation (2.5%), and subject matter (1.5%). In a similar study by Shaw (1993), seven categories were established for effective common planning. The seven categories were reflection, keeping track of students, logistics, conferences, instruction, housekeeping, and miscellaneous (as cited in Mertens et al., 2010). Results from the school in this study support the prior research relating to the topics covered in common planning and extended topics to include additional ones. The main focus from the teachers during these meetings were students and their needs and behaviors. They then focused on making curriculum connections between interdisciplinary skills, communicating and conferencing with parents, monitoring and tracking student progress, sharing best teaching practices, exploring social emotional needs, and building team unity. Both administration and teachers believed this space and structured agendas impacted teaming in a positive way.

Sense of Belonging Impacts Teacher Efficacy

Previous research found numerous benefits of common planning: social support for teachers from team members, more effective instruction from increased coordinated cross-curricular experiences, more effective and efficient identification and solving of students' needs, and stronger student identification to the team through the development

of team spirit and the improvement of both their behaviors and work (Mac Iver, 1990). This study supported all the findings from previous ones. Teachers in this school truly valued each other's supports and felt it was a time for them to connect with each other and form bonds on a personal and professional level. Guskey & Passaro (1994) found teachers on interdisciplinary teams with common planning had higher personal teacher efficacy (M = 39.61 SD = 4.65) than those on interdisciplinary teams without common planning (M = 34.60, SD = 5.26) and who just had departments (M = 35.76 SD = 4.69). Clark and Clark (1997) found the most important advantage is the autonomy to make choices regarding curriculum integration and instructional strategies, which fosters cooperative work and trying new ideas leading to higher self-efficacy. The teachers in this study had high levels of efficacy due to this safe, supportive, and collaborative environment and opportunities afforded to them by administration.

Mertens et al. (2010) found common planning enhanced instructional practices while fostering a collegial environment and addressing students' academic and social needs, and Cook et al. (2010) found regularly scheduled common planning time led to positive effects on teacher morale. Main (2012) found teachers' positive feelings and perceptions about colleagues' and student outcomes were related to teachers' efficacy, which was also suggested by results of this study. Teachers in this school looked to each other for help and became each other's cheerleaders. They loved to hear other educators' perspectives and being part of a community, which transpired into their work and aligned with the findings of Mertens et al. (2010) that teachers had more positive perceptions of the work environment and job satisfaction due to teaming. Advantages of interdisciplinary teaming are strong support for students and teachers that enables

innovation and autonomy, flexible learning time, and opportunities to make connections across different disciplines (Clark & Clark, 1997).

Ellerbock and Kiefer (2014) found that interdisciplinary teaming fostered teacher-student relationships because of the team promoting a community feel. Researchers found collaboration in teacher communities has positive effects on teachers and students (Brouwer et al., 2012). Teams created fun, educational activities for their students; this increased student motivation and engagement, which is essential in adolescent learning. This study supported this research through the findings associated with the creation of advisory in this middle school. This program gave the teachers a greater sense of belonging and brought fun to both the adults and students.

Denzin (1978) found teachers on these teams felt their personal and professional needs were being met across different elements. Teachers felt the interdisciplinary teams met their personal needs because they provided emotional support and provided a sense of competence. Their professional needs were met through management practices (school policies and procedures, clerical requirements, classroom management) within the team and meeting curriculum and instructional needs (Bickmore et al., 2005). According to Arhar et al. (1989), teachers enjoy increased opportunities for collaboration, which facilitates communication and enhances satisfaction. Teams reduce teacher isolation, which proved to be beneficial to teachers, but it also lessened teacher autonomy (Crow & Pounder, 2000). In this study, teachers did not feel isolated and felt a sense of comradery with each other. They felt they had someone to turn to for help and learn from.

Research Question 2: What is the Role of Administrators in Supporting Teaming and Advocating Distributive Leadership Among Team Members?

The second research question explored the role of administrators in supporting teaming and advocating distributive leadership among team members. The findings found distributive leadership and trust were factors in teacher efficacy and culture.

Distributive Leadership and Trust are Factors in Teacher Efficacy and School Culture

The Essential Elements: Schools-to-Watch program's fifth essential element of educational leadership has the following two requirements related to distributive leadership:

> [1] Involve staff and others in the operation of the school or program, empowering and encouraging them to contribute and to make decisions that benefit students; [2] Support and encourage teachers, individually and collectively, to take risks, to explore, to question, to try new instructional approaches, to continue as learners, and to grow. (Essential Elements: Schools-to-Watch, 2016)

In this study, administrative support was provided by the central administration to the building administrators and teachers and by the building administration to the teachers. In order to create distributive leadership, the principal has to develop a culture of shared leadership that allows teachers to have input and feedback on school decisions (Grenda & Hackmann, 2014). In previous studies, distributive teacher leadership produced improvements in teaching and learning (Harris & Muijs, 2004), and teachers contributed to and shaped leadership practices more than those in formal leadership positions (Harris & Muijs, 2004). The findings of this study illustrated a middle school that has a culture of

openness and shared ideas. The building administrator empowered teachers to be leaders, make decisions, and implement new ideas. However, teachers found there to be a divide among the faculty because some did not trust the administrators and felt there is favoritism, which creates limits for some teachers. Previous studies found that leadership needs to be spread among different individuals within an organization in order for teachers to become leaders, creating inter-dependency rather than dependency (Firestone, 1996; Harris, 2005; Spillane et al., 2004). The creation of the team leader positions helped this school move towards that direction. Yet, the rest of the team members did not inherently establish leadership roles, as they wanted the team leaders to do the ground work.

Additionally, in this study, the school district created team leader positions to help structure the team meetings and produce greater output. This supports the research of Spillane et al. (2004), which focused on interactions and social practices being spread across leaders and followers. The formal leaders consist of administrators, coordinators, and interdisciplinary team leaders. Followers are individuals who participate and are engaged in the activities but do not hold a formal position (Spillane, 2006). Grenda and Hackmann (2014) found teacher leaders are responsible for coordination and management of planning events and curriculum work, fostering professional development, promoting organizational change, supporting collegial relationships, and advocating for children. They are also responsible for communicating issues that come from team meetings to building administration. This allows the administration to respond and enhance the school. The role of team leaders in this school supports that research. They are responsible for structuring the team and facilitating meetings that focus on the

academic and social emotional needs of students, analyzing student work, and assisting with group dynamics. In addition, they meet with administration and other team leaders in order to create consistency and vertical alignment across the grades.

Main (2012) found teams worked more collaboratively when there was the presence of administrative support and commitment to team practices at the individual, team, and school levels. In this study, teachers believed administration provided them with all the necessary tools and resources to be successful. Administrators, both building and district level, were available at all times to join and support the teams during the meetings.

Research Question 3: How do Teachers Perceive the Teaming Program's Effects on Instructional Practices?

The third research question explored how teachers perceived the teaming program's effects on instructional practices. The findings suggest collaboration and teacher support impact the team and its curriculum and interdisciplinary work, which is dependent on the flexibility of the teachers, students are impacted by the collaboration and interdisciplinary work of the team, and teaming fosters professional development.

Collaboration and Teacher Support Impact the Team and its Curriculum and Interdisciplinary Work, Which is Dependent on the Flexibility of the Teachers

The Essential Elements: Schools-to-Watch fourth essential element, classroom instruction, places emphasis on curriculum integration. This element is seamlessly accomplished with the teachers in this middle school. Under the domain of academic excellence, the rubric identifies the following criteria: Curriculum, Instruction, Assessment, and AIS are aligned with high standards that challenge students; Curriculum

emphasizes deep understanding; Instructional strategies include a variety of challenging and engaging activities (Essential Elements, 2016).

In this study, the teachers felt they are supported by the administrators and their fellow colleagues and described the culture of the building as collaborative. It supports the previous research that refers to common planning time as creating a safe place for teachers to share ideas and concerns by speaking candidly, which allows multiple perspectives on items. (Grenda & Hackmann, 2014).

In past studies, the structure of interdisciplinary teaming broke down boundaries and isolation of single subjects and promoted teachers' systematic planning by interacting with each other and focusing on curriculum decisions and student achievement (Clark and Clark, 1997; Clark & Clark, 1995). This collaborative planning among teachers fosters creative and diverse options and activities for students through active synthesis and application of facts across the different subjects (Clark & Clark, 1997). This study supports those findings as the teachers collaborate on curriculum connections in order to create interdisciplinary units, projects, and skills. They also strive for a common academic language among the different subjects. As a goal this year, the teams have started focusing on interdisciplinary skills that translate across the subjects. The teams have created a tuning protocol to analyze the student work, which leads to interventions and sharing of best teaching practices to help the students master the skills.

Wilson (2007) found collaboration and compromise were the most prevalent interpersonal skills in successful teaching teams. This study supports this finding as the teachers found that flexibility to accept people's ideas and to adapt and move curricula

were necessities to be successful. The flexibility allows for compromise to develop a solution that works for everyone.

Researchers found collaboration in teacher communities has positive effects on teachers and students (Brouwer et al., 2012). Teams created fun, educational activities for their students; this increased student motivation and engagement, which is essential in adolescent learning. This study supported previous research as the interdisciplinary work among the teachers impacted their knowledge, practices, and strategies and increased their level of efficacy. They learned new things from each other, including different subjects' content, skills, and teaching strategies and practices.

Students are Impacted by the Collaboration and Interdisciplinary Work of the Team

In the social equity domain for the Essential Elements: Schools-to-Watch (2016), the rubric identifies that students are provided the opportunity to use a variety of approaches to achieve and demonstrate competence and mastery of standards. It also states teachers must adapt curriculum, instruction, and assessment to meet students' needs. In the developmental responsiveness domain, the rubric identifies that teachers should use an interdisciplinary approach to reinforce important concepts and skills, as well as address real world problems through fostering curiosity, creativity, and development of social skills. In addition, all students are provided the opportunity to develop citizenship skills and engage in the community with their voice.

In a previous study, Merenbloom (1996) found one domain of team teaching is curriculum integration to help students see the totality of learning. Other studies suggested an effective method for addressing young adolescents' developmental needs was implementing interdisciplinary teams which integrated curriculum because they

comprehend cross curriculum connections with their teachers' assistance (Lewbel, 1989; Muth & Alverman, 1999). According to Merenbloom (1996), the following approaches can be used to effectively integrate curriculum: connecting topics in one subject with related topics in other subjects; curriculum mapping; interdisciplinary activities; interdisciplinary units; a skill-of-the-week focus on a basic learning or thinking skill.

This study supports these findings as the teachers strive for the students to see the importance of the connectivity and continuity of skills and content in various ways and styles from different teachers. They want students to be able to apply these skills inside and outside of the classroom. They believe the students are impacted by this interdisciplinary work in a positive way because they are exposed to the same skill and/or topic in different contexts, which, ultimately, leads to a deeper understanding.

Prior research explored the amount of time teachers spend on different topics in common planning. McQuaide (1994) did a study that observed common planning times in schools in Pennsylvania and assessed the time allotted for specific topics. The original results were as follows: students (47.5%), policy (40.5%), pedagogy (8%), evaluation (2.5%), and subject matter (1.5%). Mertens et al. (2010) looked to the Common Planning Time Project, which showed that teams with less students spent more time working on curriculum and instruction; however, larger teams with a larger student composition spent more time on discussions regarding the students. This study did not calculate percentages of time the teachers spent on different topics in common planning. However, through the interviews, focus groups, and observations, it became evident that most of the time was spent talking about students rather than interdisciplinary work, assessments, and best teaching practices and strategies.

A previous study showed the impacts on students of interdisciplinary teams with common planning were higher self-concept, school satisfaction, commitment, and positive perceptions to teachers and school climate (Warren & Muth, 1995). Another study focused on the teachers' role in addressing gaps in academic and social behaviors to increase student support and improve these areas (Oxley & Luers, 2010). In this study, besides interdisciplinary work, team members had constant conversations regarding students' academic, behavioral, and social emotional status. The focus groups emphasized they give the kids extra supports in all of these areas. The school also created an advisory program to add another layer of support from these team of teachers for the students. The students engage in fun, meaningful activities to promote team identity and belonging. All team members are regularly in communication with the families to have a constant school-home connection. The administrator and teachers felt teaming proves to be invaluable due to the effects on students both academically and socially, through the collaborative efforts of the student's school "community." This supports the Essential Elements: Schools-to-Watch criteria of developing alliances with families to enhance and support the well-being of students and creating a school community that knows every student well (Essential Elements: Schools-to-Watch, 2016).

Teaming Fosters Professional Development

In the domain related to organizational structures for Essential Elements: Schools-to-Watch, some of the criteria under shared vision include the school and district devoting resources to professional learning in which experimentation and reflection are school norms.

Previous research shows teaming promotes experimentations, draws on team members' strengths, skills and expertise, growth, change, and reform by allowing teachers to plan, work, solve, and reflect with each other (Mills & Pollak, 1993; Sandholtz, 2000). It was also found that curriculum development enhances professional development in team teaching, and each teacher becomes, in some degree, a novice (Sandholtz, 2000). Other studies found team teaching provides colleagues opportunities to continuously learn from each other about content and teaching, while emphasizing the processes of learning, which motivates professional development among teachers and promotes improving teacher practices through the combination of support, ideas, and criticism (Sandholtz, 2000; Shibley, 2006). Studies also showed teachers are more likely to turn to each other for professional support than administrators. Schools have created professional learning communities (PLCs) to accomplish this goal. PLCs are communities of learning, practices, and/or continuous inquiry of improvement (DuFour, 2004; InPraxis, 2006). This school and district support previous studies' findings that interdisciplinary teaming promotes professional development. The school created monthly PLCs after school in addition to the daily team meetings. Teachers are given many opportunities inside and outside of the district for professional development; however, they felt some of the best professional development they received was through their colleagues in their meetings. They felt supported and safe to make mistakes with each other and learn and grow together. Team members partook in inter-visitations to see first-hand new and best teaching strategies and practices in action in each other's classrooms.

Previous studies showed areas of need are preparing teachers for teaming, creating an authentic experience, and understanding how teams work and become effective (Jackson & Davis, 2000; Wilson, 2007). Other research showed teams are ineffective because they are placed in a room together and lack training, will, and vision, which leads to lack of motivation; therefore, they need training, support, and guidance from administration (Arnold & Stevenson, 1998; Dever & Lash, 2013; Katzenbach & Smith, 1999). Another area of need is for schools to evaluate professional development; therefore, Barnett and O'Mahony (2006) created five levels of reflection to help evaluate professional development. It was found that this school needs to find and conduct professional development in these areas. Teachers felt it would be beneficial to help them continue to grow and enhance teaming in the school. The administrator would need to make time to reflect with the teachers and evaluate the professional development in order to make informed decisions for future opportunities.

Research Question 4: What are the Teachers' Perspectives on the Group Dynamics Within a Team?

The fourth research question explored teachers' perspectives on the group dynamics within a team. The findings found group dynamics play an integral role in interdisciplinary teaming.

Group Dynamics Play an Integral Role in Interdisciplinary Teaming

Previous research found team development is synonymous with natural maturation, and a set of group structures and relationships will form over time and must pass through a sequence of developmental stages to effectively function as a team in different settings (Farrell at al., 2001; Tuckman, 1965). Tuckman (1965) defined four

distinct stages a group must go through together in order to develop and grow as a team. These stages are forming, storming, norming, and performing. Tuckman then added another stage called adjourning (or mourning) with Jensen in 1977. They believed awareness at different stages could positively affect the team's process and productivity (Tuckman & Jensen, 1977). This study supported the previous research. The teachers in this school found it took time to build trust among each other. They had to figure out each other's personalities and develop a system to work through differences of opinions and conflict. The teams went through forming by setting norms and expectations at the beginning of the year to keep the team focused and on-task. Then, they went through the storming stage, when there were members who were resistant about the new teaming activities and other member's ideas. Then, they began the norming stage, where they referred back to the standards they set as the team for engaging professionally and respectfully with each other. This led to the performing stage, where the team developed solutions by resolving conflict and making compromises. The team was constantly going through the mourning stage by reflecting on ideas they implement in and out of the classroom and determining how to make them better for the future.

According to Erb and Doda (1989), teaming can transform the operations of schools for teachers and students by facilitating communication and collaboration and creating reform by fostering collegial relationships, which changes instruction and professional dynamics. The school in this study created team leader positions in order to help the team members form a team and gel together for the benefit of the students and their professional growth. This study supports this research and continues to look to improve group dynamics in order to have successful outcomes.

Limitations of the Study

Limitations exist in this study. Qualitative data was collected from only one Essential Elements: Schools-to-Watch middle school in a suburban area in the northeastern United States. Further research should be conducted at other Essential Elements: Schools-to-Watch throughout the state of New York and in other areas across the United States. Therefore, these findings cannot be generalized to a larger population (Creswell & Poth, 2018).

Another limitation is convenience and purposeful sampling were used for this study. Since the researcher works in the district as a supervisor and had prior relationships with the teachers, this may have created a bias in the findings. This study also was very limited in the diversity of the demographics among the teacher and student populations. Therefore, this limitation could have created results that may not be seen in diverse communities.

An inherent limitation of case studies is having enough information to develop in-depth understanding of the case (Creswell & Poth, 2018). Due to the short nature of the study, only nine participants partook in the individual interview component of the study. Only one round of interviews and focus group discussions were conducted, and there were no follow-up sessions, due to the length of time of the study. In addition, there were only two observations of the team meetings: two for each grade. Attending more team meetings would have given a better picture of the team operations. Future research should spend more time at specific sites and get more detailed accounts from individuals and observe more team meetings. By lengthening the duration of the study, the researcher

would be able to assess and evaluate the change process as components of teaming change and evolve (ex. leaders, advisory, and meeting structure) throughout the year.

Recommendations for Future Practice

This study will allow instructional leaders to determine if the school's culture and structure are conducive to instituting change in interdisciplinary teaming and how groups of teachers function together for a common goal. Do these changes increase teacher efficacy (both personally and instructionally)? The higher the efficacy, the more likely it is to affect instruction in a positive manner, since teachers feel supported when they are given the opportunity to collaborate with each other. Administrators can use this information to determine if they need to change structures and/or culture in order to improve teacher practices and efficacy.

Another recommendation is for administrators to change from the traditional school setting to one with interdisciplinary teams. When changing the structure, common planning time and pure teaming of the teachers are important components to put at the forefront of decisions. Administrators would have to ensure a schedule includes a period during which all members of the team can be present for common planning. There should not be cross-teaming or teaching across grade levels. In addition, teachers' personalities and qualities should play a factor in creating the teams in order to help with group dynamics.

In the future, when schools make this shift to interdisciplinary teams, it is imperative the administrators take a very active role in supporting, maintaining, and enhancing teaming. They need to be knowledgeable and guide the teachers on the importance of interdisciplinary teaming and how to effectively structure meetings.

Administration needs to provide professional development specifically related to teaming to the teachers in order for them to continue the growth of the teams and model strategies and activities that can be performed during team meetings.

Another recommendation is for policy makers at the New York State Department of Education. If the state would eliminate statewide testing, educators would have more of a sense of ease in trying new ideas in the classroom because there would be a release of pressure associated with testing. It would shift the dynamics of the team by increasing teacher flexibility and allowing teachers to feel comfortable in developing creative cross-curriculum units in the forms of skills and projects.

Recommendations for Future Research

This study lends itself to additional studies. A researcher can perform a quantitative study by surveying teachers using the Teacher Efficacy Survey by Dembo and Gibson (1984) and analyzing the scores. Research can determine if there is a significant difference in teacher efficacy (personal and teaching) based on the number of years teaching. It would serve to see if more experience leads to higher teacher efficacy scores. This qualitative study could lend itself to another quantitative study to explore the impact on students by examining results seen in student work and behavior.

A researcher can also analyze if team practices significantly impact teacher practices and efficacy. Success of teams is not only measured by outcomes but by the processes used to complete them. Main (2012) identified three necessary processes: task, team, and relationships. Jones and Bearley (1994) found that effective team practices form when these three overlap and have interdependency between them. According to Main (2007), team effectiveness can be measured by teachers' positive feelings and

perceptions about colleagues and student outcomes. It would be beneficial to examine whether team effectiveness would have a positive effect on teacher practices and efficacy.

Middle schools are interesting in their composition as many of them include the elementary grade of sixth and secondary grades of seventh and eighth. This study focused only on the secondary grades. In the past, sixth grade was located in the elementary buildings, so those teachers were more adept at making cross-curricular connections because they taught all the subjects. Now, sixth grade has become departmentalized in the middle school. Therefore, future research can analyze and compare the impact of interdisciplinary teaming on teacher practices and efficacy between elementary and secondary teachers within a same building.

Future research should also explore and analyze interdisciplinary teaming and its effects and impact on teaching practices and efficacy in different schools across the state and country. Another direction for research within this topic would be to compare and contrast the perceptions of teachers on interdisciplinary teaming related to their practices and efficacy according to their experience and backgrounds.

Conclusion

This study and prior research are connected in various ways and support one another. The findings showed interdisciplinary teams impact teacher practices and efficacy. Factors that affect teacher perceptions of teaming are the design and structure of the program, including scheduling of common planning, conducting a team meeting in an efficient and effective manner, and belonging to the team to improve efficacy. Other factors include the culture of the building, administrative support, distributive leadership,

team collaboration, curricular connections, group dynamics, and professional development. Overall, interdisciplinary teaming in the middle school offers many avenues for educators to explore in order to improve teaming, teaching practices, and teacher efficacy.

Epilogue

The researcher values middle level best teaching practices and is always looking for ways to improve them in schools for students. From this study, the researcher found the importance of trust, culture, and group dynamics in a school among teachers and administrators and teachers with other teachers in effectively implementing interdisciplinary teams. The ability of teachers to work together and be flexible will determine the interdisciplinary work the group will be able to produce as a team in order to provide students with authentic cross-curriculum connections. The totality of learning for the students and belonging to a team are invaluable and provide teachers and students with efficacy and a sense of belonging. The researcher found numerous variables that affect and impact teaming structures and practices. The researcher believes these factors need to be continuously explored and adapted since the world is constantly changing and so is the way students learn and the way teachers must educate them.

APPENDIX A

IRB Certification of Completion

Certificate of Completion

ST. JOHN'S UNIVERSITY

fhi360
THE SCIENCE OF IMPROVING LIVES

THIS ACKNOWLEDGES THAT

Lisa DePaola

HAS SUCCESSFULLY COMPLETED
THE IRB COURSE IN THE PROTECTION OF HUMAN SUBJECTS

OCTOBER 27, 2020

APPENDIX B

Letter of Consent

You are invited to participate in a study on the effect and impact of interdisciplinary teaming on teaching practices in a middle school conducted by Lisa DePaola, a doctoral student, whose faculty sponsor is Dr. Anthony Annunziato at St. John's University. As part of this study, interviews will be conducted with 7th and 8th grade teachers and an administrator, focus groups will be conducted with 7th and 8th grade teachers, and observations will be held with 7th and 8th grade team meetings about perceptions about teaming.

If you agree to participate, you will be asked to participate in an interview and/or focus group, which will take place in Fall 2021/Spring 20221. The interviews and focus groups will consist of a series of short, open-ended questions and should take approximately 30 minutes. There will be two observations of team meetings that will take place in Fall 2021/Spring 2022. The interviews and focus group questions will pertain to demographics, teaching experience, and perceptions about group dynamics and teaming and its impact on teaching practices. All sessions (interviews, focus groups, and observations) will be face-to-face and audio recorded using a digital device. You may review these tapes and request that all or any portion of the tapes be destroyed. These sessions will adhere to the District's COVID protocols and CDC's guidelines for safe interaction during the pandemic.

There are no known risks associated with your participation in this research beyond those of everyday life. Although you will receive no direct benefits, this research may help the researcher understand interdisciplinary teaming and its impact on teaching practices better. Participation in this study is voluntary. You may refuse to participate or withdraw at any time. For interviews and/or focus group questions, you have the right to skip or not answer any questions you prefer not to answer. It will not affect anything related to your job.

Your responses and identity will be kept confidential. Your name and the name of the school, will be coded with labels; therefore, identifying names will not be included in any data analysis, transcriptions, or discussion of findings. This consent form is the only identifiable document, which will be stored separately from transcriptions and data analysis so that information cannot be linked to a specific person. It will be stored in the office of the Lisa DePaola and only available to her and Dr. Annunziato, her faculty sponsor. Your responses will be kept confidential by the researcher, but the researcher cannot guarantee that others in the group will do the same in the focus group sessions. If you are interested in the results, you may contact the researcher. Records will be maintained for three years, which is required by the University's Institutional Review Board (IRB)

If there is anything about the study or your participation that is unclear or that you do not understand, if you have questions or wish to report a research-related problem, you may contact

Lisa DePaola at 516-992-7461, lisa.depaola05@my.stjohns.edu or the faculty sponsor, Dr. Anthony Annunziato at annunzia@stjohns.edu. For questions about your rights as a research participant, you may contact the University's IRB, St. John's University, Dr. Raymond DiGiuseppe, Chair, digiuser@stjohns.edu, 718-990-1955 or Marie Nitopi, IRB Coordinator, nitopim@stjohns.edu, 718-990-1440.

I acknowledge that I have received a copy of this consent form and am willing to participate in this study.

_____ _____
Participant's Name - Printed Date

_____ _____
Participant's Signature Date

Lisa DePaola – Principal Investigator

_____ _____
Principal Investor's Signature Date

APPENDIX C

Individual Interview Protocol

1. How many years have you been teaching?
2. What subject(s) do you teach?
3. Where have you taught during your career? If applicable, how do the schools differ? How are they similar?
4. What is your experience like working on an interdisciplinary team?
5. If you worked in a school without teaming before, how is this different from that?
6. What are your perspectives on the essential components of interdisciplinary teams?
7. What are the relationships and roles that formed in the group?
8. What level of trust exists between you and your colleagues? You and your administrators?
9. How do you feel interdisciplinary teaming affects your teaching practices?
10. How do you feel interdisciplinary teaming affects your content area?
11. How do you feel interdisciplinary teaming might impact your students?
12. What do you feel is most challenging about working on an interdisciplinary team?
13. How does the design and structure of teaming impact your outcomes?
14. How do you feel about the leadership in your building? What is the relationship that exists with administration? To what extent, does administration empower teachers to make decisions?
15. What do you feel would enhance your teaming?

16. How has teaming impacted your depth of knowledge as an educator?
17. How is common planning time organized and used by the team?
18. What curriculum and assessment decisions are made by the team?
19. What are the outcomes of your team meetings?
20. How does interdisciplinary teaming affect student behavior, self-concept and achievement?
21. To what extent has teaming reduced the feeling of isolation among teachers and students?
22. To what extent has teaming affected the school climate?
23. To what extent are teachers involved in interdisciplinary teaming?
24. What efforts have been made to help teachers understand the importance and rationale behind interdisciplinary teaming?
25. What efforts are done to sustain, maintain, and enhance teaming?
26. What supports/professional development are available to you? What additional supports do you feel you need to be successful?

APPENDIX D

Focus Group Interview Protocol

1. What is the shared vision of the school?
2. What type of culture is fostered in your school?
3. To what extent has teaming affected the school climate?
4. What are your perspectives on the essential components of interdisciplinary teams?
5. How does the design and structure of teaming impact your outcomes?
6. How is common planning time organized and used by the team?
7. What curriculum and assessment decisions are made by the team?
8. What are the outcomes of your team meetings and how do they affect the school as a whole?
9. What are topics that are covered in your meetings?
10. How has teaming impacted your depth of knowledge as an educator?
11. What type of professional development is offered to you? Is any related to teaming? What supports do you feel you need as a team?
12. What do you feel the role of administration plays in your teaming? To what extent, does administration empower teachers to make decisions?
13. What type of impact does teaming have on social emotional and intellectual development of your students?
14. How does interdisciplinary teaming affect student behavior, self-concept and achievement?
15. To what extent has teaming reduced the feeling of isolation among teachers and

students?

16. To what extent are teachers involved in interdisciplinary teaming?
17. What efforts have been made to help teachers understand the importance and rationale behind interdisciplinary teaming?
18. What efforts are done to sustain, maintain, and enhance teaming?
19. What are the benefits of teaming?
20. What do you feel would enhance your teaming?

APPENDIX E

Administrator Interview Protocol

1. How many years have you been an administrator? What did you teach before being an administrator? Did you partake in interdisciplinary while being a teacher?
2. What components of your job are related to interdisciplinary teaming?
3. How do you create a schedule to support interdisciplinary teaming?
4. What type of support do you receive from the central administration?
5. What type of support do you receive from your assistant principals?
6. What is your level of involvement in team meetings?
7. How do you feel interdisciplinary teaming affects the teachers?
8. What are the challenges in the teams?
9. What are the group dynamics like in the 7th grade team?
10. What are the group dynamics like in the 8th grade team?
11. What roles do you see form in these teams?
12. How do you feel interdisciplinary teaming might impact the students?
13. What type of impact do you believe teaming have on social emotional well-being development of your students?
14. Do you feel that it impacts discipline issues?
15. What type of culture is fostered in your school?
16. What is the shared vision of your school?
17. What other elements besides scheduling in the school's structure might impact teaming?

18. What type of professional development is offered by administration? Is any related to teaming?
19. What is the level of trust that you feel you have with the teachers? With the other administrators?
20. What is your level of involvement in the curriculum and assessment decisions made by the team?
21. What do you feel would enhance your teaming in your school and your role in it?
22. How do you reflect with the team on their outcomes and how does this affect your building as a whole?
23. To what extent, do you empower your teachers with making decisions?
24. Is there anything else you would like to add to the topic of interdisciplinary teaming?

APPENDIX F

Team Meeting Observation Protocol

Meeting Areas	Notes
Structure of Meeting • Does meeting start on time? • Is there an agenda? • Is the agenda sent out ahead of time? • Is the agenda organized in priority order? • Did people prepare for the meeting? • Does the team follow shared norms? • How do they sit during the meeting?	
Group Dynamics **General Dynamics** • Are all team members engaged and participating? • Do team members ask each other about their areas? • Do people express differences of opinions? • Do people respect each other and act as colleagues? • Are there signs of trust? • Do they interact with each other? • What is the body language observed during the meeting? • Is the team focused on the goals of the meeting? • How does the group come to a consensus? • Are decisions and actions summarized at the end ofthe meeting?	

Leader Dynamics • Is there a leader in the group? • What are the actions of the leader? • How do the other members react to the leader?	

APPENDIX G

Document Analysis Protocol

Documents	Notes
• What type of document is present in the meeting? • Is the document related to the agenda? • What is the intent and purpose of the document? • Who prepared the document? • Did other people on the team prepare additional material? • What outcomes develop from the document? • Was there a reflection piece?	

APPENDIX H

List of Codes

1. **Administrative Support** – help for the teachers from administration
2. **Advisory** – a period of time twice a month where a small group of students meet with a specific teacher to work on team building, social emotional topics, and making connections with each other
3. **Belonging** – a feel of security, support, inclusion, acceptance, and identity for teachers and students
4. **Challenge** – an obstacle
5. **Change –** the action of altering how a program is implemented and executed by the school and teachers
6. **Collaboration** – teachers working together on a common goal
7. **Common planning** – the time when teachers are given to work together during the school day
8. **Conversations** – accountable talk discussions that teachers have together during common planning time relating to curriculum and students
9. **Culture** – the beliefs and values of a school that affects its operations
10. **Curriculum** – the set of standards in subjects that make-up a student's schedule
11. **Curriculum Connections** – learning becomes meaningful for students when teachers connect the different content and skills across all subjects
12. **Distributive Leadership** – the act in which the administration provides teachers the space and power to implement new initiatives and have leadership roles
13. **Empowerment** – the process of administrators allowing the teachers to have a sense of autonomy and confidence
14. **Flexibility** – teachers' willingness to adapt and change curriculum and/or practices
15. **Group Dynamics** – the ability for a team of teachers to work together and the relationships and stages they progress through to be effective and produce outcomes
16. **Interdisciplinary** – relating to more than one subject

17. **Professional Development** – training to develop and improve skills, approaches, and strategies
18. **Reflective** – the act of thinking about something deeply and determining the successes and areas of need and improvement
19. **Scheduling** – the process on how classes and other periods are arranged in a school
20. **Social Emotional –** a student's ability to express and manage emotions and to develop relationships
21. **Strategies** – teaching practices that are used to best meet the needs of students
22. **Students** – the children on the team in the school
23. **Teacher Support** – help for the teachers from teachers
24. **Team** – a group of teachers (math, science, social studies, ELA, and inclusion) who teach the same group of students
25. **Team Leader** – a person who creates the norms and agendas with input from the team and facilitates the common planning meetings
26. **Trust** – believe in the reliability, truth, and ability of someone
27. **Work** – time spent on planning for classes and team meeting

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Vita

Name	*Lisa DePaola*
Baccalaureate Degree	*Bachelor of Science*, *University of Florida, Gainesville* *Major: Business Administration, Finance*
Date Graduated	*August, 2003*
Other Degrees and Certificates	*Master of Science*, *University of Florida, Gainesville, Major: Exercise and Sports Sciences and Sports Management*
Date Graduated	*December, 2004*
	Master of Science, *St. John's University, Queens, Major: Education*
Date Graduated	*September, 2007*
	Advanced Graduate Certificate, Stony Brook University, Stony Brook, Educational Administration
Date Graduated	*August, 2011*