

Examining Teachers' Perceptions of Implementation Fidelity of a Multi-Tiered Systems  
of Support Framework in an Online Middle School Environment

by  
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of Support Framework in an Online Middle School Environment

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### **Abstract**

In the dynamic realm of virtual education, the successful execution of Multi-Tiered Systems of Support (MTSS) becomes essential for promoting student achievement. This study examines a particular aspect of this educational framework, explicitly investigating the teachers' perceptions of the fidelity of implementing an MTSS framework within an online middle school environment. MTSS is a significant advance in evidence-based practices for improving learning outcomes. However, most school districts find it challenging to maintain elevated levels of fidelity in the implementation of each framework element. Without following the implementation process, it is difficult to determine the main cause of poor academic achievement and performance. This undermines the effectiveness of the MTSS framework.

This mixed methods study aims to examine the teachers' perceptions of the fidelity of implementation of the elements of the MTSS framework within a cyber school. Examining teacher perceptions of fidelity of implementation can be a complex task, which is best measured through a mixed methods approach using Q-methodology. The study investigated the teachers' perceptions of which components, structures, processes, and practices facilitate and hinder the implementation of the MTSS framework.

This research has been conducted within a middle school of a cyber charter school in Pennsylvania that has been open since 2002. The concourse statements for this study are adapted from certain sections of the Pennsylvania MTSS Needs Assessment, a survey formulated by the Pennsylvania Training and Technical Assistance Network (PaTTAN). This tool was created to assist district teams in evaluating the processes and frameworks that either facilitate or impede the creation of a MTSS. In addition to the statements

within the Q-sort, an online survey was included which collected basic demographic data such as what grade level they currently teach, as well as their years of virtual teaching experience.

Participants fell into four distinct groups related to their perspectives on the fidelity of MTSS: *This is Why We Can't Have Nice Things*; *Long Live*; *Mastermind*; and *You're on Your Own Kid*. Those participants that were outliers and did not fit into a specific factor will be referred to as *Glitch*. Teachers believed that Teaming Structures and Shared Leadership had a more pronounced influence on implementing MTSS in a virtual environment than other processes and practices. Teachers reported the value in collaboration and consistent support from leaders to increase the effectiveness of the MTSS framework. These findings emphasize the importance of cultivating distributed leadership and robust collaboration to achieve high fidelity in the implementation of MTSS within virtual middle schools.

*Keywords:* Multitiered Systems of Support (MTSS), evidence-based practices, implementation science, teaming structures, virtual learning, cyber charter schools.

### **Dedication**

This dissertation is dedicated to the memory of my beloved husband, whose unwavering support and belief in my abilities helped lay the foundation for my journey through my graduate programs and my growth in educational leadership. Your love gave me the strength to live and fulfill my deepest aspirations in a world without you, and for that, I am eternally grateful.

To my five wonderful children, Ryan, Shannon, William, Brayden, and Delaney: this accomplishment is as much yours as it is mine. Your love, resilience, and inspiration have driven me to persevere. I want you to know that no matter what obstacles life throws your way, you have the strength and determination to achieve your goals. Never give up on your dreams.

Finally, my deepest appreciation to Dr. Karen Larwin for her continuous support, helping me grow my research skills, and guiding me through the completion of this dissertation. Additionally, I am very grateful for the support of my committee, Dr. Lauren Cummins and Dr. Matthew Erickson Your dedication to my success has been truly instrumental.

**Table of Contents**

Signature Page	ii
Abstract	iii
Dedication	iv
Table of Contents	v
List of Tables	vi
List of Figures	vii
Chapter One: Introduction	1
Chapter Two: Literature Review	21
Chapter Three: Methodology	67
Chapter Four: Results	80
Chapter Five: Discussion	108
References	123
Appendices	146

### List of Tables

<b>Table</b>	<b>Page</b>
Table 1. Proposed Concourse Statements	72
Table 2. Crosstabulation of Virtual Teaching and Experience and Current Grade Level	81
Table 3. Teachers' Perceptions of Which Element is Implemented with the Highest Level of Fidelity	82
Table 4. Teachers' Perceptions of Which Element is Implemented with the Lowest Level of Fidelity	83
Table 5. Correlation Between Factor Scores	84
Table 6. Crosstabulation of Current Grade Level and Factors	85
Table 7. Crosstabulation of Years of Virtual Teaching Experience and Factors	85
Table 8. Factor Characteristics	86
Table 9. Eigenvalues	87
Table 10. Factor Matrix with an X Indicating a Defining Sort	88
Table 11. Distinguishing Statement for <i>This is Why We Can't Have Nice Things</i>	92
Table 12. Distinguishing Statements for <i>Long Live</i>	96
Table 13. <i>Distinguishing Statements for Mastermind</i>	100
Table 14. <i>Distinguishing Statements for You're on Your Own Kid</i>	104

**List of Figures**

<b>Figure</b>	<b>Page</b>
Figure 1. Implementation Stages	24
Figure 2. Implementation Drivers of Practice Change	26
Figure 3. The MTSS Framework	46
Figure 4. MTSS Academic and Behavior Triangle of Tiers	54
Figure 5. Teams Initiated Problem-Solving	60
Figure 6. Q-sort Distribution Framework	76
Figure 7. Model Sort for Teachers Who Loaded Significantly on Factor 1: <i>This is Why We Can't Have Nice Things</i>	91
Figure 8. Model Sort for Teachers Who Loaded Significantly on Factor 2: <i>Long Live</i>	95
Figure 9 Model Sort for Teachers Who Loaded Significantly on Factor 3: <i>Mastermind</i>	99
Figure 10. Model Sort for Teachers Who Loaded Significantly on Factor 4: <i>You're on Your Own Kid</i>	103



## **Chapter I**

### **Introduction**

In the dynamic realm of virtual education, the successful execution of Multi-Tiered Systems of Support (MTSS) becomes essential for promoting student achievement. This study examines a particular aspect of this educational framework, explicitly investigating the teachers' perceptions of the fidelity of implementing an MTSS framework within an online middle school environment. Multi-tiered frameworks, such as Response-to-Intervention (RTI) and Positive Behavioral Intervention Supports (PBIS), have been recognized as potentially valuable frameworks for addressing student needs and enhancing student results (Freeman et al., 2016). Implementing these frameworks in schools nationwide is established as part of school improvement efforts and in response to reauthorizing the Individuals with Disabilities Education Improvement Act of 2004 and Every Student Succeeds Act (ESSA) of 2015. These frameworks are grounded in prevention science, implementation research, and emphasize a tiered continuum of interventions (Hollingsworth, 2019).

MTSS refers to a comprehensive framework that utilizes evidence-based practices, structures, and processes to address all learners' behavioral, social and emotional, mental health, and academic needs (Active Implementation Research Network [AIRN], 2024; Durrance, 2023). It serves as the foundation for a schoolwide support model to enhance outcomes for all learners. The framework encompasses evidence-based strategies, data to support decision-making and analysis, effective leadership, teamwork, professional development, and communication systems and structures (Durrance, 2023). An MTSS framework is most effective when implemented with fidelity (Scott et al.,

2019). Effective and tenable implementation of MTSS routines happen through staff capabilities and system capacity development for district reform (Eagle et al., 2015). Additionally, to enhance the efficacy of educators, it is crucial to consistently focus on selecting appropriate practices, ensure the proper implementation of practices, and progress monitor practices. This diligence is essential when considering broader attempts to change the school system (Freeman et al., 2016). When implemented with fidelity, the framework supports academics and behavior through data-based decision-making, universal screening, evidence-based strategies and interventions at multiple tiers, and ongoing progress monitoring to inform the decisions within each tier; therefore, resulting in higher academic achievement (Eagle et al., 2015).

An essential duty of a school leader is to ensure the successful graduation of all students from high school and equip students with the necessary skills to make meaningful contributions to society. Students in the 21st century encounter numerous academic, social, and emotional hurdles from sources inside and outside the school environment (Garbacz et al., 2016). Schools must acknowledge and tackle these difficulties. School administrators persistently strive to identify practical approaches to address the requirements of an ever-changing student demographic. In the rapidly evolving landscape of virtual education, the effective implementation of an MTSS framework becomes crucial for fostering student success.

This mixed methods study examines the teachers' perceptions of the implementation fidelity of the MTSS framework within an online learning environment at the middle school level. It aims to uncover strategies to improve the implementation of support systems and ultimately lead to better educational outcomes for all learners in

cyber charter schools. As a virtual school leader facilitating the implementation of MTSS, this research is essential to better address the challenges and obstacles middle school teachers must overcome while implementing MTSS in a virtual environment to ensure all students can achieve successful outcomes in middle school, high school, and beyond. Virtual school leaders need to understand the level of fidelity through which the teachers perceive they have implemented an MTSS framework to identify and eradicate barriers and needs. It is essential to understand the teachers' beliefs of how and what elements of MTSS impact the implementation fidelity of an MTSS framework to better support all learners and staff.

As an educator with 18 years of virtual experience, who is currently serving as a cyber school's district leader of MTSS, one can examine the mixed methods study from an epistemological standpoint to gain insight into the obstacles that hinder implementation in the middle school virtual setting, the requirements for effective implementation, and pedagogical development. Thus, researchers who employ epistemological assumptions demonstrate subjectivity in their comprehension of their worldview and the corresponding reality. Furthermore, the main epistemological assumption of the researcher is that diverse meanings were attributed to one's worldview, influenced by their experiences in communication and interactions with the world (Titchen et al., 2017). This approach will help shed light on the requirements for pedagogical improvement, successful implementation, and any obstacles hindering the delivery of interventions in middle school virtual setting. Consequently, researchers who employed epistemological assumptions possessed subjective interpretations of their

worldview, shaping their perception of reality. Having substantial training and experience has allowed for the development of strong skills necessary to conduct the designed study.

Research has shown that an MTSS framework implemented with high fidelity levels within all aspects of a school is the most effective way to help all learners achieve positive outcomes (Eagle et al., 2015). More in-depth research is needed to determine how to improve implementation in cyber schools to support the diverse needs of the teachers and the many high-risk students they serve. While current research shows that strengthening universal support and improving school culture can address some of these issues, further research is needed to explore the implementation of MTSS in the online setting. Investigating the teachers' perceptions of how the elements and processes of MTSS influence implementation fidelity will allow school leaders to adjust current strategies to strengthen their framework. Virtual school leaders would benefit from examining the effects of specialized professional development programs that specifically target the difficulties encountered while adopting MTSS in virtual schools. Finally, cyber schools would benefit from a longitudinal study that tracks the long-term effects of MTSS implementation in virtual environments and how sustained adherence to the framework influences academic performance, socio-emotional development, and overall student success over time. Addressing these research areas will refine educational leaders' knowledge of MTSS implementation in online middle schools while offering practical insights and strategies to improve fidelity and maximize the positive impact on student learning experiences. For the future of cyber charter schools, more research is required to implement a robust MTSS framework with true fidelity throughout a cyber school system.

**Statement of the Problem**

The implementation of comprehensive changes at the school and district level is frequently hindered by various challenges, such as conflicting or disjointed initiatives, limited resources, absence of effective leadership, inadequate training and guidance, mismatch between practices and requirements, and insufficient tailored support for schools, teachers, and students (Fixsen et al., 2013; Tawfik et al., 2021). MTSS has emerged as the primary paradigm, highlighting a hierarchical continuum of evidence-based strategies in preventative science and implementation research (Clayton, 2023). The framework aims to enhance academic and behavioral results for all students and emphasizes the significance of adhering to implementation standards and developing leadership capabilities (Horner et al., 2014). The effective execution of MTSS is just as crucial as the strategies and techniques employed within the framework. Regrettably, it is common for school staff to perceive MTSS as an additional burden, even though, when implemented efficiently and with proactive support for students, it can minimize the efforts required later to address problems like academic failures, learning delays, and social and behavioral issues (Clayton, 2023).

**MTSS Implementation with Fidelity**

MTSS is a significant advance in evidence-based practices for improving learning outcomes. However, maintaining high levels of fidelity of implementation of each framework element is difficult for most districts to achieve (Nelson et al., 2015). In the absence of adherence to the implementation process it becomes impossible to identify the root cause for low academic achievement and performance; therefore, compromising the efficacy of the MTSS framework (Balu et al., 2015; DeFazio et al., 2011; Mellard &

Johnson, 2008; Nelson et al., 2015). The nationwide implementation of the MTSS framework has resulted in many instances of implementation needing to be best followed by districts and states (Arden et al., 2017; Balu et al., 2015).

Effective implementation of MTSS requires a thorough approach to initiatives through strategic planning involving all critical stakeholders and adopting an evidence-based implementation strategy (Bohanon et al., 2016; Gibbs, 2011; Von der Embse et al., 2022). Organizational transformation must be guided by the meticulous application of implementation science principles (Castillo & Curtis, 2014). Implementation science is an area that focuses on the use of evidence-based practices with accuracy and long-term viability. It is utilized as the framework to analyze the elements that facilitate the implementation and sustainability of MTSS (Bohanon et al., 2016; Christopoulos & Redmond, 2023).

Thorough evaluations of MTSS have identified challenges in its implementation and highlighted differences between study findings and practical application (Balu et al., 2015; Hill et al., 2012; Ruffini et al., 2016). A nationwide MTSS examination revealed challenges in screening and intervention protocols (Balu et al., 2015; Christopoulos & Redmond, 2023; Hagermoser Sanetti & Collier-Meek, 2019; Ruffini et al., 2016). Due to these implementation challenges, more children qualified for more extensive intervention than may have been required, resulting in students receiving excessive remedial teaching and insufficient access to instruction at their grade level (Balu et al., 2015; Hagermoser Sanetti & Collier-Meek, 2019). Consequently, the school's resources were allocated towards delivering intensive instruction to a significant number of students instead of being utilized more efficiently to enhance fundamental teaching methods and only

offering intensive intervention to the students who are most likely to fail academically (Fuchs & Fuchs, 2017; Hagermoser Sanetti & Collier-Meek, 2019). These studies indicate that educators are inconsistently applying evidence-based interventions, but MTSS teams are unaware due to a lack of intervention fidelity data (Hagermoser Sanetti & Collier-Meek, 2019). Consequently, MTSS teams rely exclusively on student outcome data, instructors lack continuing support, and students lack necessary interventions to achieve their learning goals (Hagermoser Sanetti & Collier-Meek, 2019).

The study of the Milwaukee Public Schools implementation of MTSS implementation revealed that 47% of schools needed to execute MTSS sufficiently, 49% did not effectively implement evaluation, and 69% needed to implement multi-tiered instruction adequately (Hagermoser Sanetti & Collier-Meek, 2019, p. 205; Ruffini et al., 2016). The empirical research findings further emphasize the difficulties associated with deploying MTSS. Merely 14% of participants in a comprehensive study of school psychologists said that their MTSS problem-solving teams consistently evaluate intervention fidelity on a regular basis (Cochrane et al., 2019; Hagermoser Sanetti & Collier-Meek, 2019).

Additionally, research has demonstrated that interventions not consistently implemented according to their intended design can negatively impact students' academic performance (Balu et al., 2015; Clayton, 2023; DeFazio et al., 2011). If classrooms within a grade level or a school are adopting assistance in diverse ways it undermines the fidelity and effectiveness of the framework (Clayton, 2023). Fidelity can be compromised due to various factors; however, it is primarily caused by staff turnover, insufficient staff commitment, inadequate professional growth and monitoring, or a misunderstanding of

the core principles of MTSS. The importance of implementation for the success of MTSS is evident, but it is also one of the most significant problems of MTSS (Fuchs & Fuchs, 2017; Gersten et al., 2017; Hagermoser Sanetti & Collier-Meek, 2019; VanDerHeyden et al., 2007).

### ***MTSS at the Secondary Level***

Implementing the MTSS framework at the secondary level presents several challenges including scheduling, staffing, selecting age-appropriate evidence-based interventions, and promoting a collaborative team approach (Castro-Villarreal et al., 2014; Christopoulos & Redmond, 2023; Thomas et al., 2020). Since the beginning of the RTI movement and its evolution into the MTSS paradigm, numerous middle-level schools have encountered substantial organizational and systemic obstacles that hinder their capacity to implement the MTSS framework effectively (Hollingsworth, 2019).

The inadequate execution of a well-defined, intentional, and concentrated multi-tiered intervention strategy in most middle-level schools has consistently let down their learners, who face the highest level of risks (Cook et al., 2015; Scott et al., 2019). Several factors contribute to this ineffectiveness, including incongruent and inefficient systems, limited staffing resources, inadequate professional development related to the MTSS process, and the diverse needs of middle-level learners (Bouck & Cosby, 2019; Hollingsworth, 2019; Nagro et al., 2019; Scott et al., 2019). Teachers identify barriers to implementing MTSS, such as insufficient training and limited time and resources in both elementary and secondary schools (Castro-Villarreal et al., 2014; Sansosti et al., 2011; Thomas et al., 2020). Isbell's (2015) research on secondary teachers revealed that despite multiple years of implementing MTSS, the utilization levels remained consistently low.



Through interviews and surveys, researchers have concluded that a probable cause for this issue is the absence of deliberate and meaningful communication between teachers and administrators (Thomas et al., 2020).

Due to these difficulties, numerous middle schools struggle in implementing MTSS (Dulaney et al., 2013; Hollingsworth, 2019). This misconduct results in staff and administrators tolerating repeated behavior violations as usual and adopting an indifferent attitude toward students facing difficulties (Dulaney et al., 2013; Hollingsworth, 2019). Many faculty members argue that the systemic issues are too extensive to make a significant difference in individual cases (Hollingsworth, 2019).

### ***Cyber School Students***

Ahn and McEachin (2017) found that students attend cyber schools for many reasons. Studies have found that most students attending cyber schools enter the school performing lower than their peers in traditional public schools (Ahn & McEachin, 2017; Murphey & Sacks, 2019). Many families attend cyber schools after their student has failed or had negative experiences attending traditional brick-and-mortar schools (Murphey & Sacks, 2019). They are also more likely to qualify for the federal free and reduced-price lunch program and are less likely to embrace enrichment opportunities (Ahn & McEachin, 2017). Because of the higher incidence of exposure to undesirable conditions, children in poverty are shown to be at a higher risk of having emotional and behavioral disorders than their more affluent classmates (Murphey & Sacks, 2019).

Woodworth et al. (2015) found that cyber schools have lower academic achievement growth levels than charter and traditional public in-person schools; however, studies have found that this disparity cannot be attributed to virtual testing conditions

(Beck et al., 2019; Kingsbury et al., 2020). Some research indicates that the lower performance of cyber charter schools may be because students who struggle in traditional classroom settings are more likely to choose online schooling. In 2019, only 48.5% of cyber charter schools in the United States earned an acceptable rating from their state authorities. That same year, only 50.1% of cyber charters met the criteria for on-time graduation rates (Woodworth et al., 2015). Molnar et al. (2019) reported that in Ohio, cyber charter school students have weaker academic growth in reading and math than the average traditional brick-and-mortar student. This gap translates to 47 fewer days of learning in reading and 136 fewer days of engaging in mathematics instruction. The evidence throughout the research was clear that students choosing to attend cyber charter schools were performing significantly lower than their traditional brick-and-mortar peers (Molnar et al., 2019).

### **Purpose of the Study**

When striving to implement MTSS as a mutually collaborative effort involving faculty and administration it is essential to consider teachers' perspectives (Castro-Villarreal et al., 2014; Cook et al., 2015; Stuart et al., 2011). Additionally, it is critical to analyze teachers' attitudes, beliefs, perceptions, and challenges surrounding MTSS to determine the proper actions, ensure adherence, identify obstacles, determine interventions, and assess the overall sustainability of the framework (Castro-Villarreal et al., 2014; Christopulos & Redmond, 2023). General education teachers play a pivotal role within the MTSS framework. Teachers are frequently responsible for carrying out small group and individual interventions amidst the challenging circumstances of rising student-teacher ratios and because of the substantial number of students receiving special

education services (Kratochwill et al., 2013). Furthermore, educators use interventions because of high stakes testing and the requirements imposed by federal and state regulations (Kratochwill et al., 2013). Examining teachers' perceptions of the processes, components, structures, and practices within the elements of the MTSS framework will identify strengths and gaps in teacher self-efficacy, which may influence implementation fidelity.

This mixed methods study aims to examine the teachers' perceptions of the fidelity of implementation of the systemic elements of the MTSS framework within a cyber school. The study will also investigate the teachers' perceptions of which elements facilitate the implementation of the MTSS framework. In addition, the study will explore the teachers' perceptions of barriers they encounter in implementing the framework with high levels of fidelity. Finally, the study will examine the teachers' perceptions of which elements are currently implemented with highest levels of fidelity in their online school.

### **Primary Research Questions**

The research questions posed in this investigation are essential because of the need to address the challenges and obstacles online middle school teachers must overcome while teaching students in a virtual environment. Most peer-reviewed studies focus on the importance of implementation fidelity within brick-and-mortar school support (Bouck & Cosby, 2019; Dulaney et al., 2013; Hollingsworth, 2019; Nagro et al., 2019; Scott et al., 2019). However, meeting the diverse needs of students in an online environment encompasses unique challenges in the logistical structures of being virtual and because of the diversity of the student population. It is essential to understand the level of fidelity through which the teachers perceive they have implemented an MTSS

framework within their online school. It is also essential to understand the teachers' beliefs of how and what elements impact the implementation fidelity of an MTSS framework in a virtual environment. Therefore, the primary research questions are as follows:

1. What systemic elements do the teachers perceive to facilitate the implementation of MTSS?
2. What systemic barriers do teachers perceive hinder the implementation of MTSS?
3. How do teachers perceive the fidelity of implementing the elements of the MTSS framework?

### **Research Methodology**

Examining teacher perceptions of fidelity of implementation within a virtual middle school environment can be a complex task best measured through a mixed methods approach using Q-methodology. Mixed methods research is a method of investigation that blends qualitative and quantitative methodologies. It encompasses underlying philosophical beliefs, employs qualitative and quantitative techniques, and integrates these approaches within a study (Creswell & Plano, 2018). Q-methodology is a distinctive approach that combines qualitative and quantitative research methods to systematically examine subjectivity in relation to a specific issue of interest (Valenta & Ulrike, 1997). Additionally, Q-methodology is a research approach that aims to comprehend individuals' perceptions and thoughts on specific concepts. It involves identifying patterns in their responses (Brown, 1980; Cross, 2005; Watts & Stenner, 2012). Q-sorts can elicit a range of opinions on a topic in a non-confrontational manner

due to the pre-existing Q-set provided to participants. Participants must exclusively arrange the statements rather than create their original statements (Zabala et al., 2018).

### **Research Design**

This research has been conducted within a middle school of a cyber charter school in Pennsylvania that has been open since 2002. The school serves approximately 5,000 students in grades K-12. An important distinguished aspect of the school is the requirement of most students to attend daily live synchronous classes, which follow a typical bell schedule as often seen in a traditional brick and mortar school. Less than 5% of the approximate 1,200 students enrolled in the middle school follow an asynchronous learning schedule. This learning track is available upon request and requires administration approval. Only those students who have been with the school for one full semester and have demonstrated academic success or those who have a documented medical condition that warrants a high level of learning flexibility are approved for an asynchronous learning track.

The target population was the middle school general education teachers currently teaching in a cyber charter school in Pennsylvania. First, the researcher employed purposive sampling to guarantee a representative sample of individuals. Q-methodology necessitates the involvement of people who possess robust perspectives regarding the subject under investigation (Watts & Stenner, 2012). Primary demographic data was collected to ensure a diverse population. All participants had been teaching or working in the middle school for at least one year, while most of the teachers had been teaching or working for the cyber school for more than five years and all have earned at least a Level I Pennsylvania certification. This investigation was conducted in the late spring;

therefore, participants had an opportunity to engage in an additional year of implementing the MTSS framework with more coaching and improved systems-level structures to increase collaboration and overall fidelity of systems within the MTSS framework.

Prospective participants received invitations to participate in the study via electronic communication, which ensured that they were not subjected to undue pressure to join. The invitation also encompassed a declaration regarding the voluntary aspect of participating in the study, and the researcher notified participants that they had the option to discontinue and retract their involvement at any point. The email contained a comprehensive study overview and a hyperlink to access the Q-sort. The Q-sort process was analyzed using *Q Method Software*, a computer-based web tool. The *Q Method Software* enabled participants to perform the Q-sort from anywhere conveniently. This link guaranteed anonymity by assigning each participant a distinct alphanumeric identification code. Names or identifying information was never entered into the *Q Method Software* application at any stage. The participants utilized this online tool to engage in the Q-sort and complete three open-ended follow-up questions. Due to the automated nature of the *Q Method Software*, the recording of participants' answers eliminated any possibility of human error in data collection from the Q-sorts.

Furthermore, data from each participant was promptly examined upon completion. The Q-sort was examined based on the criteria established by Watts and Stenner (2012). Additionally, an in-depth data analysis identified patterns and subcategories using a comprehensive approach that considers the data. The analysis primarily examined the collective opinions rather than the individual viewpoints of each

participant (Watts & Stenner, 2012). The open-ended answer responses were examined and compared with the Q-Sort results to better understand the specific components, structures, processes, and practices that influence implementation fidelity. Additionally, an open coding approach categorized the data into topics and categories. The study further developed categories and subcategories, as the data was consistently compared to verify their proper content representation (Patton, 2015).

### **Significance of the Study**

The federal and state governments developed guidelines for MTSS. Nevertheless, the governments have granted leeway in the execution of the framework by allowing district administrators to determine how to fulfill the MTSS requirements for their schools. District administrators must determine how to fulfill the MTSS requirements for their schools. The widespread adoption of several MTSS models in school districts has led to discrepancies between research and implementation practices (Barton et al., 2020). While numerous studies have investigated the implementation science of the MTSS framework, these studies have focused on brick-and-mortar schools. Given the vast differences in environment, instruction, curriculum, population, and behaviors between virtual and in-person traditional schooling, MTSS implementation in a virtual school has unique challenges.

Due to the recent surge in enrollment in cyber charter schools there is a significant need for more research on the precise implementation of MTSS in a virtual school environment. An analysis of data from the National Center for Educational Statistics shows that there were entirely virtual charter schools in operation in 27 states during the 2019-20 academic year, an increase from 20 states in 2013-14 (Children First, 2022). The

number of students enrolled at Pennsylvania's 14 cyber charter schools rose by 22,618 between the 2019-20 and 2020-21 academic years, representing a nearly 60% surge from 38,266 students in 2019-20 to 60,884 students in 2020-21 (Lapp & Eddins, 2022). Prior research has demonstrated that cyber schools exhibit lower academic performance levels than charter and traditional public in-person schools (Woodworth et al., 2015). These students, who need in-person support, may find it challenging to receive the necessary assistance in virtual schools (Ahn & McEachin, 2017).

Understanding teachers' perceptions regarding MTSS implementation fidelity in a virtual setting may prove relevant to many cyber schools or programs operating nationwide. Identifying which elements facilitate or hinder the levels of implementation fidelity within a virtual environment will benefit all virtual educators and leaders. Prior studies have identified various obstacles in the implementation of MTSS in traditional educational settings. These studies have found that barriers include insufficient training (Braun et al., 2020), absence of collaborative practices across the entire school (Dillard, 2017), resistance from staff members, and inadequate school leadership (Mason et al., 2019). This study has the potential to contribute to existing research by offering a comprehensive insight into the practices of middle school teachers implementing MTSS in a virtual environment. Finally, this research may also contribute to future research in better understanding the best practices in implementing MTSS at the secondary level in any educational model.

### **Assumptions Limitations and Scope**

This study employs a mixed methods approach to investigate the teachers' perspectives on how well the various elements, structures, procedures, and practices of



the MTSS framework are being implemented in a virtual school. The presence of social desirability effects can introduce bias in survey designs (Cross, 2005). Thus, Q-methodology has been identified as a superior approach for comprehending these perspectives (Watts & Stenner, 2012).

Q-methodology operates under the assumption that participants are sincere in their sorting of the concourse statements. Although Q-methodology helps to decrease social desirability responding, it is not possible to eliminate bias from a participant's answer pattern. Q-methodology is based on the subjective opinions and viewpoints of participants. The understanding of statements and factors that impact the execution of MTSS may differ depending on individual viewpoints, which could potentially introduce bias into the findings. Rather than proving causality, the Q-method is better suited for examining viewpoints and trends. The research findings may not offer a precise comprehension of the cause-and-effect connections between specific elements or components and the successful implementation of MTSS in a cyber school setting.

The concourse statements were derived from portions of the Pennsylvania MTSS Needs Assessment, a survey developed by PaTTAN (PaTTAN, 2019). PaTTAN created the survey using the National Implementation Research Network implementation science research and earlier years of work through a partnership between PaTTAN and the Leadership and Organizational Change for Implementation (PaTTAN, 2019). This instrument was designed to help district teams assess the procedures and structures that support or hinder multi-tiered support system development.

The primary objective of Q-methodology is to examine and classify the diverse range of viewpoints on a particular subject in a specific environment without aiming to

generalize the results to a broader population (Watts & Stenner, 2012). Therefore, this study's findings should not be interpreted as representative of other larger populations.

### **Definition of Terms**

To understand the teachers' perspectives of the components, elements, and structures that influence the implementation of MTSS in a virtual environment it is important operationally define Evidence Based Practices, Fidelity, Implementation, and MTSS.

*Evidence-based practice (EBP)* - a program, practice, or intervention that has been validated via rigorous research and scientific investigations, demonstrating its positive impact on measurable outcomes (Ebbale, 2007). The evidence-based practices (EBPs) of the MTSS consist of universal screening, progress monitoring, and data-driven decision-making focused on enhancing instruction and facilitating the migration of students across different levels of support, often organized into three tiers (Minnesota Department of Education, 2015).

*Fidelity* - the extent to which the essential components of an evidence-based practice (EBP) or program are executed as intended, with the aim of producing the desired outcomes in an educational setting (Harn, et al., 2011; Kelly & Perkins, 2012).

*Implementation* - the incremental process of applying scientific knowledge to practical use, with a specific emphasis on producing tangible outcomes that positively impact stakeholders. Through comprehending and quantifying the degree to which an intervention has been executed faithfully, researchers and practitioners can acquire a more comprehensive comprehension of the

mechanisms and reasons behind the effectiveness of the intervention, as well as the potential for enhancing results (Carroll et al., 2007). Within the field of educational research there is a consensus on four overarching stages of implementation: exploration, installation, implementation, and sustainability (Barton et al., 2020; Blase, et al., 2015; Fixsen, et al., 2009).

*Multi-Tiered Systems of Support (MTSS)* - a comprehensive preventive framework aimed at improving the outcomes of all students, including those with disabilities or at risk of developing disabilities (Coyne et al., 2016; PaTTAN, 2019). MTSS frameworks encompass a thorough screening and assessment system, ongoing data-driven decision-making, the adoption and execution of evidence-based instruction, interventions, and support, the implementation of progressively more intensive levels of three-tiered instructional support, and leadership that is based on teamwork (Eagle et al., 2015; Hollingsworth, 2019). Implementing systems-level approaches, such as MTSS, necessitates a substantial allocation of resources (Coyne et al., 2016; Garbacz et al., 2016). Although demanding in terms of both personnel and time, MTSS frameworks can assist schools in guaranteeing equal access to excellent instruction for all students.

### **Summary**

MTSS is a school-wide system that supports students at all achievement levels. It was established by federal officials in response to public demand for an enhanced instructional system (Freeman et al., 2016). MTSS tiers students' supports into three tiers based off of their level of risks, offering a framework for ongoing improvement that aims to create favorable learning experiences for all individuals (Braun et al., 2020).

Furthermore, MTSS supports schools and educational institutions in organizing resources by aligning them responsively and monitoring students' adherence to curriculum standards and behavioral expectations. The effective implementation of system level change is often impeded by a range of obstacles, including contradictory or disconnected initiatives, scarce resources, lack of competent leadership, inadequate training and guidance, disparity between practices and requirements, and insufficient personalized assistance for schools, teachers, and students (Fixsen et al., 2013). Implementing MTSS in a virtual school presents challenges due to the significant disparities in setting, instruction, curriculum, population, and behaviors compared to traditional in-person schooling. Given the recent increase in enrollment in cyber charter schools there is a notable necessity for further investigation into the exact execution of MTSS in a virtual school setting.

Analyzing how teachers perceive the degree to which a virtual middle school environment adheres to the intended implementation of MTSS can be difficult. Further, analyzing which elements of MTSS facilitate implementation and which elements serve as barriers can be a challenging undertaking. The most effective way to measure the perceptions of the influence these elements have on implementation fidelity is by employing a mixed methods approach that incorporates Q-methodology. Comprehending the views of educators regarding the faithfulness of MTSS implementation in an online environment could be pertinent to numerous cyber schools or initiatives that function across the country. Identifying the factors that either support or impede the degree of adherence to implementation in a virtual setting will be advantageous for all virtual educators and leaders.

## Chapter II

### Literature Review

Exploring teachers' perceptions of which components, structures, processes, or practices influence the fidelity of implementing a MTSS framework in an online environment is necessary to ensure an implementation of an effective framework. Enabling significant and tenable change at a systems level with MTSS is complicated (Eagle et al., 2015). A comprehensive understanding of the elements and science of implementation that comprise the MTSS evidence-based framework is necessary for this research (Eagle et al., 2015; Fixsen et al., 2013). Awareness of systems theory will also improve the link between faithfully implementing each MTSS component and its general effect on the framework (AIRN, 2024).

Additionally, understanding the structure, barriers, and challenges involved in supporting students to achieve positive outcomes in cyber schools is necessary to grasp how an MTSS framework may effectively meet the needs of these learners. Sustainable implementation will be facilitated by acknowledging the development of MTSS as the recommended framework for enhancing academic achievements across all students. Appreciating the complex dynamics of an MTSS framework requires a thorough understanding of each element's critical role. These elements include shared leadership, high-quality standards-aligned core instruction and support at the Tier 1 level, universal screening, professional development, team problem solving, data-based decision making, tiered models of academic and behavior support (PBIS and RTI), and finally, robust partnership between schools and families. To establish and maintain these elements within MTSS, one must thoroughly understand effective implementation strategies.

### **Conceptual Framework**

This study employed the concept of implementation science as a framework. Implementation science studies the elements that influence the successful integration of evidence-based programs into practice while ensuring accuracy and sustainability (Nelson et al., 2015). This conceptual framework was chosen for its pragmatic approach to practically applying the research findings. Implementing evidence-based programs and practices is frequently accompanied by an emphasis on the intervention rather than meticulous, detailed planning and deliberation of the implementation process (Dillard, 2017; Sailor et al., 2021). The absence of fidelity in implementation prevents numerous evidence-based programs from yielding the desired student outcomes (Dillard, 2017; Kelly & Perkins, 2012). Implementation science aims to methodically improve the implementation of evidence-based practices with fidelity (Fixsen et al., 2013). Applying effective implementation strategies offers efficient methods to promote the dissemination of innovative ideas and the adoption of evidence-based practices (Nelson et al., 2015). Implementation science examines the elements that impact the complete and efficient utilization of new practices (Fixsen et al., 2013).

Implementing an MTSS framework is a multifaceted undertaking that needs meticulous planning and frequently entails organizational modifications at the school and district levels (Durrance, 2023). Successful and comprehensive implementation of an MTSS framework is crucial for its effectiveness in its influence on universal and student-level outcomes (Balu et al., 2015; Coyne et al., 2016; Lane et al., 2016). Furthermore, districts implementing MTSS must invest time and effort by carefully examining their current system's strengths and needs before installation begins (Fixsen et al., 2005;

Freeman et al., 2016 This exploration phase profoundly impacts any research-based practices' installation, implementation, and sustainability (Fixsen et al., 2009; Freeman et al., 2016).

### ***Implementation Science***

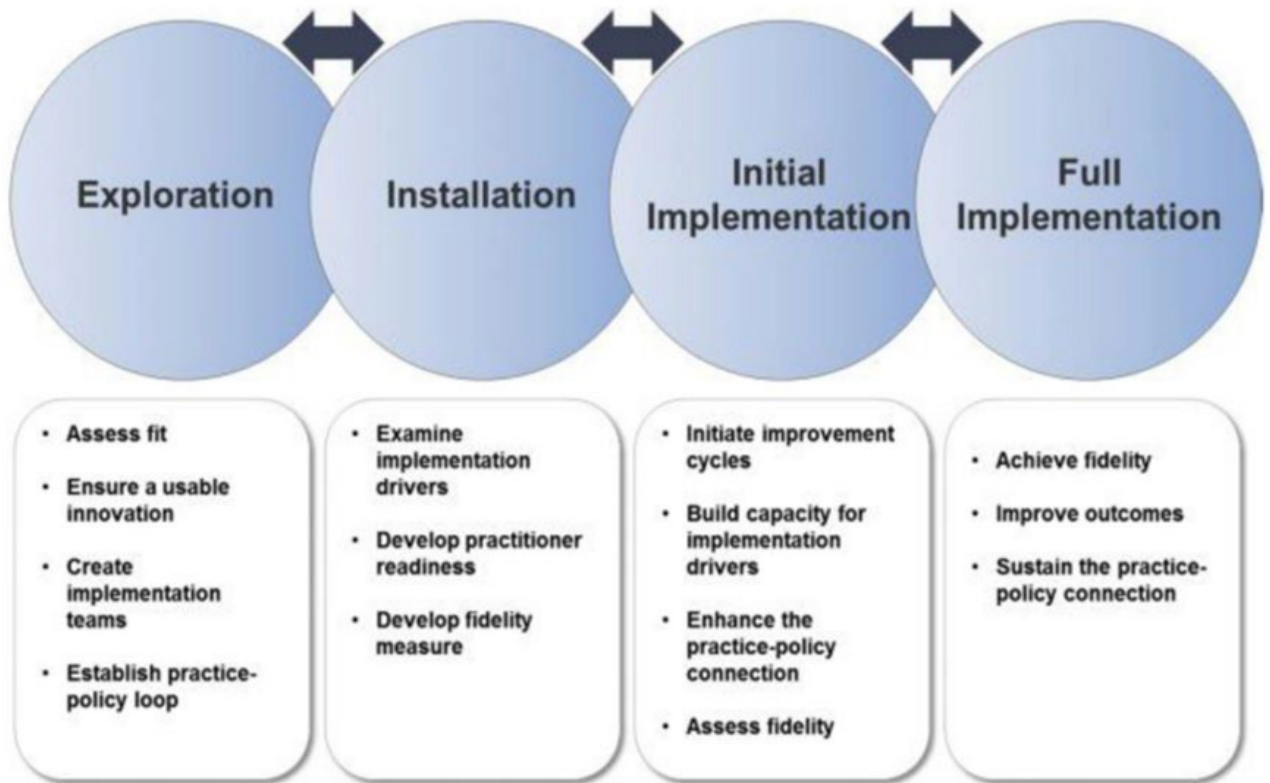
Comprehensive implementation of MTSS encompasses the establishment of robust leadership teams, the provision of high-caliber instruction that supports the needs of all students, and the utilization of data to guide instructional decisions and interventions that are linked with the individual needs of each student (Coyne et al., 2016, 2016; Young et al., 2021). When there is a deliberate emphasis on comprehensive implementation, the practices associated with MTSS can provide positive outcomes and maintain long-term viability (Gibbs, 2011; McIntosh & Goodman, 2016). Implementation science is acknowledged as a practical framework for directing systemic change efforts in education (Freeman et al., 2016; Horner et al., 2014). For example, implementation science's structured approach is gaining attention among educators for bridging the gap between knowledge and action in education and conceptualizing organizational transformation (Eagle et al., 2015; Freeman et al., 2016).

Fixsen et al. (2013) developed a classification system in implementation science with four phases: investigation, installation, first implementation, and final implementation. Utilizing a four-stage approach to implementation recognizes that change does not happen all at once but progresses through several stages. Research has shown that most schools can reach full implementation within two to four years (Fixsen et al., 2013). Implementation stages shown in Figure 1 describe the whole, non-sequential

process of selecting an efficient intervention and establishing it thoroughly to achieve the expected results.

**Figure 1.**

*Implementation Stages*



*Note.* Figure from Fixsen et al. (2013).

Being able to synchronize actions with the demands of each stage is supported by the concentration on each stage of implementation. This alignment dramatically improves the chances of successfully navigating through the stage and progressing to the subsequent implementation phase (Fixsen et al., 2013). Furthermore, using stages enables districts to foresee and prepare for the tasks and challenges in the following phases (Fixsen et al., 2013). Sustainability of implementation, which requires the ability to measure outcomes, necessitates the simultaneous application of fidelity and adaptability.



Previous investigations have established that favorable results from the implementation of evidence-based procedures at a minimum rate of 60% (Fixsen et al., 2013; Millspaugh, 2022). Following the implementation stages enhances the probability of tenable practices in the long term (Fixsen & Blasé, 2008). This systematic approach promotes a deep understanding of the implementation process; therefore, resulting in smoother transitions and sustained success in effectively integrating new educational practices (Fixsen et al., 2013; Freeman et al., 2017).

### ***Implementation Drivers***

The stages feature specific implementation drivers that strengthen the district's sustainability capacity and deliver successful results. The implementation drivers were identified as the key components from a meta-analysis of more than 500 successfully implemented evidence-based practices (EBPs) or programs (Dillard, 2017; Durlak & DuPre, 2008; Fixsen et al., 2013; Millspaugh, 2022). As seen in Figure 2, leadership, organization, and competency are essential components of the infrastructure required to facilitate practice and develop the ability to maintain system change (Fixsen & Blasé, 2008). Applying elements from all three implementation drivers helps maintain fidelity and sustained program implementation (Fixsen et al., 2013).

### **Figure 2.**

#### *Implementation Drivers of Practice Change*



*Note.* Figure from Fixsen et al. (2013)

Implementation drivers are critical components of capability that facilitate the application of a program or practice and its subsequent impact on students (Fixsen et al., 2013). The deployment of every implementation driver can guide the implementation process, ensuring that evidence-based practices (EBPs) are thoroughly integrated to achieve measurable improvements in student outcomes and ensure fidelity (Dillard, 2017; McIntosh & Goodman, 2016). Implementation drivers ensure the development of required organizational support, active leadership involvement, and essential competencies (Fixsen et al., 2013; Lane et al., 2016).

**Leadership Drivers.** Leadership drivers consist of two crucial types of leadership, technical and adaptive, both of which are necessary for executing change policies that aid in implementing MTSS by school personnel for students (Dillard, 2017; Freeman et al., 2017; Millspaugh, 2022). Leadership drivers are tools used to gain the

support of all staff, address difficulties, provide solutions, and set up clear communication and feedback channels (Fixen et al., 2013). Implementation necessitates leadership capable of resolving adaptive issues (establishing problem solving teams, reaching agreement approaches a solution, recognizing progress toward resolutions) as well as technical issues (establishing goals, managing time and energy, and solving problems) that arise during the process of initiating changes in practices and managing change in organizations and systems (AIRN, 2024).

Administrators frequently use their technical experience and expertise inside schools to support MTSS principles from an organizational driver standpoint (Scott et al., 2019). Technical leadership involves having a deep awareness of the external system's rules and procedures that may need adjustments to maintain MTSS in case of problems (Freeman et al., 2017). Adaptive leadership involves influencing a school's future through vision, inspiration, and consensus building (Freeman et al., 2017). Additional evidence indicates that district administrators and leaders must exhibit strong leadership skills to implement MTSS effectively throughout an entire school (Chu & Ready, 2018; Kittelman et al., 2018). The statistical correlation between technical assistance and leadership quality indicates that leadership is critical for the successful implementation of MTSS (Chu & Ready, 2018). The evidence-based practice's implementation and the achievement of favorable student outcomes were found to be most significantly impacted by leadership drivers that set the priority, create consensus for adoption, provide incentives for implementation, and oversee the entire process (Choi et al., 2019; Freeman et al., 2016; Millsbaugh, 2022; Scott et al., 2019).

**Organizational Drivers.** Organizational drivers include supportive management, communication infrastructure, data-driven decision-making mechanisms, and evidence-based interventions and practices implemented throughout the system (Dillard, 2017; Fixsen et al., 2013). The National Implementation Research Network identified decision support data systems, facilitative administration, and systems interventions as the essential infrastructural components that district administration must build to undertake MTSS systems change (Blase et al., 2015; Dillard, 2017). Facilitative administration diminishes obstacles to implementation by enabling staff at the site level to engage in the process (AIRN, 2024). Therefore, schools should establish frameworks and procedures to implement a methodical, multi-tiered intervention strategy (Langford et al., 2015). Schools must allocate specific periods within the designated contractual day for team meetings (McIntosh & Goodman, 2016). Furthermore, it is imperative that teams incorporate designated intervention time into the master schedule (Langford et al., 2015). A school should create effective protocols for identifying learners in need of help and appoint skilled staff to lead specific areas (Langford et al., 2015; McIntosh & Goodman, 2016).

Systems intervention, facilitative and supportive administration, and decision-making data systems are examples of organizational drives (Dillard, 2017; Eagle et al., 2015; Millspaugh, 2022). If a system has multiple layers of incongruent and inefficient systems, inadequate staffing resources, inadequate professional development related to the MTSS framework, and the overwhelmingly variant needs of students, the framework will be ineffective (Bouck & Cosby, 2019; Hollingsworth, 2019; Nagro et al., 2019; Scott et al., 2019). Suppose school leaders do not meticulously plan for the needed resources

during implementation. In that case, teachers may screen the entire school without a trained leadership team to interpret the data, design the necessary support levels, and monitor student progress (Dillard, 2017; Langford et al., 2015) Data systems for decision-making include universal screening, progress monitoring, and district self-assessments for continuous improvement (Blase et al., 2015; Freeman et al., 2016). Facilitative leadership involves providing the necessary resources and infrastructure to identify and remove barriers (Freeman et al., 2016).

**Competency Drivers.** Competency drivers are initiatives to assist the implementer and other pertinent stakeholders, such as administrators. Team formation, training, coaching, and fidelity measures drive competency (Dillard, 2017; Fixen et al., 2013; Freeman et al., 2016; Millspaugh, 2022). Additionally, staff collaboration plays a crucial role within the MTSS framework, necessitating the establishment of teacher teams, a local MTSS leadership team, and an intervention team (Langford et al., 2015). A school should establish efficient procedures for comprehensively identifying students requiring assistance and designate qualified personnel to assume leadership roles in certain areas (Langford et al., 2015; McIntosh & Goodman, 2016).

Furthermore, training teachers to use evidence-based approaches is vital in the implementation process (Fixsen et al., 2013; Hagermoser Sanetti & Collier-Meek, 2019). Practical initial training can prepare instructors to provide an intervention properly (Hagermoser Sanetti & Collier-Meek, 2019). Additionally, implementers benefit from ongoing coaching, and when planning professional development, sufficient resources should be determined and personnel should be available for MTSS consistent implementation (Hagermoser Sanetti & Collier-Meek, 2019).

Implementing MTSS without the strategic design of support systems can lead to failure in education programs (George & Kincaid, 2008). Having a strong coaching system is key to sustaining an effective framework. Experienced coaches use evidence-based methods and build respectful teacher relationships (AIRN, 2024; Desimone & Pak, 2017). An effective coach provides consistent and individualized guidance to help an educator improve a classroom skill or area (Desimone & Pak, 2017). Furthermore, inefficient training and professional development might also hinder school implementation, making it challenging to identify kids who need academic services (Bohanon et al., 2016; Braun et al., 2020; Chu & Ready, 2018). Effective and able implementation of MTSS routines happens through staff capabilities and system capacity development for district reform (Eagle et al., 2015).

### ***Barriers to Full Implementation of MTSS***

According to research, schools confront several challenges when implementing MTSS because there are no specified methods for optimal framework implementation (Dulaney et al., 2013; Mason et al., 2019). In 2015, the National Center for Education Evaluation and Regional Assistance sponsored study around MTSS (Balu et al., 2015; Dillard, 2017). The study reveals three notable implementation flaws that harm the efficacy of the MTSS framework. One of the primary issues observed pertains to pupils who are provided with extra assistance and frequently need to introduce new core curriculum content (Balu et al., 2015; Dillard, 2017). A significant proportion of schools, namely 69%, provided intervention during Tier 1 core teaching; therefore, reducing instructional time and substituting small groups with intervention services (Balu et al., 2015; Dillard, 2017). A fundamental principle of MTSS is that educational institutions

should offer supplementary interventions alongside Tier 1 core instruction rather than substituting them (Balu et al., 2015).

Schools' improper utilization of assessments constitutes the second error identified. Balu et al. (2015) found that the current approach to developing an MTSS framework needs to be revised. Many schools use universal screeners to identify students in need of Tier II treatments (Moore et al., 2019). The main goal of Tier II education is to offer focused reteaching of crucial standards or learning objectives that are critical elements of a more significant fundamental standard (Moore et al., 2019). However, numerous schools must involve their teachers in professional learning communities where teacher teams can collectively select key curricular elements and create local common assessments that correspond to those requirements (Sonju et al., 2019). As a result, many schools require assistance in determining which students need Tier II support (Langford et al., 2015). They rely on methods such as report card grades, prior-year state assessment data, universal screenings, or district benchmark assessments to determine which students require Tier II interventions (Langford et al., 2015). Screenings and benchmark assessments evaluate broad fundamental skills, knowledge covered in the previous year, or significant parts of the core curriculum rather than emphasizing the essential content within a specific Tier 1 core instruction unit (Langford et al., 2015).

The need for staff to take greater joint responsibility for students' learning has been noted as the third implementation barrier (Balu et al., 2015). Research has found that in many schools, instructors alone provide all classroom interventions (Balu et al., 2015). Teachers should implement interventions with a greater level of proficiency tailored to the specific needs of a student (Balu et al., 2015). Implementing these

interventions requires the participation of teacher teams at the grade level or in the specific content area who know the subject matter (Langford et al., 2015). Tier II aims to offer specific teaching to strengthen the essential core curriculum. Teacher teams should actively participate in implementing interventions because they play a crucial role in educational settings, as evidenced by the practice observed in several schools where specific instructors retain their pupils for Tier II interventions (Balu et al., 2015). These interventions most often entail the application of pedagogical approaches similar to those used during formal instruction, but with a small group of students (Langford et al., 2015). Therefore, schools must develop processes and structures to create a systematic, multi-tiered intervention process (Langford et al., 2015).

### ***Systems Theory***

The Systems Theory is a conceptual framework utilized in several sectors based on disciplines, including natural and social sciences, mathematics, and technology (AIRN, 2024). Bertalanfy (1968) sought to establish a transdisciplinary science that could incorporate universal principles and laws relevant to multiple scientific disciplines. Currently, advancements have been made in comprehending and implementing systems theory within education (AIRN, 2024). It is becoming more acknowledged that various factors impact student outcomes (AIRN, 2024). This concept focuses on identifying holistic entities that function as a cohesive unit in alignment with environmental demands (AIRN, 2024).

According to Bronfenbrenner (1990), the microsystem involving home or school plays a role in students' achievement and high school (Addison, 1992; Bronfenbrenner, 1990). A significant impact pertains to understanding student competency and struggle



(AIRN, 2024). Competence and risk are not inherent traits of children but are present in and spread across the various systems or environments in which young people are involved. Supportive relationships between these environments develop when individuals or systems consistently interact with each other in a way that is focused on the well-being and development of youth (AIRN, 2024; Garbacz et al., 2016). Therefore, systems theory has implications for educational institutions evaluation and intervention methods and attempts to involve families (AIRN, 2024; Christenson & Anderson, 2002).

Systems methods acknowledge various ecological impacts and assert that student conduct cannot be comprehended in isolation from these diverse contextual factors (AIRN, 2024; Molnar et al., 2019). Additionally, systems approaches are comparable with an interactionist perspective, emphasizing the interconnected nature of behavior components that cannot be studied in isolation (AIRN, 2024; Molnar et al., 2019).

Furthermore, systems theory is commonly recognized as the foundation of MTSS (AIRN, 2024). Understanding and enhancing educational systems using systems theory and the MTSS framework is holistic. MTSS is a total framework for all students, including those with academic, behavioral, and social-emotional issues (AIRN, 2024). The practical implementation of an MTSS framework relies heavily on various interconnected elements. These include the collaboration and synchronization of services among counseling staff, community stakeholders, external support systems, and families (AIRN, 2024). Additionally, staff coaches as liaisons, facilitating workshops and training sessions to enhance conceptual understanding and practical skills (Reschly & Cooilong-Chaffin, 2016).

Overall, implementing a framework composed of multi-systems that support students' academic and behavioral needs with high levels of fidelity can be challenging in a traditional brick-and-mortar school. However, teachers and administrators often experience additional barriers in cyber schools.

### **Cyber Schools**

A cyber school is a K-12 online learning program provided entirely through digital means by an educational institution, most often chartered through the state's Department of Education (Blase et al., 2015). Cyber schools generally consist of three main components: an online learning management system (LMS), the delivery of course content and instructional services through the LMS, and administrative functions, including supervision and evaluation (Langford et al., 2015). An online learning platform has offered substantial support and assistance to assist caregivers and students in navigating the learning environment (Langford et al., 2015; Mason et al., 2019; Molnar et al., 2019). The schools provide students with the equipment and materials needed to access the curriculum and communicate with teachers (Gill et al., 2015). This equipment includes computers, software, and reimbursing families for high-speed Internet, and instruction occurs through web-based conferencing (Murphey & Sacks, 2019).

Communication between students and staff occurs through email, telephone, web-conferencing, or instant messaging (Gill et al., 2015). Cyber schools often offer two learning plans: asynchronous or synchronous. An asynchronous plan is more flexible and self-paced, allowing optional participation in live classes or activities (Gill et al., 2015). A synchronous schedule involves working on a daily bell schedule with an instructor to determine when and how the learning occurs (Gill et al., 2015). Many cyber charter

schools offer live instruction, which can vary from a few times a week to a more traditional bell schedule where students must log in to each core content course, elective, and learning support session daily (Beasley & Beck, 2017).

The technologies that make online learning possible can expand the depth and breadth of curriculum available to students, provide options for new locations and schedules for learning, and discover innovative ways to facilitate learning in various settings (Ahn and McEachin (2017). Virtual education may offer superior quality education compared to conventional classroom environments (Harn et al., 2011). For example, implementing virtual courses may allow students to learn at a pace tailored to their unique needs and preferences (Harn et al., 2011). This personalized pacing of the learning process can benefit students with varying learning speeds through opportunities to review or accelerate learning material (Harn et al., 2019). Virtual courses can deliver prompt feedback on student performance using automated grading capabilities within learning platforms (Blase et al., 2015; Harn et al., 2011).

The online curriculum provides a unique interactive experience for pupils with the literature they use (Mason et al., 2019). For example, if students can access hyperlinks embedded inside instructional materials, which offer further information on a topic of personal interest, this interactive feature would facilitate their exploration of individual interests. Online courses allow students to access the curriculum and get high-quality instruction, which may be lacking at their local educational institution (Blase et al., 2015; Harn et al., 2011). The advantages of well-structured online learning include enhanced accessibility and flexibility. These factors drive the growing participation in online classes and programs (Blase et al., 2015; Clayton, 2023; DeFazio et al., 2011).

Research on online learning success and efficacy is growing (Clayton, 2023). Research has focused on instructional design methods, student demographics, and goals. Multiple studies have shown that online students' academic success depends on self-regulated learning skills (Clayton, 2023). Additionally, many scholars have substantiated the efficacy of approaches that foster teacher-learner relationships (Artino & Jones, 2012; Broadbent & Poon; 2015; Garrison & Arbaugh, 2007; You et al., 2016). Molnar et al. (2019) found that real-life, relevant information and personalized personal support improve success rates. Additionally, Cavalcanti et al. (2021) found that automated feedback increased students' academic performance and reduced instructors' assignment grading effort.

Students attend cyber schools for many reasons; however, studies have found that most students attending cyber schools enter the school performing lower than their peers in traditional public schools. They are also more likely to qualify for the federal free and reduced-price lunch program and are less likely to embrace enrichment opportunities (Ahn & McEachin, 2017). Because of the higher incidence of exposure to undesirable conditions, children in poverty are shown to be at a higher risk of having emotional and behavioral disorders than their more affluent classmates (Murphey & Sacks, 2019). Many families choose cyber schools due to the need for more flexibility within their family (Ahn & McEachin, 2017). For example, families are left with no other options for school due to previously experiencing unsafe environments, bullying, or the student's inability to succeed while attending a traditional brick-and-mortar school (Ahn & McEachin, 2017; Molnar et al., 2019; Murphey & Sacks, 2019)

Unfortunately, Woodworth et al. (2015) found that cyber schools have lower academic achievement growth levels than charter and traditional public in-person schools. In 2019, only 48.5% of cyber charter schools in the United States earned an acceptable rating from their state authorities. That same year, only 50.1% of cyber charters met the criteria for on-time graduation rates (Molnar et al., 2019). The academic growth of pupils enrolled in cyber charter schools in Ohio is comparatively lower than that of traditional brick-and-mortar schools (Molnar et al., 2019). This discrepancy results in a loss of 47 days of reading instruction and 136 days of math instruction (Molnar et al., 2019). The evidence throughout the research was clear that students choosing to attend cyber charter schools are performing significantly lower than their traditional brick-and-mortar peers (Molnar et al., 2019).

One factor causing this low performance can be the class size and student and staff ratios (Molnar et al., 2019). Virtual schools typically have much higher teacher-to-student ratios than traditional ones (Murphey & Sacks, 2019). For example, teachers serve three times as many students as brick-and-mortar teachers, typically due to increased independent work (Molnar et al., 2019). State-authorized virtual schools had lower performance levels when compared to district-operated full-time cyber schools, hybrid district-based models that combine online and in-person courses, and traditional brick-and-mortar schools (Molnar et al., 2019). Molnar et al. suggest four ways to improve online cyber school students learning: reduce class sizes for more direct instruction, assess virtual school leaders' duties, expertise, and credentials, strengthen online instructors' professional development to equip them for the online setting, and

strengthen programs and direct behavioral assistance to boost attendance (Molnar et al., 2019).

### ***Cyber Charter Schools***

Cyber Charter Schools are a type of cyber school that are publicly funded schools of choice that educate students through technology accessed from their homes. The number of states offering full-time virtual schools increased from 30 in 2012 to 39 in 2019 (Mason et al., 2019; Molnar et al., 2019). Blase et al. (2015) surveyed 50 states and found that 25 states currently provide K-12 cyber charter schools. Online learning has expanded dramatically at all levels of education for varied reasons: to improve availability, align with individual needs, and overcome access barriers (Seaman et al., 2018). The growth of enrollment in cyber schools has also increased significantly due to the pandemic (Tawfik et al., 2021). For example, in 2021, 36 states authorized online public schools to be established as part of school districts or charter schools, which means the schools are tuition-free with no charge for students to attend full-time in grades K-12. Vermont and Washington D.C. offer free public cyber education to students in grades K-8 (Tawfik et al., 2021). Additionally, 35 states offer part-time online public schooling; therefore, allowing students to use online courses to supplement their current private, home, or public brick-and-mortar schooling (Children First, 2022).

While not every state offers tuition-free cyber-schooling options, some are available in every state (Children First, 2022). School choice has allowed more families to choose a schooling option that works best for their individual needs, and many believe cyber schools' flexibility is best for their learners (Molnar et al., 2019; Seaman et al., 2018).

**Attendance and Engagement in Cyber Charter Schools.** Active learning practices, online courses, and interacting with peers and a teacher help students succeed (Ulfa & Fatawi, 2021). Engaging students in active learning is one of the specific challenges that teachers face in a cyber school (Darling-Aduana & Heinrich, 2018). Teachers must incorporate different communication and comprehension methods into each lesson (Darling-Aduana & Heinrich, 2018). For example, lectures and notes are not the best way for online students to learn, understand, and master course content (Ulfa & Fatawi, 2021). Regarding academic behaviors, attendance and engagement are significant predictors of grades, assessment scores, and high school completion (Gershenson et al., 2017).

Ensuring students attend school daily in a cyber school is one of the most challenging aspects for virtual school leaders (Ansari & Khan, 2020). Parents with several children in cyber schools may struggle when younger children who need adult supervision may not use the technology independently (Woodworth et al., 2015). Ultimately, to succeed online, students must attend classes and online classrooms (Darling-Aduana & Heinrich, 2018).

A high daily attendance rate indicates positive adolescent functioning (Ansari & Khan, 2020). Daily school attendance improves physical and mental health and academic, social, civil, and economic outcomes in adulthood (Briesch et al., 2020; Darling-Aduana & Heinrich, 2018; Gershenson et al., 2017; Gottfried, 2014; Kittelman et al., 2018). Conversely, school attendance problems, chronic school absenteeism, and dropout have been linked to poor academic performance and poor behavioral functioning, affecting development into adulthood (Darling-Aduana & Heinrich, 2018; Gershenson et al., 2017;

Kearney, 2021; Petrasek et al., 2022). Numerous studies have identified a correlation between chronic absenteeism and diminished academic performance, difficulties securing a job, criminal convictions, aggressive behavior, substance misuse, and other challenges in adulthood (Darling-Aduana & Heinrich, 2018; Gershenson et al., 2017; Kearney, 2021; Petrasek et al., 2022). According to Mercer et al. (2017), consistent attendance at middle school is a significant indicator of academic achievement when kids transition to the ninth grade. Therefore, school attendance and absenteeism are vital areas to focus on prevention science when developing learning and life outcomes of adolescents (Langford et al., 2015).

Understanding the causes of attendance issues and offering appropriate support should be part of attendance interventions (Kawsar et al., 2020; Thomas et al., 2020). School refusal and avoidance are linked to anxiety and depression (Inglésa et al., 2015; Kawsar et al., 2020). Enhancing schoolwide attendance and mitigating disciplinary referrals, suspensions, expulsions, and disruptive behaviors are all outcomes of implementing an efficient universal support system for all learners (Chu & Ready, 2018). These interventions improve the school climate and student well-being, including physical and mental health, social and emotional skills, parental involvement, academic preparedness, and cultural sensitivity (Chu & Ready, 2018). Researchers suggest that education leaders use a multi-tiered service delivery strategy to target many areas, such as behavioral functioning abilities, academic achievement, social skills, and mental health (Stoiber & Gettinger, 2016). This comprehensive strategy is a MTSS (Eagle et al., 2015; Freeman et al., 2016; McIntosh & Goodman, 2016; Sugai & Horner, 2006).

### **Origins and Evolution of MTSS**



The application of tiered instruction in the field of education has its roots in special education. (Sailor et al., 2021). The origins of multiple-tiered levels of support stem from the public health arena's theoretical model of prevention, which incorporates primary, secondary, and tertiary prevention approaches (Bohanon et al., 2016; Sailor et al., 2021; Walker et al., 1996). In recent decades, U.S. educational policy has stressed the need for early identification and interventions, with progress monitored and data utilized to make decisions (Eagle et al., 2015). The IDEA and No Child Left Behind emphasize evidence-based research to enhance student outcomes (Sailor et al., 2021).

The implementation of these mandates has resulted in the creation of all-encompassing frameworks for problem-solving at the institutional level, such as PBIS and RTI (Eagle et al., 2015). The conceptual frameworks of RTI and PBIS share similarities in their emphasis on prevention, data-driven decision-making, problem-solving, evidence-based interventions, and fidelity in implementation (Eagle et al., 2015; Sugai & Horner, 2006). This concept and the recognition that academic and behavioral difficulties are often interconnected form the theoretical basis for integrating RTI and PBIS initiatives (Eagle et al., 2015). PBIS is the predominant term for tiered intervention approaches to address behavioral difficulties that hinder the educational process. Additionally, RTI is the primary term for interventions focused on academic issues (Sailor et al., 2021). However, these methodologies have frequently been implemented in isolated compartments, where one system addresses academic challenges while another focuses on behavioral issues. The convergence of various essential components of RTI and PBIS led to a growing recognition of the necessity for an integrated framework that

combines efforts to address academic, behavioral, and social-emotional requirements (Eagle et al., 2015; Freeman et al., 2016; Sugai & Horner, 2006).

### ***Dynamics of MTSS***

A MTSS integrates numerous systems, structures, and procedures into one coherent, intentionally constructed system to support many domains and content areas; therefore, helping every student be successful within an educational system (McIntosh & Goodman, 2016.) Freeman et al. (2017) define MTSS as an overarching framework model that targets behavioral and academic challenges, focusing on tiered evidence-based practices developed from prevention science and implementation research. MTSS is a schoolwide problem-solving framework that provides evidence-based strategies at three intensity levels depending on collective and individual student needs to meet learners' academic and behavioral needs (Sugai & Horner, 2006; Weist et al., 2022).

Chen et al. (2020) explains how maintaining comprehensive support for students throughout their academic journey requires considering three fundamental components of MTSS. Initially, it is essential to note that MTSS emphasizes how the learner responds to intervention. This approach necessitates the implementation of a variety of comprehensive and progressively intense techniques designed to address the diverse requirements of all students (Chen et al., 2020; Horner et al., 2014; Sailor et al., 2021). The second feature of MTSS is an integrative systems framework that incorporates academic, behavioral, and social aspects of a student's ability to adapt and function within a middle school and classroom (Chen et al., 2020; Coyne et al., 2016; Sailor et al., 2021). Third, MTSS is preventive and involves early identification and intervention when a screening indicates a potential problem. These three essential elements of MTSS make it

a critical support framework for vulnerable learners as they work through barriers throughout their academic journey (Chen et al., 2020; Sailor et al., 2021).

Lane et al. (2015) identified the critical components of MTSS as universal screening for proactive risk identification, evidence-based intervention support with escalating intensity, and continuous evaluation for decision-making. Similarly, Samuels (2016) characterizes an MTSS framework as a methodical approach that includes a broad framework that attends to academic characteristics and other factors to provide equitable opportunities for all learners. The MTSS framework involves assessing a student's strengths, tailoring instruction to individual requirements, and organizing systems to promote the student's academic, behavioral, and social achievements (Samuels, 2016). An MTSS framework is considered a fundamental instructional strategy empirically linked to favorable student educational and socio-behavioral outcomes (Chu & Ready, 2018; McIntosh & Goodman, 2016).

MTSS stresses supporting and delivering services to support the 'whole child'. Lewallan et al. (2015) state that a 'whole child' approach is an ideological perspective that centers student development at the core of the educational process. This approach is grounded in five elements: all students enter school with a basic understanding of living a healthy lifestyle, all students learn in a safe and healthy environment, students are all actively engaged in a learning community, all students have access to individualized learning and support from qualified and caring adults, and all students are academically challenged and prepared for post-secondary education or trades (Lewallan et al., 2015, p. 730). MTSS is a framework focusing on the whole child, supporting academic growth

and achievement, behavior, social and emotional needs, and chronic absenteeism (McIntosh & Goodman, 2016; Weist et al., 2022).

Furthermore, interventions implemented with fidelity within the MTSS framework can positively affect students' learning outcomes (Bohanon et al., 2016). Early intervention to address social, emotional, behavioral, and academic difficulties is essential to fostering student well-being and preventing these issues from developing over time (Weist et al., 2022). Universal preventive strategies (Tier I) are meant to serve all children. In contrast, focused interventions (Tier II) serve children at risk or exhibiting early symptoms of difficulties, and intensive treatments (Tier III) assist learners with more severe issues (Bohanon et al., 2016; Eagle et al., 2015; Sugai & Horner, 2006; Weist et al., 2022). As an umbrella framework, MTSS can target behavioral and academic challenges by focusing on tiered levels of evidence-based strategies and interventions (Bohanon et al., 2016).

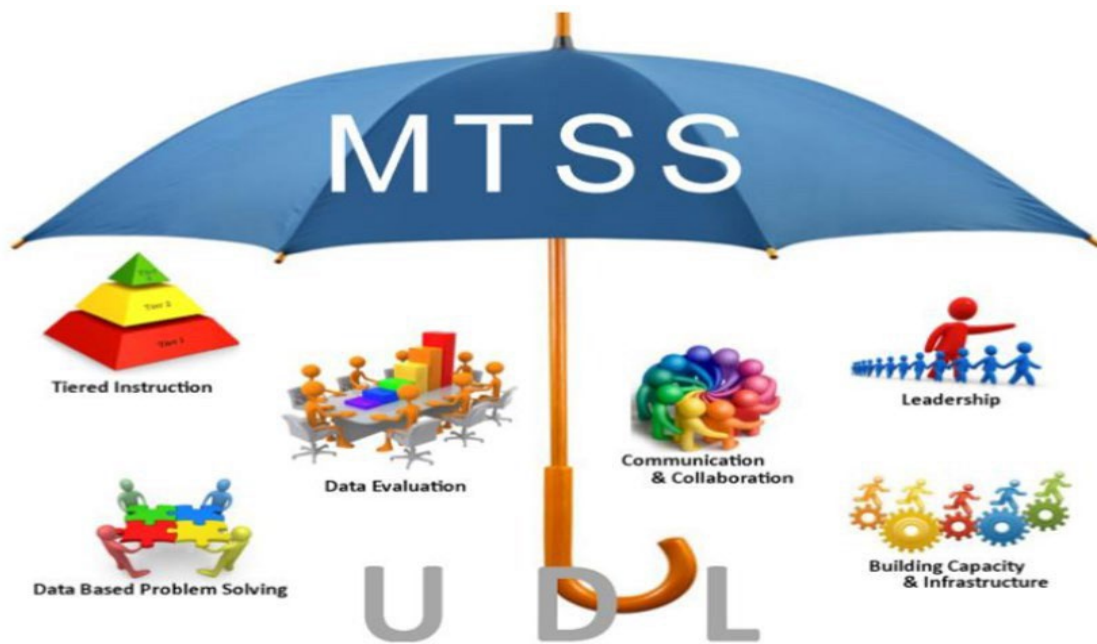
Research has demonstrated that implementing an MTSS framework to full fidelity has yielded noteworthy results regarding behavioral and academic outcomes in schools that have fully embraced this transformation (Langford et al., 2015; McIntosh & Goodman, 2016; Sailor et al., 2021). Sailor et al. explain how implementing the framework is a transformation of an educational organization given:

tiered interventions apply to all students in a noncategorical fashion;  
measurement of programs occurs at all levels of support to guide decisions concerning intervention, levels of intensity, and curricular modifications;  
MTSS fully integrates social and behavioral interventions with academic interventions (Lane et al., 2016). Additionally, MTSS offers a schoolwide,

unified instructional framework that applies to all students, which reduces the need for categorical classrooms by providing more efficient use of space and personnel (Billingsley & Bettini, 2019; Satter et al., 2019). MTSS is driven by interactive team decision and support processes operating across shared leadership among district and school level personnel, wherein these processes support fully integrated special education, English Learners, Title I, gifted and talented, and general education decision-making. Furthermore, MTSS embraces and utilizes Universal Design principles; therefore, contributing to greater participation and inclusion of students with all types and degrees of disability (Sailor et al., 2021, p. 27).

Overall, when there is a deliberate emphasis on complete implementation the practices associated with MTSS can provide positive outcomes and maintain long-term viability (Gibbons & Coulter, 2016; McIntosh & Goodman, 2016; Young et al., 2021).

As seen in Figure 3, MTSS is an overarching umbrella framework with multiple elements with other tiered frameworks integrated within the systems, allowing for the most effective framework for supporting the diverse needs of all students.

**Figure 3.***The MTSS Framework*

*Note.* Figure from South Carolina Department of Education (2019).

Through integrating academics and social-emotional behaviors into a single framework, MTSS addresses the academic, behavioral, social, and emotional requirements of the whole child through a personalized and holistic system of learning (Bohanon et al., 2016; McIntosh & Goodman, 2016; Weist et al., 2022). This method acknowledges the correlation between academics and behavior, dealing with both aspects simultaneously (Petrasek et al., 2022). It empowers educators and support professionals to utilize data to guide their instructional strategies with students, maximizing the students' potential for improvement (McIntosh & Goodman, 2016). The framework assists schools in tailoring student learning plans by offering rigorous academic and

social-emotional support (Weist et al., 2022). It also helps identify at-risk students and provide them with the necessary assistance.

### **Tiered Academic Support Framework (RTI) Within MTSS**

An essential element of MTSS is that schools will offer prompt, focused, and structured academic or behavior support at an early stage rather than postponing intervention until learners reach a significant level of academic deficiency that warrants eligibility for special education services (Buffum et al., 2012; Gregory et al., 2016). RTI is a prevention approach to address high-risk academic behaviors and identify individuals who fail to respond to interventions and may qualify for specialized instruction under special education services (Preston et al., 2015; Sailor, 2021). Universal screening practices, progress monitoring processes, categories of support for either prevention or intervention, and the utilization of data-driven decision-making models are the four general components of RTI frameworks (Mellard & Johnson, 2008). The RTI framework mandates that educators who possess the critical ability to influence students' academic achievements incorporate these evidence-based practices to establish an interactive learning environment that nurtures the needs of all learners (Miller et al., 2015). Within the MTSS framework, each Tier's support is cumulative (Sonju et al., 2019).

### **Tiered Behavioral Support Framework (PBIS) Within MTSS**

PBIS is an evidence-based framework used to recognize, teach, model, practice, and reward positive behavior that complies with the standards in a school setting (Kincaid et al., 2016). PBIS originated as a paradigm that blends behavior analysis principles, instructional strategies, and classroom management to facilitate systemic change; therefore, resulting in more uplifting school social environments (Horner et al.,

2014; Kincaid et al., 2016). In the 1980s and 1990s behavior support research helped shape the development of PBIS (Petrasek et al., 2022).

Through PBIS, schools transition from a retaliatory, disciplinary-focused procedure to a proactive and educational one (Petrasek et al., 2022). As a tiered framework integrated into an MTSS, PBIS offers all students (Tier I) a foundation of positive behavioral assistance. Support and interventions within the multiple tiers of PBIS may include enhancing school climate, daily check-ins, outreach, and education to parents, incentives recognizing attendance, and referrals to community agencies to address barriers to school attendance (Freeman et al., 2016). First, regular attendance and cultivating a sense of shared responsibility among students, their families, and the attending community should be prioritized (Briesch et al., 2020; Hendron & Kearney, 2016). Second, implementing recognition opportunities acknowledges and reinforces positive attendance behaviors (Briesch et al., 2020). Third, frequent attendance data monitoring reveals patterns and trends for timely actions (Valli et al., 2016). Additionally, targeted outreach should address attendance issues and provide individualized support to resolve barriers consistent with attendance (Valli et al., 2016).

High-fidelity PBIS implementation reduces chronic absenteeism, suspensions, expulsions, discipline issues, and social-emotional competence, improving academic performance (Freeman et al., 2016). Furthermore, PBIS interventions at Tier I enhance schoolwide attendance and minimize absenteeism for all children. These interventions improve school atmosphere, safety, physical and mental health, social and emotional skills, parental participation, academic preparedness, and cultural responsiveness (Chu & Ready, 2018). Gershenson et al. (2017) suggest that school climate can reduce chronic



absenteeism. Research has linked chronic absenteeism to school climate elements of rules and order and discipline, resource sharing, student-student, student-teacher, and family participation (Young et al., 2020).

Social and emotional learning (SEL) is often taught directly in PBIS, which enhances self- and social awareness and emotion control. Safety, well-managed, and inclusive learning environments are the goal of SEL to encourage school engagement and natural skill acquisition (Corcoran et al., 2018). Schoolwide SEL programs boost kids' social and emotional skills, attitudes, behaviors, and academic performance well into adulthood (Taylor et al., 2017). Brackett et al. (2019) share that SEL incorporates cognition, emotion, and behavior into our lives.

The systematic practices within the MTSS encourage these SEL domains to be incorporated into leadership, instruction, and learning (Corcoran et al., 2018). Tier-based support and interventions help students and staff develop self- and social awareness to regulate emotions and behaviors better, make responsible decisions, and form meaningful connections (Kincaid et al., 2016).

### **MTSS Tier 1 Supports**

The MTSS framework, informed by assessment data, can precisely recognize students who require support with behavior, social, and emotional aspects besides academics. Such support has been shown to impede positive learning outcomes potentially (Braun et al., 2020; Freeman et al., 2017; Scott et al., 2019; Weingarten et al., 2020a). The primary objective of Tier I Interventions is to enhance the learning experience and proactively address any issues at an early stage for all students (McIntosh & Goodman, 2016). The initial Tier of the MTSS framework comprises a school's core

instructional program (Gregory et al., 2016). This universal Tier provides high-quality standards-aligned instruction aligned with the grade-level core curriculum to all children. Students' academic and behavioral risk levels are initially identified within Tier 1 (McIntosh & Goodman, 2016).

Bailey (2020) shares that the core aspect of integrated systems' effectiveness is the quality of training at the Tier 1 level. A recent study found high levels of students achieving academic proficiency and low behavioral issues in schools that implemented a systematic, integrated MTSS framework with Tier 1 support implemented with high fidelity (Scott et al., 2019). This level has the highest potential for impact, decreasing the need for other, more resource-intensive tiers (Bailey, 2019). Furthermore, the implementation of universal instruction in teaching executive functioning and social and emotional skills at the Tier 1 level has the potential to facilitate the achievement of success for all learners (McIntosh & Goodman., 2016). Individual obstacles do not drive the selection of practices at Tier I but instead aim to optimize overall student achievement across all domains (McIntosh & Goodman, 2016).

The first Tier of the MTSS framework aims to ensure that instructional methods are very effective, meeting the needs of at least 80% of students (Fuchs & Fuchs, 2017; Gregory et al., 2016; Thomas et al., 2020). In instances where the core instructional model is insufficient in meeting the needs of all students, schools have a significant number of their students who require additional interventions (Gregory et al., 2016). This influx of students necessitating interventions places a strain on the existing system of support and available resources. This requires more resources such as staff, time, finances, and supplies (Thomas et al., 2020). Allocating resources in this manner is often

not feasible in modern educational institutions (Splett et al., 2018). Rather than modifying their initial pedagogical approaches to cater to their learners' diverse requirements effectively, schools often need to replace the student's core curriculum with remedial coursework at lower grade levels (McIntosh & Goodman, 2016). This decision guarantees these pupils cannot fill their academic achievement gap (Gregory et al., 2016). Enhancing the efficiency and efficacy of MTSS involves implementing customized Tier 1 instructional strategies to increase accessibility and maximize impact on a wide range of students (Thomas et al., 2020).

Additionally, an early warning system (EWS) is a tool used within a multi-tiered support system that identifies potential students who may be at risk and require additional support or immediate interventions by calculating the level of risks based on attendance, course performance, and behaviors (Scott et al., 2019). Kearney and Graczyk (2020) recommend that schools implement early warning system teams, who meet monthly to review attendance data, course performance, and discipline referrals to help identify each student's level of risk so that support can be increased for those with moderate and high-risk factors. Attendance, course performance, and behaviors represent the whole child through behavioral and academic data points (Kearney & Graczyk, 2020). Integrating these behavioral and academic data points to determine the level of risk is essential in supporting the whole child (Kearney & Graczyk, 2020). Identifying risk factors of both academic and behavioral and combining the systems of interventions and supports have shown to be most effective when school districts implement the interventions with high levels of fidelity (McIntosh & Goodman, 2016). Tier II support is implemented once a student is identified as at a moderate risk level.

**MTSS Tier II Supports**

Each academic unit has a point where most students have mastered the essential learning objectives related to that unit when the teacher moves on to the next unit. However, some pupils will not have fully mastered these intended learning goals; therefore, requiring additional help and reinforcement, which are the main goals of Tier II interventions (Sonju et al., 2019). The inclusion of specific learning objectives and additional help with the availability of extra time and support for students who are having trouble mastering the grade level skills define Tier II (Buffum et al., 2012). Since these skills closely correlate with their subject-matter knowledge, active participation from classroom teacher teams at Tier II is essential (Sonju et al., 2019). The team of teachers determines which instructional strategies should be guided by standard and formative assessments associated with crucial grade-level criteria (Buffum et al., 2012). Students identified as requiring Tier II help promptly get purposeful interventions, as supplemental interventions are intrinsically skill focused (Buffum et al., 2012).

Moore et al. (2019) also stress the importance of offering choices to the students, allowing for smaller learning groups, and utilizing mental health professionals to lead small groups or individual counseling or as consultants in evaluating programs. PBIS also provides Tier II and Tier III strategies for students who require further guidance. For students who need additional support to reach grade level success, Miller et al. (2015) recommend mentor programs such as Check and Connect or Check in/Check Out, as well as academic support and home visits. Students identified as High Risk or have not demonstrated adequate progress in response to Tier II support, and interventions will receive more intense Tier III support.

**MTSS Tier III Supports**

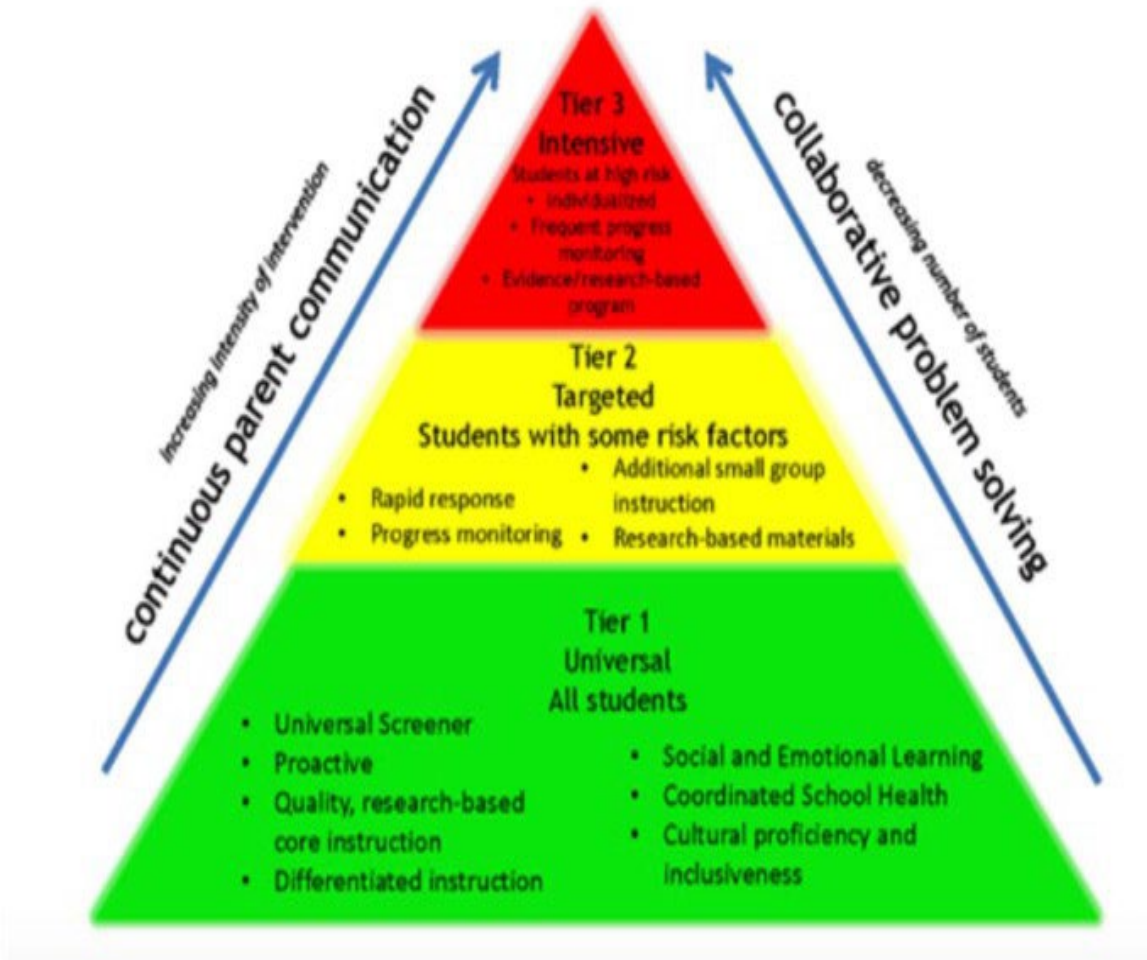
In addition to Tiers I and II, Tier III interventions are designed to provide intensive support to students who need assistance learning essential skills from prior years. A single teacher cannot provide this level of support. Instead, it necessitates a schoolwide collaborative effort in which the entire faculty accepts collective responsibility for student achievement (Sonju et al., 2019). It is noteworthy to mention that the framework incorporates stacked supports. This implies that students classified as high risk, comprising less than 5% of the total, continue to receive all the established support from Tier I and Tier II, in addition to more specialized, intensive support at the advanced tiers (Valli et al., 2016).

Tier III intensive interventions may include alternative educational placements, credit recovery, parent and family involvement strategies, and specialized care for individuals with severe mental disorders (Valli et al., 2016). Assisting the most vulnerable students involves offering adaptable and personalized approaches to achieve the fundamental academic standards, graduation, and preparation for careers and adulthood (Castellano et al., 2017). Mental health professionals within the community may consult and support these most high-risk students through therapeutic methods or by coordinating multiple agencies to support the student and family (Kearney, 2021). Research indicates these supports may need to be in place for multiple semesters until any significant improvement is seen or until the team determines the need to evaluate eligibility for special educational services (Kearney, 2021). Integrating RTII and PBIS within many systems increases the effectiveness and efficiency of the implementation

efforts (McIntosh & Goodman, 2016). Figure 4 shows how academic and behavioral support align to support the whole child.

**Figure 4.**

*MTSS Academic and Behavior Triangle of Tiers*



*Note.* Figure from Thibodeau (2023).

The double triangle, which integrates tiers of intervention and assessment intended to improve academic and behavioral outcomes, is a standard method to visualize MTSS (Briesch et al., 2020). PBIS uses data driven problem-solving within an MTSS

framework to promote proper behavior, prevent and address disruptive and rebellious behavior in schools (McIntosh & Goodman, 2016).

Schools that implement PBIS with high fidelity show significant improvements in fewer suspensions and expulsions, office referrals, bullying incident issues, and more substantial social-emotional competencies, improving overall academic performance (Freeman et al., 2016). The emphasis on implementation support is a critical strength of PBIS, including explicit training and coaching for (a) robust communication and collaboration, team functioning, and data-driven decision-making; (b) clear, documented roles and duties for all personnel; and (c) determining, implementing, and developing evidence-based methods at each Tier. These fundamental elements, notably, rely on current school strengths and can be implemented with high fidelity (Kittelman et al., 2018; Mercer et al., 2017; Weist et al., 2022). Professional development to build teachers' and leaders' capacity and growth is critical to strengthening a school's current systems for successfully implementing the fundamental practices within the framework (Castellano et al., 2017).

### **Professional Development Within MTSS**

Experts have acknowledged the significance of educators' learning in adopting methods and enhancing student results (Castellano et al., 2017; Darling-Aduana & Heinrich, 2018). Professional development for MTSS includes ongoing training rather than a one-time event, emphasizing the rationale and principles of MTSS, equipping educators with the necessary skills and knowledge for implementation, and involving educators at different levels, such as administrators, school psychologists, and counselors (Barnes & Harlacher, 2008; Dillard, 2017). Thorough professional growth is essential for

leadership at all levels, and site-level administrators require professional development on the practical aspects of implementation and its changes based on the school's specific needs.

Assessing the efficacy of professional development at the site and district levels is crucial to guarantee that staff have acquired the skills and guidance needed to successfully implement MTSS (Martin et al., 2015). Professional development strategies encompass introductory and team-based training, coaching, and mentoring for school staff supporting team-based action planning. Additionally, higher-level professional development and capacity building are provided to establish academic and behavioral expertise at tiers two and three. Professional development emphasizes utilizing data in a continuous improvement cycle and enhancing levels of assistance (Freeman et al., 2017).

Involving teachers in high-quality professional development requires leaders to consider teacher agencies (Lane et al., 2015; Molnar et al., 2019). Teacher agency is the capacity of educators to take proactive and constructive actions to secure their professional development better. Teachers must choose to enhance their practice through professional development programs before systemic change may occur. If professional learning lacks impact, it is often due to a lack of connection to educators' classroom or school environments or if it needs to be sustained sufficiently to change teaching practices (Easton, 2008; Fullan, 2011). Researchers have discovered that more than one professional learning activity is needed to encourage educators to improve their behaviors effectively (Gulamhussein, 2013). Additionally, research shows that effectively designed professional development, when implemented faithfully, improves teachers'



implementation of evidence-based practices and student academic performance (Darling-Aduana & Heinrich, 2018).

Utilizing data through collaborative problem-solving is critical to evidence-based practices within MTSS (Horner et al., 2014). Research has indicated that teams need help to employ effective and efficient problem-solving practices (Horner et al., 2014).

Furthermore, existing evidence indicates that the Team-Initiated Problem Solving (TIPS) model, in conjunction with initial professional development and subsequent technical assistance and coaching, improves the collaborative problem-solving skills of staff (Algozzine et al., 2016; Horner et al., 2017; Newton et al., 2012; Todd et al., 2011).

### **Team-Initiated Problem Solving (TIPS) Within MTSS**

A fundamental component of an effective MTSS implementation is data-driven decision-making. Utilizing data to inform decisions regarding ongoing implementation is critical to the MTSS implementation process: using screening measures to identify a target population, analyzing progress-monitoring data that demonstrate a response to an intervention, or outcome-focused team meetings (Forman & Crystal, 2015). Ensuring the sustained implementation of evidence-based practices requires the presence of school teams that conduct data evaluations (AIRN, 2024). Teams comprised of educators are the foundation and culmination of MTSS's efficacy, as they are the ones who establish the criteria for the data-driven decision.

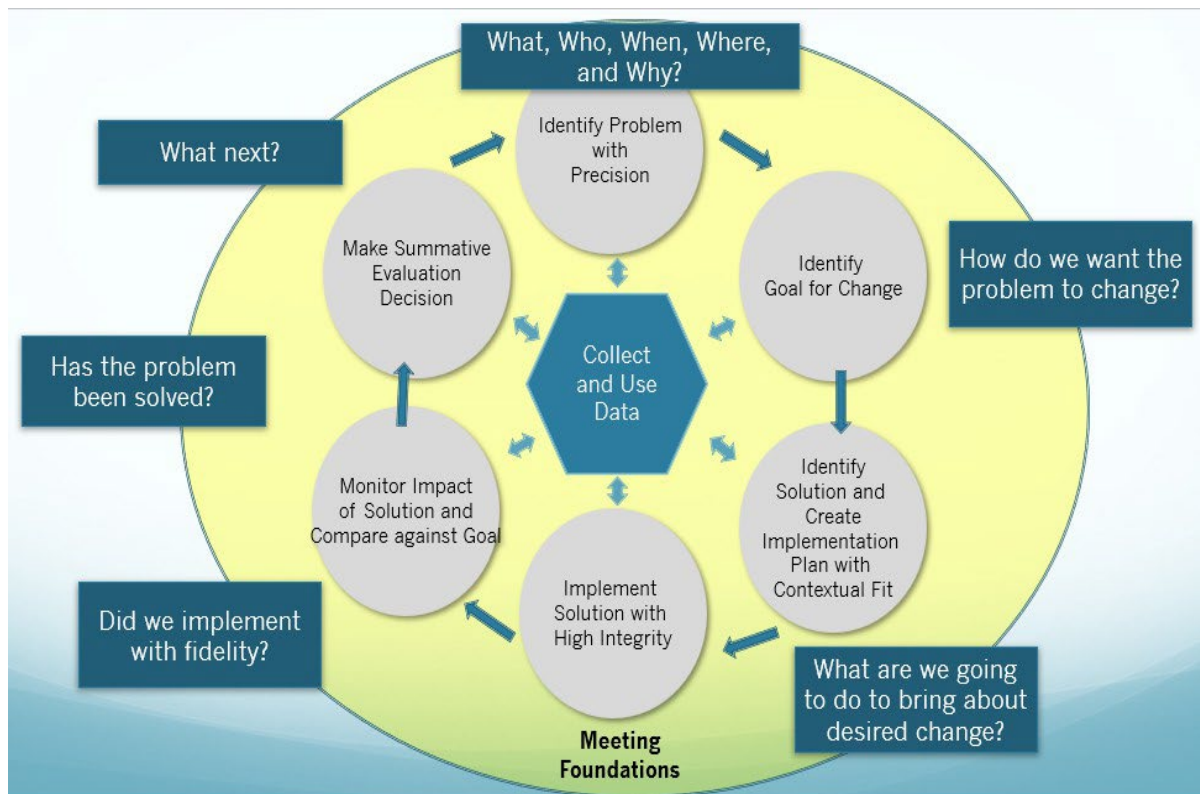
Facilitating optimal and efficient instruction for all students is the primary objective of MTSS (Belser et al., 2016; Dillard, 2017; Johnson, 2022; Meaux et al., 2020; Pierce & Mueller, 2018). Educators must constantly strive to establish and maintain effective academic and behavioral learning environments for every student, and school

administrators and their leadership teams must make resolute decisions (Chaparro et al., 2022). Ultimately, utilizing many sources of information is crucial for effectively implementing interventions at the schoolwide, classroom, and individual levels, especially when resources are limited.

School-based problem-solving teams are tasked with identifying and executing viable solutions to issues specific to the school environment. It is more common for teams to possess access to high-quality data but must improve their knowledge or skills to solve problems effectively (Horner et al., 2015). TIPS is a paradigm used in meetings focusing on data-driven decision-making to enhance student results (Horner et al., 2015, Preston et al., 2015; Todd & Cusumano, 2015). Limited time allotted for meetings, deficiencies in foundations (e.g., location, team members, procedures, the efficiency of meetings), an undefined or ambiguous purpose for the meeting, and insufficient training and support to execute effective and efficient problem-solving have been identified as obstacles to conducting productive problem-solving meetings (Nellis, 2012; Todd & Cusumano, 2015).

The TIPS framework deconstructs the problem-solving process into six essential stages to overcome these obstacles. It aims to direct teams through a data-driven decision-making procedure that culminates in achieving the intended objectives (Horner et al., 2015; Preston et al., 2015). Teams within the MTSS framework who utilize the TIPS process have shown enhancements in identifying issues promptly, creating practical and culturally sensitive solutions, executing those solutions accurately, and recording student advantages (Chaparro et al., 2022). TIPS incorporates essential components for successful and productive meetings, such as standardized procedures, defined team

member roles, and timely meeting minutes to facilitate problem-solving (Chaparro et al., 2022; Preston et al., 2015). The TIPS process consists of three main components: meeting foundations, problem-solving, implementation, and adaptation. Meeting Foundations offer instructions for coordinating teams and running more effective team meetings (Chaparro et al., 2022), and problem solving offers direction in recognizing issues, setting improvement objectives, and implementing solutions to enhance the efficiency of meetings (Chaparro et al., 2022). Furthermore, implementation and adaptation help apply and modify solutions while documenting these modifications to enhance the decision-making process (Chaparro et al., 2022). Figure 5 illustrates the complex steps of the team's initiative problem-solving process.

**Figure 5.***Teams Initiated Problem-Solving*

*Note.* Figure from Preston et al. (2015); Todd et al. (2015).

The TIPS framework comprises meeting foundations, meeting minutes, and the problem-solving process. It is designed for team meetings focused on problem-solving and is based on thoroughly examining studies on problem-solving and team processes in schools (Chaparro et al., 2022; Preston et al., 2015; Todd et al., 2015).

The initial stage in problem-solving is to identify the issue accurately by defining its nature, participants, timing, location, frequency, and causes of schools (Chaparro et al., 2022; Preston et al., 2015). Research on the TIPS process emphasizes that teams are more likely to create realistic and successful solutions for their schools when they carefully pinpoint challenging schools (Horner & Sugar, 2015; Newtown et al., 2012;

Preston et al, 2015). TIPS protocols instruct teams to not only recognize the presence of an issue but also to characterize the problem by providing detailed information on who, what, when, where, why, and how often it occurs to aid team decision-making (Horner & Sugar, 2015; Newton et al., 2012; Preston et al., 2015; Todd & Cusumano, 2015).

Defining problems with accuracy facilitates the transition from merely admiring difficulties to actively engaging in problem-solving within teams (Preston et al, 2015).

Setting a goal for change involves defining a clear and measurable objective that outlines what change will take place, by when, where, and how it will be assessed (Horner & Sugar, 2015; Preston et al., 2015). Defining a goal helps a team establish agreement on their objectives and provides a straightforward method for monitoring performance (Preston et al, 2015; Todd & Cusumano, 2015). Lastly, identifying a solution is the most intricate aspect of the TIPS process. A practical solution incorporates evidence-based techniques to enhance behavior; solutions must be practical, efficient, aligned with the school's culture and organization, and tailored to the student's needs (Chaparro et al., 2022; Todd & Cusumano, 2015). According to research on the TIPS problem-solving process, solutions devised by a group of proficient individuals who possess knowledge of the students, and the school are more likely to achieve success (Todd & Cusumano, 2015).

The last stage of the TIPS problem-solving process involves creating a formal implementation plan. An implementation plan details the actions to be taken, assigns responsibility, and specifies timing, location, frequency, and methods for monitoring fidelity (Chaparro et al., 2022; Todd & Cusumano, 2015). The implementation plan outlines occasional events and establishes a schedule for regular activities. The

implementation plan includes a timeline for the team to routinely assess their adherence to the strategy and the achievement of desired results (Todd & Cusumano, 2015).

Constant implementation review, modification, and adaptation in response to feedback from students, teachers, and families can frequently improve even the most effective initiatives and resolutions. Effective problem resolution is a continuous process that involves listening, observing, planning, and adapting to the dynamic classroom environment (Todd & Cusumano, 2015).

### **Leadership Within MTSS**

District leadership must be informed, engaged, and cognizant of the scaling-up process during system-level change (Eagle et al., 2015; O'Connor & Freeman, 2012).

School leaders are considered change agents while successfully implementing MTSS and supporting staff's efforts by assisting organizations and personnel by motivating, directing, establishing objectives, resolving conflicts, allocating resources, and modifying organizational policies and procedures (Choi et al., 2019; Forman & Crystal, 2015).

Critical leadership activities for the successful implementation of an MTSS framework that meets the diverse needs of students encompass the following: fostering a culture of shared vision, establishing MTSS teams within grade levels and school sites, enhancing the professional capacity of teachers, utilizing data-driven decision-making, establishing clear solutions and monitoring the progress, and reviewing and actively participating in policy changes in conjunction with local educational agencies to advocate for reform (Choi et al., 2019; Furney et al., 2005). Leaders create equitable learning environments for students with diverse learning requirements when they exercise their leadership influence with consideration for all pupils (Choi et al., 2019; Kozleski & Huber, 2012).

The practices and systems within an MTSS framework require a team of leadership support at the district level (Bohanon et al., 2016; Fixsen et al., 2013). To lead and support MTSS, the district-level committee provides the vision, allocates resource funding, and responds to inquiries and concerns. The active participation and responsibility of MTSS leadership teams increase the likelihood of success for substantial and significant implementation endeavors at the system or practice level (Blase et al., 2015; Brown et al., 2014; Fixen et al., 2013; Saldana & Chamberlain, 2012).

A district MTSS coordinator provides technical assistance, organizes district leadership meetings, and organizes agendas and minutes to facilitate integration of the planning efforts (Freeman et al., 2016). Furthermore, a district coordinator is needed to assist school sites in implementing MTSS. In addition to facilitating efficient operations, the district coordinator consolidates data at the school level to enable regular analysis and assistance to schools (Freeman et al., 2016). Competent MTSS District leaders are patient and persistent and advocate for changes in policies and practices. They strengthen their collaborations by regularly involving others in collaborative introspection, resolution of challenges, and implementation of practical solutions (Werch & Runyons-Hiers, 2020). Finally, MTSS leaders understand the value of the school-to-home partnership and facilitate family engagement by providing families with details regarding the school's curriculum, behavior expectations, universal screening process, and interventions, enabling them to comprehend the procedures and collaborate in averting academic and behavioral problems (Weingarten et al., 2020a).

### **Family Engagement Within MTSS**

Numerous studies indicate that the involvement of families in their children's education has a pivotal role in fostering academic achievement among children and adolescents (McLeskey et al., 2017; Weingarten et al., 2020b). Effective family engagement initiatives are balanced, equitable, reciprocal, and transparent partnerships, allowing educators and families to share knowledge and solicit feedback that fosters confidence (Bachman, 2023). To attain successful parental involvement, schools must use a multi-tiered strategy (Bachman, 2023). The involvement of families in the development and execution of positive behavior support practices and systems is a significant aspect of the PBIS and MTSS frameworks (Garbacz et al., 2016; Sheridan et al., 2017; Valli et al., 2016; Weingarten et al., 2020b). Previous research has demonstrated a notable association between the involvement of families in behavior support initiatives and the enduring application of PBIS systems and practices throughout an extended period (Garbacz et al., 2016; Sheridan et al., 2017; Valli et al., 2016). Additionally, research has shown a positive correlation between effective school-family relationships and heightened family involvement in their children's educational pursuits, enhanced academic achievements, and improved student behavioral outcomes (Garbacz et al., 2016; Valli et al., 2016).

The National Center on Intensive Intervention (NCII) recognizes that having robust collaboration between families and schools within the Response to Intervention (RTI) framework is a crucial element of an MTSS framework (Weingarten et al., 2020b). When educators collaborate with families to support students' academic and behavioral development, students are more likely to experience positive outcomes (Weingarten et al., 2020b). Garbacz et al. (2016) researched six family engagement practices that were



most effective in developing a strong partnership between schools and families. These included schools sharing information about the MTSS framework, supporting families in dealing with challenging behaviors and academic concerns, supporting parents in identifying positive parenting strategies, working with the school's Parent Teacher Organization, and including families in problem-solving meetings while allowing them to provide input into decisions regarding interventions, supports, and sharing their interpretations of outcomes (Weingarten et al., 2020a). Weingarten et al. (2020b) suggest providing families of students receiving Tier II interventions quarterly progress monitoring data to boost family engagement and support. Ultimately, research reveals that moderately at-risk adolescents need family support, mentorship, and emotional and mental health help to prevent increased risk factors (Garbacz et al., 2016)

Within MTSS, educators' partner with families to make data-based decisions, which may involve choosing specific interventions, planning adaptations, and determining when to modify, adapt, or intensify existing interventions or supports, as well as when a referral for an evaluation to special education is necessary (Garbacz et al., 2016). Sheridan et al. (2017) emphasizes the importance of school-family collaboration for adolescents with academic and behavioral issues, including impairments. Furthermore, Smolkowski et al. (2017) suggest providing a brief description of the school's MTSS Framework, including support and data-problem-solving processes, to help families comprehend Tier advancement.

Effective communication in multiple directions is crucial for establishing a successful partnership between educators and families. Students made fewer enduring advancements when there was a lack of communication and collaboration between family

and school professionals (Weingarten et al., 2020b); therefore, communication should be reciprocal between families and teachers. Consistent, two-way contact with families during the academic year is essential for establishing solid connections and effective problem-solving.

### **Summary**

Research has shown that an MTSS framework integrated within all systems of a school with high levels of fidelity is the most effective way to help all learners earn positive learning outcomes. To achieve this goal, districts must be meticulous in planning details and deliberate when implementing standards-aligned core instruction and support at the Tier 1 level, universal screening, professional development, team problem solving, data-based decision making, tiered models of academic and behavior support (PBIS and RTII), and finally, robust partnership between schools and families.

More in-depth research is needed to determine how to improve implementation specifically for cyber schools to support better their high number of students who need advanced tiered support through a virtual setting. While current research shows that strengthening Tier I supports and improving school culture can address some of these issues, the research needs to address implementation challenges faced by virtual schools. Given the struggles these types of schools' experience, more research must be dedicated to implementing a robust MTSS framework with true fidelity throughout a cyber school system.

### **Chapter III**

#### **Methodology**

Examining teacher perceptions of fidelity of implementation within a virtual middle school environment can be a complex task best measured through a mixed methods approach using Q-methodology. Mixed methods research is an investigative approach that combines qualitative and quantitative procedures. The concept includes fundamental philosophical principles, utilizes both qualitative and quantitative methods, and combines these approaches in a research study (Creswell & Plano, 2018). Q-methodology is a research methodology that seeks to understand individuals' perceptions and thoughts on specific themes.

Individuals frequently make numerous assessments and judgments about people, objects, and circumstances throughout their daily lives. Many of these assessments are conducted rapidly, informally, and instinctively. These perceptions can be quite significant in comprehending an individual or social viewpoint on a certain subject (Manasia et al., 2018). To transform subjective perceptions into important insights during a social phenomenon study, researchers must verify they are commensurable (Manasia et al., 2018). Q-methodology has been empirically validated as reliable in achieving this goal (Manasia et al., 2018). The process entails discerning patterns in their replies (Brown, 1980; Cross, 2005; Watts & Stenner, 2012).

When implementing the Q-method, data comprises participants' interpretations of a specific issue, gathered by ordering a group of predetermined objects based on their viewpoints and knowledge (Brown, 1980; Perz et al., 2013; Stainton Rogers, 1995; Stephenson, 1953). The components generated from the following factor analysis reveal

subjective constructs included in the rankings. Factor analysis in the Q-technique is utilized to discover relationships between patterns reported by participants, which is a procedural reversal of traditional factor analysis employed to establish relationships between variables. Furthermore, in Q-methodology, the emphasis is on the 'constructions' rather than the 'constructors' (the participants) (Perz et al., 2013; Stainton Rogers, 1995; Stephenson, 1953). Q-sorts facilitate the collection of diverse viewpoints on a subject in a non-confrontational way by providing participants with a predetermined set of questions (Stainton Rogers, 1995; Stephenson, 1953; Watts & Stenner, 2012). Participants are required to solely organize the statements instead of generating their own statements (Zabala et al., 2018).

The current investigation examines cyber schoolteachers' perceptions of the elements within a MTSS framework. Teachers were asked which components, structures, processes, and practices help facilitate the MTSS framework. Meeting the diverse needs of students in an online environment encompasses unique challenges in the logistical structures of being virtual and the diversity in the student population. Teachers' perceptions of the degree to which they are implementing an MTSS Framework into their online classroom must be understood. Furthermore, it is critical to learn how and what elements influence the accuracy of an MTSS framework's virtual implementation among educators. As indicated in the previous chapter, the primary research questions are as follows:

1. What systemic elements do the teachers perceive to facilitate the implementation of MTSS?
2. What systemic barriers do teachers perceive hinder the implementation of MTSS?

3. How do teachers perceive the fidelity of implementing of the elements of the MTSS framework?

### **Participants**

Q-methodology involves the deliberate selection of participants to encompass a diverse and comprehensive range of opinions on the subject at hand (Watts & Stenner, 2012). According to Brown (1980), the Q-technique primarily seeks to identify specific opinions and thereafter analyze, clarify, and compare them. A substantial number of participants is not necessary to maintain a high-quality Q-methodological study.

Therefore, this research study took place within a middle school of a cyber charter school in Pennsylvania. The school serves approximately 5,000 students in grades K-12. A strategic and purposeful approach was used to invite 62 middle school core content general education teachers to participate in the study. The selection of participants was determined based on Watts and Stenner (2012), who recommend that it is best to have a participant group that can offer a relevant, knowledgeable, interesting, and unbiased point of view toward the topic of interest. Thus, teachers in the general education role were chosen based on their likelihood of expressing a relative and particularly crucial perspective on the implementation of MTSS. The selected participant number was determined according to Stainton Rogers (1995), who deemed a range of 40-60 individuals to be sufficient for Q-methodology. Brown (1980) and Stephenson (1953) asserted that a smaller number of participants would be adequate for a thorough investigation. Additionally, Webler et al. (2009), suggested that an optimal number of participants for a successful Q-Methodological study falls between the range of 12 to 36 individuals.

Using electronic communication and a purposeful sampling technique, current full-time middle school core content instructors affiliated with the cyber school were extended an invitation to participate. This method guaranteed that the participants did not have any sense of obligation or coercion to participate. The email included a detailed summary of the study and a distinct link to access the *Q Method Software*. This link ensured anonymity by issuing each participant a unique alphanumeric identification composed of four characters. Personal information was never entered into the *Q Method Software* at any point, and participants were provided informed permission when they joined the *Q Method Software* program. The participants used the online web-based tool to do the Q-sort and finish the follow-up survey.

Additionally, participants could choose to withdraw from the Q-sort program and end their participation in the study at any time. The researcher gathered demographic information from participants, including their current grade level, and years of virtual teaching at the school to ensure a diverse group of participants.

### **Instrumentation: Developing the Concourse**

Creating a set of statements, known as the concourse, that is a widely representative sample of opinions and points of view on a certain issue, is the first step in the Q-method (Watts & Stenner, 2012). An effective Q-set is characterized by coverage and balance; however, there is no specific way to construct a Q-set. Coverage is provided by ensuring that all areas within the relevant conceptual space are addressed, while balance is maintained by avoiding bias towards a specific viewpoint in the Q-set (Watts & Stenner, 2012). A well-designed Q-set consists of concise statements that each provide unique value to the set and do not overlap with one another (Watts & Stenner, 2012).

Furthermore, it is important that the concluding words in the concourse are impartial and do not favor any specific perspective (Watts & Stenner, 2012).

The concourse statements for this study are adapted from certain sections of the Pennsylvania MTSS Needs Assessment, a survey formulated by PaTTAN (PaTTAN, 2019). The survey was developed by PaTTAN using National Implementation Research Network implementation science research and previous collaborative efforts between PaTTAN and the Leadership and Organizational Change for Implementation (PaTTAN, 2019). This tool was created to assist district teams in evaluating the processes and frameworks that either facilitate or impede the creation of a MTSS. The 30-statements used in the study can be seen in Table 1, along with the type of question and the focus area of the element of MTSS the statement which it aligns.

**Table 1**

*Proposed Concourse Statements*

<b>Proposed Concourse Statements for the Q-sort</b>	<b>Type of Statement Wording (positive, negative, neutral)</b>	<b>Focus of Statement</b>
Parents being informed of attendance, academic, and behavior expectations and participating in problem solving meetings if their learner is not meeting those expectations is vital to successful MTSS implementation.	Positive	Family Engagement
Parents should be provided with an overview of MTSS and evidenced based practices and resources to assist with their child's progress.	Positive	Family Engagement
Parents are notified when their learner begins receiving advanced support.	Neutral	Family Engagement
Parents are updated regularly and be able to provide feedback on their child's progress and outcomes	Neutral	Family Engagement

All staff must hold high expectations and believe that all students can achieve to implement MTSS.	Positive	Professional Development
Professional development should be differentiated and include follow-up support as indicated by data evaluation.	Neutral	Professional Development
Teachers need training on data analysis, evidence-based practices, and interventions, and received guided practice in data-based decision making.	Neutral	Professional Development
It is not imperative to have a key person on staff to build staff capacity for best practices and procedures needed for implementing MTSS.	Negative	Professional Development
It is important to have a schedule that supports time allocations required for elements of the MTSS framework is crucial. (Screening, data analysis, problem solving meetings, interventions, planning/monitoring, professional development)	Neutral	Shared Leadership
Having school policies, resources, and procedures that support a three-tiered model are not vital to MTSS implementation.	Negative	Shared Leadership
Having school leaders who support and collaborate with teachers to discuss problems and find solutions is not necessary	Negative	Shared Leadership
Administrators who support teachers in implementing interventions and holding students accountable are not necessary for successful MTSS implementation.	Negative	Shared Leadership
Monitoring the fidelity of core instruction through observation checklists and providing timely feedback to teachers is important in MTSS	Positive	Teaming Structures
Having teams of teachers support the same group of students is essential to implementing MTSS in a virtual environment.	Positive	Teaming Structures
Teacher Teams should be allocated time to meet weekly to review data, identify trends, and determine class level instructional strategies to improve implementation	Positive	Teaming Structures
Having a staff member who has expertise in behavioral interventions, instructional coaching expertise, and expertise on the school leadership team is not helpful in implementing MTSS.	Negative	Teaming Structures
Having whole and small group differentiated instruction during core instruction is vital.	Positive	Tier 1 Core: Standards Aligned Instruction



Evidence-based and culturally responsive practices are evident in core instruction in all classrooms.	Neutral	Tier 1 Core: Standards Aligned Instruction
Clear expectations for behaviors are taught directly to the students.	Neutral	Tier 1 Core: Standards Aligned Instruction
Having a system to monitor fidelity of instruction and provide feedback to teachers is not necessary to successfully implement an MTSS framework.	Negative	Tier 1 Core: Standards Aligned Instruction
It is critical to have a bank of evidence-based practices and interventions for any student at-risk of academic or behavioral failure (chronic absence risk/lack of work submission).	Positive	Tier 2 & 3 Supports
Teachers implementing advanced tiered support should meet weekly to discuss and identify students that need strategic and intense interventions.	Neutral	Tier 2 & 3 Supports
Students move regularly through tiered support in response to collected data.	Neutral	Tier 2 & 3 Supports
Intervention groups do not need to be identified through a problem-solving process that utilizes multiple points of student level data.	Negative	Tier 2 & 3 Supports
Monitoring the fidelity of intervention implementation with specific checklists or feedback for teachers is not vital to an effective MTSS.	Negative	Tier 2 & 3 Supports
It is important to have a school wide assessment plan that includes screening, progress monitoring, diagnostic, and valid summative assessment tools is necessary within MTSS.	Positive	Universal Screeners & Data Based Decision Making
Grade/Department/teacher teams having regular common planning times to review grade/course level data is to review and identify trends using principles of collaboration and consensus building is critical for success.	Positive	Universal Screeners & Data Based Decision Making
Having cut points for making systematic decisions (when to enter/exit/change an intervention) is helpful in MTSS.	Neutral	Universal Screeners & Data Based Decision Making
Early Warning Systems for students at-risk for truancy, behavior concerns, and course failure are not crucial for MTSS	Negative	Universal Screeners & Data Based

		Decision Making
Following a formal protocol such as TIPS, that include agendas, roles, and a problem-solving process for data meetings is not essential in implementing MTSS.	Negative	Universal Screeners & Data Based Decision Making

**Procedures**

Once the Youngstown State University Human Subjects/Institutional Review Board (IRB) approved the study (See Appendix A), selected subjects were invited to participate by email using purposive sampling. The researcher employed purposive sampling to guarantee a representative sample of individuals. Q-methodology necessitates the involvement of people who possess robust perspectives regarding the subject under investigation (Watts & Stenner, 2012). The participant recruitment method was compatible with this objective, as the participant emails explicitly mentioned this issue. Both the email and the study indicated that the activities potentially needed a time commitment of 30-45 minutes. Individuals who lacked interest in this topic were unlikely to consent to participate in the study due to the extended duration it required.

This study carried no inherent risk of harm, and the collected data does not contain any personally identifiable information. The Q-methodology facilitated the exploration of many viewpoints on an issue in a non-confrontational manner by providing participants with a pre-generated Q-set; therefore, eliminating the need for them to produce their own distinct statements regarding components that influence the fidelity of implementation of MTSS (Zabala et al., 2018). The Q-sort was conducted using *Q Method Software*, a web-based platform. The *Q Method Software* enabled participants to conveniently access the Q-sort on any device at any point in time without the need to

download any other software or applications. Additionally, the Q-sort was accessible for two weeks. The *Q-Method Software* accurately recorded the data of each participant; therefore, eliminating the potential for human error. A Q-sort captures the subjective perspectives of each participant (Herrington & Coogan, 2011).

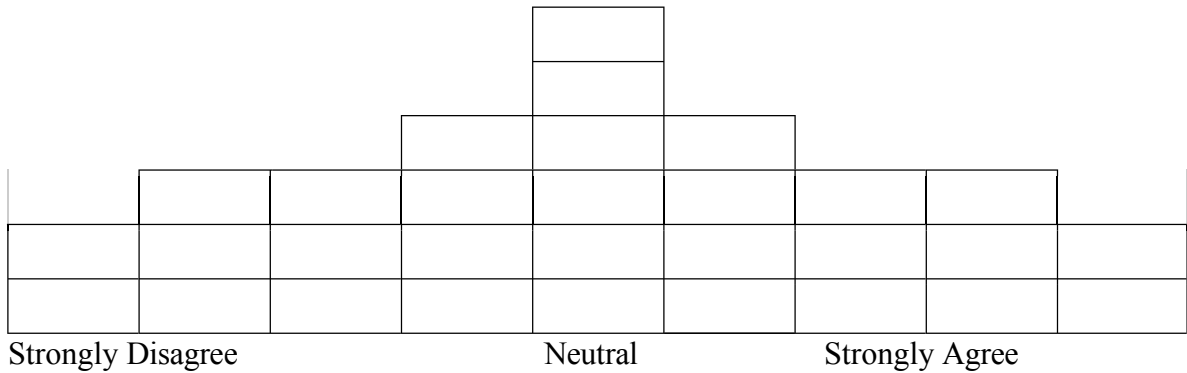
Every participant received detailed information regarding the study's objectives and the procedures for redacting their personal information. The utmost confidentiality was upheld during the study as well as after its completion. The information also encompassed a declaration regarding the voluntary aspect of participating in the study, and the researcher notified participants that they had the option to cease and withdraw their involvement at any point. Additionally, participants may obtain a copy of the data and research findings of the study.

Within the Q-sort, the participants were given the prompt: "What elements are most important for implementing MTSS with high levels of fidelity?" For each statement, click the icon that aligns most with your view." The icons represent "strongly agree, neutral, strongly disagree." The participants read each concourse statement and dragged it to the group that best reflected their personal perspective and views elements.

The final phase of sorting occurred next. The participants placed the pre-sorted concourse statements on the distribution framework according to their viewpoints. Then, they sorted them in order from strongly disagree to strongly agree. A forced distribution mechanism was implemented for participants to rank order the statements. All concourse statements were placed on the distribution framework due to this mandatory distribution. Figure 6 demonstrates the distribution framework for the Q-sort, based on a 30-item concourse.

**Figure 6**

*Q-sort Distribution Framework*



*Note.* Participants were guided through the Q-sort process by multimedia elements and suggestions. There was no time constraint for completing the Q-sort.

There is no possibility of human error when capturing the data from the Q-sorts because the *Q Method Software* automatically logs each participant's response. Upon completion, the data from every participant can be seen instantly when using the Q-sort method (*Q Methods Software, 2024*).

In addition to the statements within the Q-sort, an online survey was included as part of the *Q Method Software* process. This survey asked the participants to identify what grade level they currently teach, as well as to identify which range of virtual teaching experience they have (0-4 years; 5-10 years; more than 10 years).

Teachers were then given an opportunity to respond to open ended questions at the end of the Q-sort in order to explain their reasoning, personal beliefs, and experiences that influenced how they sorted the statements. In order to better understand the teachers' perceptions of fidelity of implementation of the elements of the MTSS framework, the teachers were asked to rank which of the seven elements of focus were being implemented with the highest and lowest fidelity in their online middle school.

After completing the online Q-sort, participants could enter to win a \$50 Amazon gift card in a drawing. There were two prizes given out. Interested participants clicked on a link to a to register for the drawing, which was made available upon submission. Additionally, participants could complete an online form by entering their email or phone number to where the digital gift card could be sent. It is important to note that this form is not connected in any way to the completed Q-sort or survey items to maintain anonymity. The form automatically assigned a number for each participant, which was used to complete the gift card drawing. An online random number generator was used to select the two winning participants.

### **Data Analysis**

Guidelines established by Watts and Stenner (2012) were followed in the analysis of the Q-sort. By taking a comprehensive approach to the data, themes and subgroups were identified through analysis. The analysis concentrated on the collective ideas rather than the unique perspectives of each participant (Watts & Stenner, 2012). Principal component analysis (PCA), Pearson, Kendall, or Spearman correlation, rotation methods (orthogonal, oblique, or Varimax), and the number of desired factors can all be ascertained by the researcher using the *Q Method Software* (*Q Methods Software*, 2024). The *Q Method Software* produced reports for analyzing containing various data, including rank statement totals, normalized scores for factors, descending array of differences for factors, factor characteristics, statement of factor scores, standard error of differences, correlation between factor Z-Scores, distinguishing statements, and consensus statements (*Q Methods Software*, 2024).

Each participant's demographic data was gathered as part of the *Q Method Software* process. The survey's open-ended responses were evaluated using factor analysis to discover significant themes linked to participants' subjective judgments on how components, structures, procedures, or practices influence implementation fidelity. The researcher also assessed which elements the teachers perceive to be implemented with the highest degrees of fidelity.

### **Summary**

This mixed methods study examined teachers' perceptions of which components, structures, processes, or practices influence the implementation fidelity and their perceptions of the level of implementation fidelity within their online middle school environment. The research was conducted in a cyber charter middle school in Pennsylvania, which follows a synchronous structure where all students log in to virtual classes from their residence in Pennsylvania. Participants of this study were middle school level general education core content teachers. The participants were selected using a strategic purposeful sampling. Several safeguards were set in place to protect participants in the study, and each participant passively consented by completing the Q-sort. The researcher masked participants' identities, and general identifiers were used to describe participants when reporting results. Results from the investigation will potentially improve MTSS being implemented with fidelity in a cyber school environment.

## Chapter IV

### Results

This investigation aims to examine the perceptions of general education middle school teachers on the implementation fidelity of MTSS in an online environment. Quantitative and qualitative data were collected and examined to find meaning in the perspectives of middle school cyber schoolteachers implementing an MTSS framework in a middle school setting of a cyber charter school in Pennsylvania. The results of this data were used to answer the following research questions for this study:

1. What systemic elements do the teachers perceive to facilitate the implementation of MTSS?
2. What systemic barriers do teachers perceive hinder the implementation of MTSS?
3. How do teachers perceive the fidelity of implementing the MTSS framework?

### Participants

Participants were provided with a link to complete this study. The survey was sent to 62 individuals, of which 40% ( $n = 25$ ) chose to participate. The participants were asked to indicate how many years of virtual teaching experience they had acquired and their current teaching grade level. One participant chose not to participate in the demographic questions. Of the 24 participants who chose to respond, 67% ( $n = 16$ ) had over 10 years of virtual teaching experience; 13% ( $n = 3$ ) had between five and nine years of virtual teaching experience; and 21% ( $n = 5$ ) had less than four years of virtual teaching experience. The participants were across the three grade levels within the middle school. Fifty percent ( $n = 12$ ) of the teachers currently teach seventh grade; 33% ( $n = 8$ ) currently teach sixth grade; and 17% ( $n = 4$ ) currently teach eighth grade. A

crosstabulation analysis of virtual teaching experience across their current grade levels was completed and presented in Table 2.

**Table 2**

*Crosstabulation of Virtual Teaching and Experience and Current Grade Level*

Current Grade Level	Years of Virtual Teaching Experience		
	0-4	5-9	10+
6 <sup>th</sup> Grade	0	2	6
7 <sup>th</sup> Grade	4	0	7
8 <sup>th</sup> Grade	0	1	3

Table 2 highlights the distribution and potential correlations between educators' familiarity with virtual instruction and the grade levels the participants are currently teaching. This information demonstrates that most teachers across each grade band have substantial virtual teaching experience.

Participants were asked to indicate which of the seven elements of MTSS they felt were currently implemented with the highest and the lowest levels of fidelity. This information is crucial to the study because it provides a more comprehensive understanding of the participants and their perceptions of the overall implementation of the MTSS framework. Table 3, below, illustrates the implementation fidelity of the seven core elements of the MTSS framework, highlighting which elements the teachers perceive to be currently executed with the highest levels of fidelity across the middle school.



**Table 3**

*Teachers' Perceptions of Which Element is Implemented with the Highest Level of Fidelity*

Element of MTSS	Percentage of Teachers
Tier 1 Core: Standards Aligned Instruction	38%
Teaming Structures	21%
Professional Development	17%
Shared Leadership	8%
Tier 2 & 3 Supports	8%
Universal Screeners & Data-Based Decision Making	8%

Table 3 shows that 38% ( $n = 9$ ) of the participants feel that Tier 1 Core: Standards Aligned Instruction is being implemented with the highest levels of adherence among the elements. Teaming Structures follow with 21% ( $n = 5$ ), and Professional Development with 17% ( $n = 4$ ).

In comparison, Table 4 details the teacher's perceptions of which elements are currently implemented with the lowest levels of fidelity.

**Table 4***Teachers Perceptions of Which Element is Implemented with the Lowest Level of Fidelity*

Element of MTSS	Percentage of Participants
Family Engagement	33%
Tier 2 & 3 Supports	25%
Universal Screeners & Data-Based Decision Making	21%
Shared Leadership	13%
Professional Development	4%
Teaming Structures	4%

Family Engagement is perceived to be the weakest element, with 33% ( $n = 8$ ) of participants identifying it as having the lowest implementation fidelity. This is followed by Tier 2 & 3 Supports, identified by 25% ( $n = 6$ ) of participants, and Universal Screeners & Data-Based Decision Making, noted by 21% ( $n = 5$ ).

### **Q-Sort Results**

#### ***Correlation Matrix***

The link to the raw data, which can be found in Appendix B shows the correlation matrix analysis between the 25 Q-Sorts. The correlation matrix is a comparison or intercorrelation between each Q-sort (Watts & Stenner, 2012). Correlation can range from -1.00 to +1.00. As the numbers move closer to  $\pm 1.00$ , the strength of the correlation increases. A correlation of 0 reflects no shared information. Table 5 represents the correlation between factor scores.

**Table 5.***Correlation between factor scores*

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	-	0.70	0.31	0.14
Factor 2	-	-	0.38	0.04
Factor 3	-	-	-	0.00
Factor 4	-	-	-	-

The results revealed most factors having moderate correlations between respondents ( $r < .39$ ), upholding discriminating viewpoints from the participants' Q-sort. As indicated in Table 5, the highest association is between Factor 1 and Factor 2 ( $r = .70$ ), with a low association between Factor 2 and Factor 4, while no association is revealed between Factor 3 and Factor 4.

The 25 Q-sorts were intercorrelated, and factors were analyzed by extracting four centroid factors and a Varimax rotation of those four factors. Auto-flagging was set to  $p < 0.05$ , and a majority of common variance was required. Factor analysis determines which individuals can be grouped by demonstrating similar perspectives on a particular issue (Watts & Stenner, 2012). Continued analyses involved identifying and removing common variance from the results to account for variability and look for shared meaning in the data.

The quantum (Q) analysis was computed three times to ensure the optimal number of factors for participants with Q-sort extraction. Initially, a five-factor model

was used, resulting in 48% of variance captured with 8 participants not loading on one of the factors. A six-factor model was then used, resulting in a 31% variance captured with 8 participants not loading on one of the factors. Finally, a four-factor model was run, resulting in 55% of the variance, with 5 participants not loading on one of the factors. The comparison between the models determined that a four-factor model is the most parsimonious and best fit for this study.

A review of the characteristics of the four factors was then completed, which can be viewed in Table 6.

**Table 6**

*Crosstabulation of Current Grade Level and Factors*

	Factor 1	Factor 2	Factor 3	Factor 4	NA
6th Grade	3	2	1	1	1
7th Grade	4	2	2		4
8th Grade	1	2	1		

While the seventh-grade teachers comprised 50% ( $n = 12$ ) of the participants, four did not load into a specific factor. Table 7 provides the reported years teaching virtually and factor loading.

**Table 7***Crosstabulation of Years of Virtual Teaching Experience and Factors*

Virtual Experience	Factor 1	Factor 2	Factor 3	Factor 4	NA
0-4 Years of Virtual Experience		1	1		3
5-9 Years of Virtual Experience		2	1		
10+ Years of Virtual Experience	8	3	2	1	2

Most of the teachers who loaded into Factor 1 have been teaching virtually for over 10 years. Table 8 provides a breakdown of the factor characteristics, including number of defining variables, reliability coefficient, composite reliability, and standard error of each factor's z-score.

**Table 8***Factor Characteristics*

Factor Characteristics	Factor 1	Factor 2	Factor 3	Factor 4
No. of Defining Variables	9	6	4	1
Avg. Rel. Coef.	0.80	0.80	0.80	0.80
Composite Reliability	0.97	0.96	0.94	0.80
S.E of Factor Z-Scores	0.16	0.20	0.24	0.45

As indicated in Table 8, the factors have good reliability. The four-factor model resulted in nine defining variables in Factor 1, six in Factor 2, four in Factor 3, and one in Factor 4.

These four factors represent individuals with similar perspectives on which elements influence the level of implementation fidelity of MTSS. Table 8 reveals the eigenvalues ranging from the highest level of 9.56 to the lowest level of 1.06. The

analysis indicated that 55% of the variance responses could be identified in the four factors, as indicated in Table 9.

**Table 9**

*Eigenvalues*

	Factor 1	Factor 2	Factor 3	Factor 4
Eigenvalues	9.56	1.62	1.40	1.06
% Explained Variance	38	6	6	4
Cumulative % Expln Var	38	45	50	55
Standard Error	0.05	0.05	0.05	0.05

The four factors exceeded the acceptable 1.0 cutoff with eigenvalues of 9.56, 1.62, 1.40, and 1.06. This supports the four-factor model as the most parsimonious model in representing the participants' perceptions of which components influence implementation fidelity.

**Varimax Rotation.**

Factor rotation using varimax rotation was employed in this analysis. Varimax rotation is a statistical technique that employs an algorithm to elucidate the connections between elements by reducing the variance (Watts & Stenner, 2012). The method determines the degree of alignment between the responses of one participant and those of others who have comparable responses (Watts & Stenner, 2012). This ensures that the Q-sort will have the highest possible factor loading, leading to a fit characterized by only one factor. Table 10 represents the Q-sort associated with each participant following the varimax rotation. Bold numbers and X indicate factor extraction in the appropriate factor column.

**Table 10***Factor Matrix with an X Indicating a Defining Sort*

Participant	Factor 1		Factor 2		Factor 3		Factor 4	
656	-0.15		0.05		<b>0.50</b>	<b>X</b>	-0.40	
0PIA	0.06		<b>0.49</b>	<b>X</b>	0.22		-0.07	
1246	0.17		0.03		<b>0.69</b>	<b>X</b>	-0.04	
25C8	0.48		0.39		0.38		0.32	
2K1T	<b>0.54</b>	<b>X</b>	0.15		0.12		0.39	
51VZ	0.32		<b>0.72</b>	<b>X</b>	-0.04		0.30	
681M	0.23		0.18		<b>0.38</b>	<b>X</b>	0.09	
69BY	<b>0.65</b>	<b>X</b>	0.23		-0.01		0.26	
80WH	0.04		0.27		<b>0.65</b>	<b>X</b>	0.09	
AK3G	0.43		0.52		0.46		0.17	
C6CM	<b>-0.41</b>	<b>X</b>	-0.25		0.02		-0.09	
ETQ7	0.60		0.14		0.58		0.21	
FOOD	0.45		<b>0.57</b>	<b>X</b>	0.27		0.06	
GK4M	0.40		-0.09		0.48		0.49	
JNYB	<b>0.54</b>	<b>X</b>	0.25		0.02		0.32	
N5C8	0.39		<b>0.69</b>	<b>X</b>	0.21		0.41	
NJPS	<b>0.69</b>	<b>X</b>	0.41		0.27		0.21	
O2ST	<b>0.47</b>	<b>X</b>	0.20		0.31		-0.14	
S4Z9	0.05		-0.01		-0.05		<b>0.49</b>	
S8MI	<b>0.74</b>	<b>X</b>	0.44		0.19		0.17	<b>X</b>

TMQN	0.16		<b>0.44</b>	<b>X</b>	0.04	-0.05
UZHK	<b>0.68</b>	<b>X</b>	-0.08		0.18	0.04
WVDA	<b>0.79</b>	<b>X</b>	0.46		0.14	-0.02
Z4NO	0.04		<b>0.50</b>	<b>X</b>	0.45	-0.06
ZC9Z	0.32		0.34		0.49	0.62

---

*Note.* X indicates significant factor loading.

Of the 25 participants, 20 significantly loaded one of the four criteria.

Collectively, these four factors account for 55% of the variability observed in the study.

The remaining five participants did not exhibit a significant weight on any of the four factors. This suggests that the four primary variables extracted from the investigation were not well-suited to the participants. For this study, Factor 1 will be referred to as *This is Why We Can't Have Nice Things*; Factor 2 will be referred to as *Long Live*; Factor 3 will be referred to as *Mastermind*; Factor 4 will be referred to as *You're on Your Own Kid*, and those participants that were outliers and did not fit into a specific factor will be referred to as *Glitch*.

### **Factor Arrays, Identification, and Interpretation**

Q-methodology reflects the participants' perspectives and, for the current investigation, the participants subjective experiences implementing MTSS in an online middle school environment. Therefore, a factory array is a visual tool representing the participants' collective ideas. It does not represent any particular individual's remarks, assertions, or views but rather a collection of individuals who share similar viewpoints. In the following section, arrays will be provided for each of the four-factor models,



identification of the factor and an interpretation of the participant's points of view. A larger image of each factor's array can be viewed in Appendix B.

**Factor 1: This is Why We Can't Have Nice Things**

*"So why'd you have to rain on my parade?*

*I'm shaking my head and locking the gates*

*This is why we can't have nice things, darlin'*

*Because you break them, I had to take them away"*

– Taylor Swift

**Figure 7**

*Model Sort for Teachers Who Loaded Significantly on Factor 1: This is Why We Can't Have Nice Things*



Strongly Disagree

Neutral

Strongly Agree

The factor array for *This is Why We Can't Have Nice Things* is depicted in Figure 7. There are nine individuals statistically loading into this factor. The demographic and open-ended survey that was included in the study was completed by eight of the individuals. Each of these educators has more than 10 years of expertise in the classroom. Three of these participants are currently teaching sixth grade, four are teaching seventh grade, and one is teaching eighth grade. This group accounted for 38% of the study variance and an eigenvalue of 9.56. Table 11 lists the distinguishing statements for *This is Why We Can't Have Nice Things*.

**Table 11**

Distinguishing Statement for *This is Why We Can't Have Nice Things*

No.	Statement	Endorsement
5	All staff must hold high expectations and believe that all students can achieve to implement MTSS.	Positive
14	Having teams of teachers support the same group of students is essential to implementing MTSS in a virtual environment.	Positive
17	Having whole and small group differentiated instruction during core instruction is vital.	Positive

***This is Why We Can't Have Nice Things* General Viewpoint**

*This is Why We Can't Have Nice Things* is empowered by collaboration and holds high expectations for all. They prioritize the formation of teaching teams that provide support to the same group of pupils. They strongly believe that setting high goals for all staff and having faith in the potential of every student are crucial elements for an

effective MTSS framework. They also emphasize the importance of implementing both whole and small group differentiation. This group also desires a robust system that receives substantial backing from administration, including policies, resources, and procedures that facilitate the identification of students' specific requirements. This, in turn, enables teachers to effectively provide support while students endeavor to achieve mastery in the fundamental curriculum.

When prompted to contemplate specific procedures, processes, and elements that aid in the implementation of MTSS, this group of participants believed that cooperation between teachers, administrators, and parents is necessary to assist at-risk students. They appreciated the time allocated for collaboration that was incorporated into the schedule. These educators emphasized the importance of implementing universal screening techniques to address the individual requirements of students. When asked to reflect on the current processes and practices that hinder the fidelity of implementation of MTSS, these teachers collectively expressed a need for more staff and resources to support students who are showing moderate and high levels of risk. This cohort of educators also believed that well-defined protocols and decision-making guidelines and ample time for productive collaboration among teachers, administrators, and parents enhance the efficacy of the MTSS framework. These individuals have the collective belief that students who demonstrate moderate and high-risk levels can attain positive learning outcomes through the provision of appropriate support, the implementation of shared leadership among staff, and the establishment of strong partnerships with families.

### **Factor 2: Long Live**

*I was screaming, "Long live all the magic we made"*

*And bring on all the pretenders, I'm not afraid*

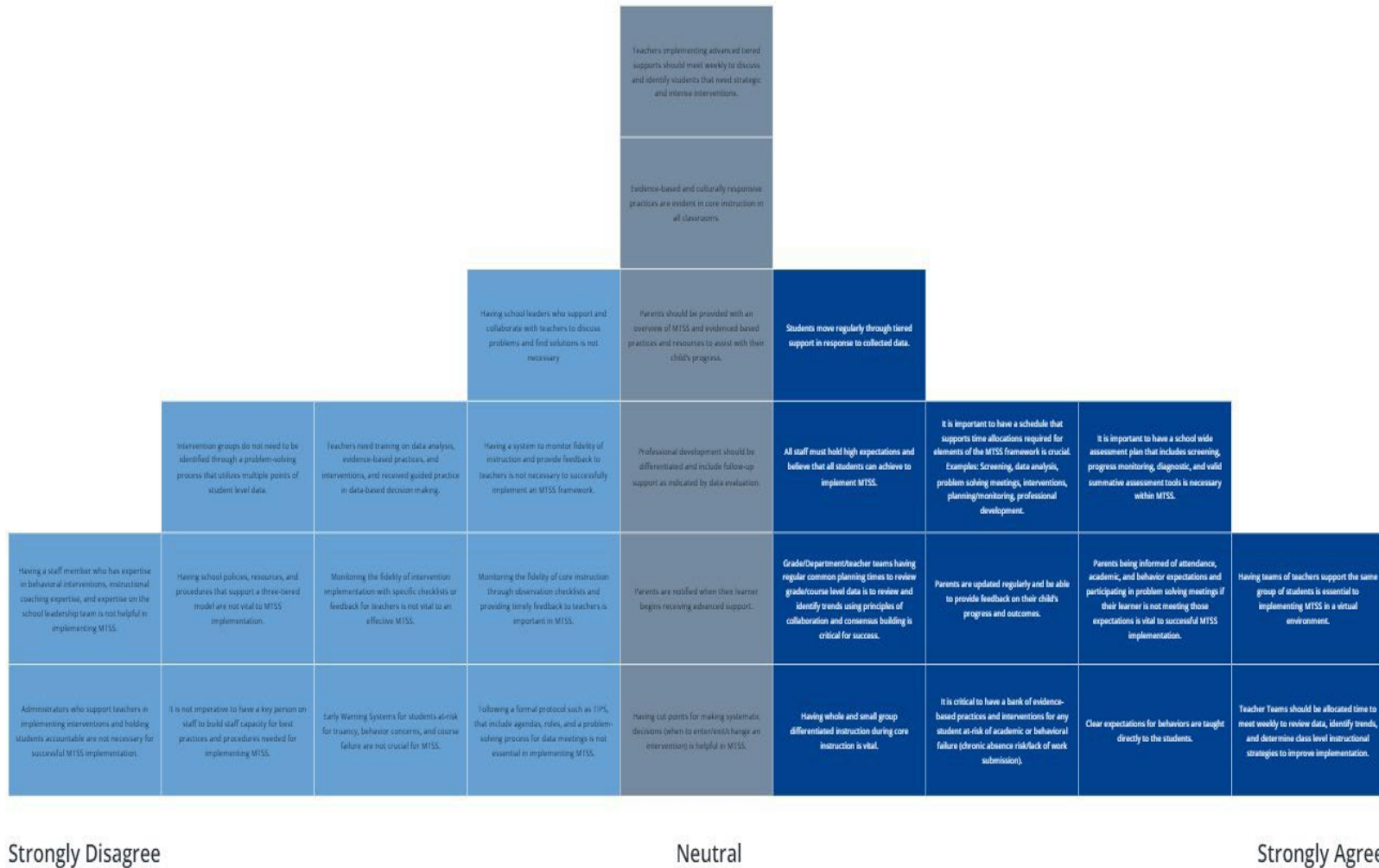
*Long live all the mountains we moved*

*I had the time of my life fighting dragons with you*

- Taylor Swift

**Figure 8**

*Model Sort for Teachers Who Loaded Significantly on Factor 2: Long Live*



The factor array for *Long Live* is depicted in Figure 8. There are six individuals statistically loading into this factor. Three individuals have more than 10 years of virtual teaching experience, two have 5-9 years of virtual teaching experience, and one has between 0-4 years of virtual teaching experience. Two of these participants are currently teaching sixth grade, two are currently teaching seventh grade, and two are currently teaching eighth grade. This group accounted for 6% of the study variance and an eigenvalue of 1.62. Table 12 lists the distinguishing statements for Factor 2: *Long Live*.

**Table 12**

Distinguishing Statements *for Long Live*.

No.	Statement	Endorsement
15	Teacher Teams should be allocated time to meet weekly to review data, identify trends, and determine class-level instructional strategies to improve implementation.	Positive
19	Clear expectations for behaviors are taught directly to the students.	Neutral
7	Teachers need training on data analysis, evidence-based practices, and interventions and receive guided practice in data-based decision-making.	Neutral

***The Long Live General Viewpoints***

*Long Live* values working as a team of teachers supporting the same student group in their courses. They are confident in their ability to identify needs, implement interventions, and support their student’s needs through regular review of their student’s data. They value being able to support these needs within their core team of teachers.

*Long Live* recognizes the critical need for a staff member who possesses competence in

behavioral interventions, instructional coaching, and leadership to effectively implement MTSS. These teachers contend that the presence of administrators who actively endorse teachers in implementing interventions and assuring student responsibility is crucial for the successful implementation of MTSS. These educators prioritize the significance of identifying intervention groups by employing a comprehensive problem-solving method that utilizes several sources of student-level data. Furthermore, they emphasize the importance of implementing school regulations, allocating resources, and establishing procedures that support a three-tiered model, as these are essential for the effective operation of MTSS.

When asked to evaluate their current process for supporting the implementation of MTSS, four of the six respondents stated that teacher teams substantially enhance the implementation of the MTSS framework. Everyone believed that the designated time in the schedule, which enables them to meet with their team and coordinate support across different subject areas, had a significant impact on the successful implementation of MTSS. The teachers also valued the fact that their professional growth is tailored to meet the specific requirements of each educator, and that the school dedicates time in the timetable to assist students who are at risk. When questioned about the present practices that impede the implementation of MTSS, most of these people voiced worries about the lack of clear communication regarding the expectations and priorities of projects. The middle school instructors perceived a lack of consistency in the priorities conveyed by the various administrators.

### **Factor 3: Mastermind**

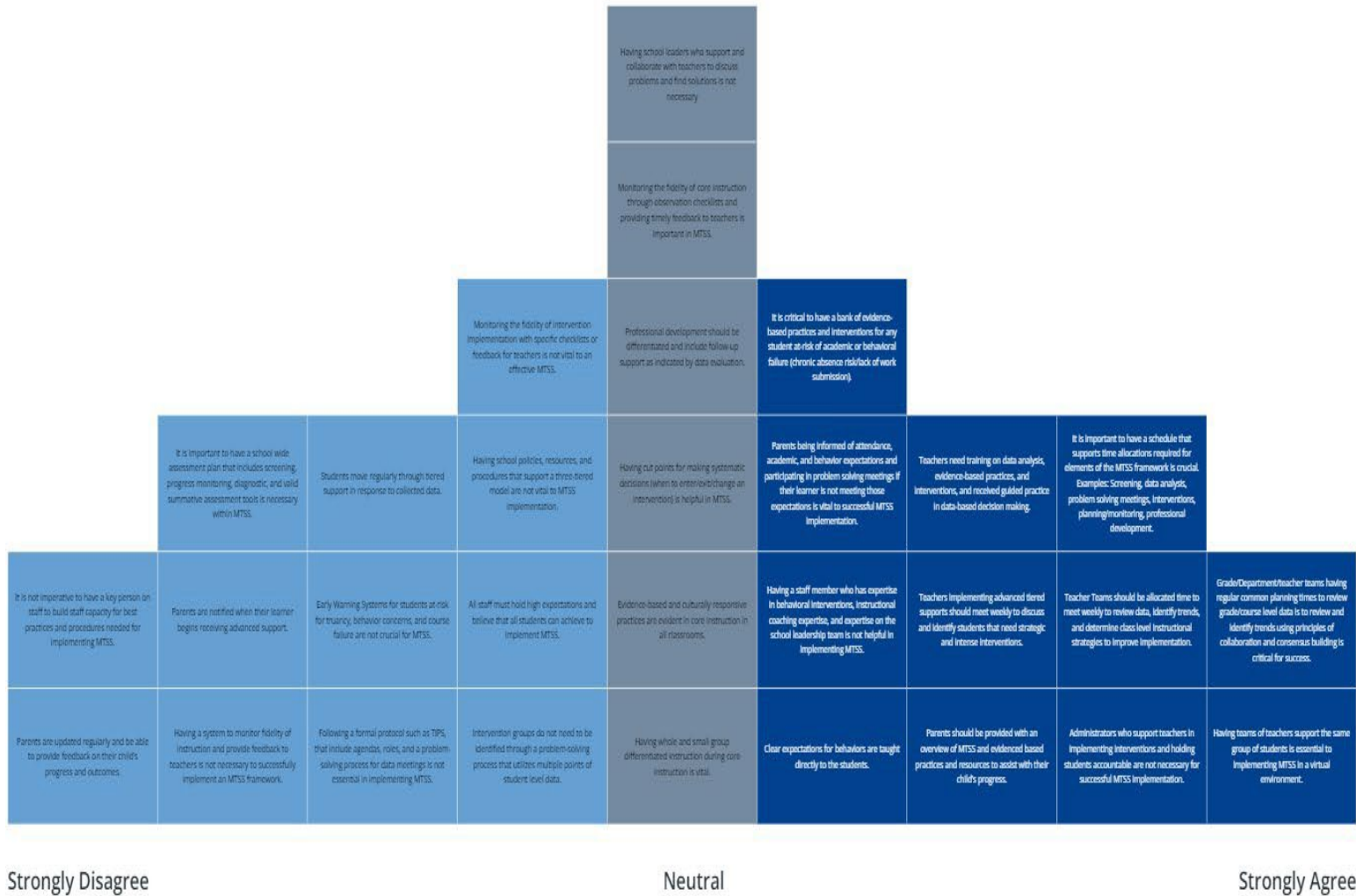
*“If you fail to plan, you plan to fail”*



– Taylor Swift

**Figure 9**

*Model Sort for Teachers Who Loaded Significantly on Factor 3: Mastermind.*



The factor array of *Mastermind* is depicted in Figure 9. There are four individuals statistically loading into this factor. Two individuals have more than 10 years of virtual teaching experience; one individual has 5-9 years of virtual teaching experience, and one individual has 0-4 years of virtual teaching experience. One participant is currently teaching sixth grade, two participants are currently teaching seventh grade, and one participant is currently teaching eighth grade. This group accounted for 6% of the study variance and an eigenvalue of 1.40. Table 13 lists the distinguishing statements for Factor 3: *Mastermind*.

**Table 13***Distinguishing Statements for Mastermind*

No.	Statement	Endorsement
27	Grade/Department/teacher teams having regular, common planning times to review grade/course level data is critical for success. It is important to review and identify trends using principles of collaboration and consensus-building.	Positive
12	Administrators who support teachers in implementing interventions and holding students accountable are unnecessary for successful MTSS implementation.	Negative
15	Teacher Teams should be allocated time to meet weekly to review data, identify trends, and determine class-level instructional strategies to improve implementation.	Positive
22	Teachers implementing advanced tiered supports should meet weekly to discuss and identify students who need strategic and intense interventions.	Neutral
16	Having a staff member with expertise in behavioral interventions, instructional coaching, and expertise on the school leadership team is not helpful in implementing MTSS.	Negative
23	Students move regularly through tiered support in response to collected data.	Neutral
3	Parents are notified when their learner begins receiving advanced support.	Neutral

	A school-wide assessment plan that includes screening, progress	
26	monitoring, diagnostic, and valid summative assessment tools is necessary within MTSS.	Positive

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### ***The Mastermind General Viewpoints***

This group of individuals believes that collaboration and cooperation are critical factors in the development of an effective MTSS framework. As these educators unanimously concur, implementation fidelity is significantly influenced by collaboration, regular planning time, and data review with their grade level and content area teams. In addition, they place importance on maintaining a staff of educators that provide support to a consistent set of pupils. This group is strengthened by receiving feedback and ongoing coaching from key staff members who possess knowledge of MTSS. These staff members can enhance the group's skills and provide guidance in implementing the framework's best practices.

When asked to reflect on which processes and practices facilitate the implementation of MTSS, they collectively felt teacher teaming, allotted data review, and planning time are key processes that improve the fidelity of MTSS. When asked to reflect on current practices and share which practices and processes hinder implementation, this group feels strongly that more administrative support and collaboration are needed. They expressed the lack of shared leadership of all students and inconsistent support and collaboration from school leaders, significantly impacting the fidelity of implementing MTSS. They felt a significant need for more support and accountability from students who experience severe chronic absenteeism. Finally, they feel a need for more specific

training in MTSS and more staff to support the needs of students showing high-risk levels.

**Factor 4: *You're on Your Own Kid***

*"You're on your own, kid*

*Yeah, you can face this*

*You always have been"*

– Taylor Swift

**Figure 10**

*Model Sort for Teachers Who Loaded Significantly on Factor 4: You're on Your Own Kid*

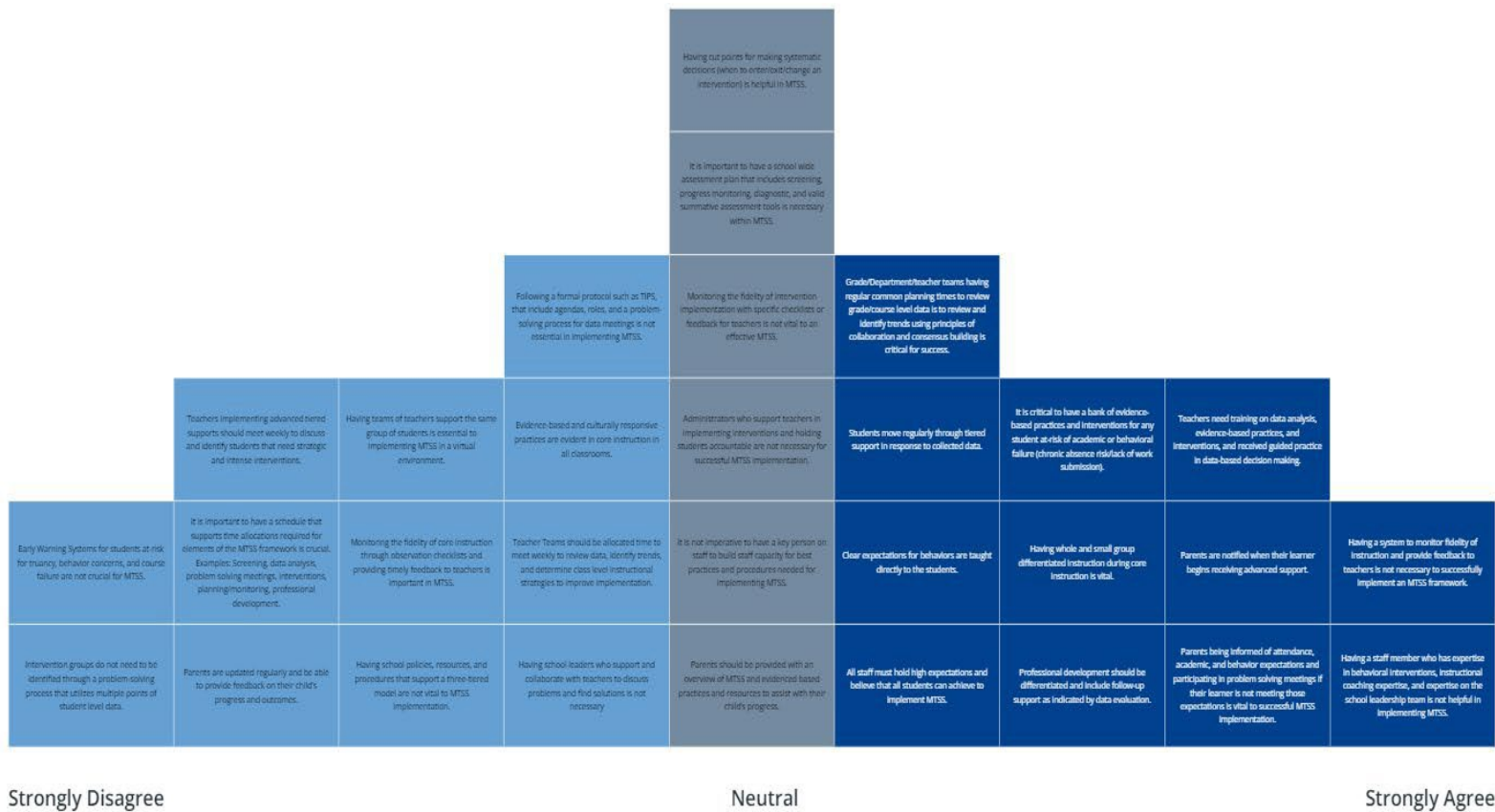


Figure 10 depicts the factor array of *You're on Your Own Kid*. One individual was statistically loaded into this factor. This teacher has more than 10 years of virtual teaching expertise and currently teaches the sixth grade. This group accounted for 4% of the study variance and had an eigenvalue of 1.06. Table 14 lists the distinguishing statements for Factor 4: *You're on Your Own Kid*.



**Table 14***Distinguishing Statements for You're on Your Own Kid*

No.	Statement	Endorsement
16	Having a staff member with expertise in behavioral interventions, instructional coaching, and expertise on the school leadership team is not helpful in implementing MTSS.	Negative
20	A system to monitor the fidelity of instruction and provide feedback to teachers is not necessary to successfully implement an MTSS framework.	Negative
8	Having a key person on staff is not imperative to build staff capacity for best practices and procedures for implementing MTSS.	Negative
12	Administrators who support teachers in implementing interventions and holding students accountable are unnecessary for successful MTSS implementation.	Negative
26	A school-wide assessment plan that includes screening, progress monitoring, diagnostic, and valid summative assessment tools is necessary within MTSS.	Positive
14	Having teams of teachers support the same group of students is essential to implementing MTSS in a virtual environment.	Positive
9	It is crucial to have a schedule that supports the time allocations required for elements of the MTSS framework. Examples:	Positive

Screening, data analysis, problem-solving meetings,  
interventions, planning/monitoring, professional development.

Teachers implementing advanced tiered supports should meet  
22 weekly to discuss and identify students who need strategic and Neutral  
intense interventions.

### ***You're on Your Own Kid* General Viewpoints**

*You're on Your Own Kid* feels that teachers should be given the autonomy to be self-sufficient in determining how to support their students. They are self-assured in their ability to handle the components of MTSS and do not perceive the necessity of a middle school member with substantial MTSS expertise or the necessity of closely monitoring the framework's implementation. The training on data analysis, evidence-based methods, behavior expectations, and interventions is highly valued by them. This educator places a high importance on the collaboration between parents and the school, and they feel that regular contact is crucial to guarantee that students attend school and that parents can effectively support their children's academic requirements. The educator values collaboration among teacher teams who share the same students but prioritizes formal weekly data meetings for students receiving advanced tiered supports.

When asked to reflect on current practices that facilitate the implementation of MTSS, this teacher feels that the school's universal screening process and how the school uses the data to make decisions to identify the needs and supports of all students is the greatest strength. When asked which processes and practices hinder the implementation of MTSS, this individual expressed the lack of time and support greatly impacts fidelity.

They recognize that effective implementation can be time-consuming and feel that the current processes and structures hinder implementation fidelity.

### **Outlying Participants: Glitch**

*I think there's been a glitch, oh, yeah.*

*Five seconds later, I'm fastening myself to you with a stitch, oh, yeah.*

*And I'm not even sorry.*

*Nights are so starry, blood moonlit.*

*It must be counterfeit.*

– Taylor Swift

Five of the participants did not significantly load into one of the study's factors. These participants had perceptions that did not fit well with the five main factors that were extracted from the Q-sort. However, each of them responded to the open-ended questions and were included in the analysis of those responses. Two participants expressed the value of teachers working as a team to support the same group of students as the most significant structure influencing fidelity. The remaining two participants felt that having time for small group interventions during and in addition to Tier 1 instruction are both strong influences to increasing the fidelity of implementation.

### **Summary**

This chapter presented the results of quantitative and qualitative factor analysis that was completed following the sorting of 30 statements by 25 middle school virtual teachers. Twenty-four of the 25 participants completed the demographic and open-ended questions on the survey; one participant chose only to complete the Q-sort. Q-Methodology was used to explore a variety of teachers' perspectives on which practices,

processes, components, and elements of MTSS influence the implementation fidelity of the MTSS framework. Twenty of the 25 participants loaded significantly into one of the four distinct factors indicating similarities of viewpoints. The four factors were Factor 1: *This is Why We Can't Have Nice Things*; Factor 2: *Long Live*; Factor 3: *Mastermind*; Factor 4: *You're on Your Own Kid*.

In addition, five participants did not load significantly on any of these four factors. Their responses within the Q-sort reflected various opinions on how they agreed with the concourse statements. However, their responses to the open-ended questions identified a structure that supports differentiation and small group support as strong influencers for increasing fidelity and lack of training and resources as obstacles to reaching fidelity of implementation. Chapter Five will discuss the findings and how the findings align with existing research, limitations of the study, recommendations for future research, and a summary. The full output of the Q-Sort and Open-Ended Survey can be reviewed using the link in Appendix C.

## **Chapter V**

### **Discussion**

MTSS is a comprehensive framework that employs evidence-based practices, structures, and processes to address all learners' behavioral and academic requirements (Sailor et al., 2021). MTSS is the cornerstone of a school-wide support model that is designed to improve the outcomes of all students. Implementing the framework involves a comprehensive transformation of an educational organization characterized by several key elements. Effective and able implementation of MTSS routines happens through staff capabilities and system capacity development for district reform (Eagle et al., 2015).

First, tiered interventions are universally applied to all students without categorization. Second, program evaluation, including screening and progress monitoring, is conducted at every level of support to inform decisions about interventions, intensity, and curriculum adjustments. Third, the MTSS seamlessly integrates social, behavioral, and academic interventions (Lane et al., 2016). Fourth, MTSS provides a schoolwide, cohesive instructional framework for all students, potentially minimizing the need for specialized classrooms and optimizing space and personnel utilization (Billingsley & Bettini, 2019; Satter et al., 2019). Fifth, MTSS is driven by collaborative decision-making and support processes involving both district and school leadership, thereby fostering the integration of special education, English Learners, Title I, gifted and talented programs, and general education. Collaboration among staff is essential within the MTSS framework, requiring the formation of teacher teams, a local MTSS leadership team, and an intervention team (Sonju et al., 2019). Schools need to ensure that specific times are set aside during the contractual day for

these team meetings (McIntosh & Goodman, 2016). Finally, MTSS incorporates Universal Design principles, enhancing the participation and inclusion of students with diverse disabilities (Sailor et al., 2021, p. 27).

The research questions presented in this study are crucial due to the difficulties and barriers that online middle school teachers have when instructing students in a virtual setting. Many peer-reviewed studies emphasize the significance of maintaining accurate and faithful execution of strategies in traditional educational settings (Bouck & Cosby, 2019; Dulaney et al., 2013; Hollingsworth, 2019; Nagro et al., 2019; Scott et al., 2019). However, addressing the varied requirements of students in an online setting presents distinct difficulties due to the logistical complexities of virtual platforms and the wide range of student demographics.

**Research Question 1: What systemic elements do the teachers perceive to facilitate the implementation of MTSS?**

*This is Why We Can't Have Nice Things* was the factor group that contained the highest number of participants. Important components of MTSS for these educators are collaboration and high standards. Upon inquiry regarding elements that facilitate MTSS implementation, each respondent indicated that it is necessary to collaborate with instructors, administrators, and parents to provide support to at-risk students. They highly value working with a team of teachers who support the same students and are allocated time for collaborative work. This set of educators likewise believes that clearly established protocols, decision-making rules, universal screeners, and ample time for communication among teachers, administrators, and parents, improve the fidelity of implementing MTSS.

*Long Live* had the second highest number of participants statistically load into this factor. Collaboration among educators who serve the same students is perceived to be the strongest facilitator of an effective MTSS framework. They are assured of their capacity to identify their students' needs, implement interventions, and provide support through consistent data review. They highly prioritize the ability to provide these demands through their primary staff of educators. *Long Live* acknowledges the essential requirement of a staff member with expertise in behavioral interventions, instructional coaching, and leadership to successfully apply MTSS.

*Mastermind* consisted of four participants who believe regular planning, data review, and collaboration affect implementation fidelity. According to overwhelming agreement among educators, collaboration, regular planning time, and data review with grade level and content area teams have a major impact on implementation fidelity. Furthermore, they prioritize the retention of a team of instructors who offer assistance to a stable group of students. This group is enhanced by the receipt of feedback and continuous coaching from key staff members who hold expertise in MTSS. These personnel can improve the group's abilities and offer direction in executing the most effective methods of the framework.

*You're on Your Own Kid* was comprised of one participant who believes educators should be able to support their students independently. They are confident in their abilities to manage the different aspects of MTSS. They greatly value the training on data analysis, evidence-based methodologies, behavior expectations, and interventions. This educator values the partnership between parents and the school, emphasizing the need for frequent communication to ensure student attendance and enable parents to support their

children's academic needs effectively. The educator highly appreciates collaboration across teaching teams who support the same students.

*Glitch* was comprised of five participants who did not significantly load into a distinguishing factor within the Q-Sort portion of the study, however this group shared similar opinions within the open-ended responses. Two participants in this group emphasized the importance of teachers collaborating as a team to assist the same children as the primary factor influencing faithfulness. Both remaining participants believed that incorporating small group interventions into Tier 1 training and providing more time for these interventions significantly impacted improving the fidelity of implementation. When questioned about the factors that impede the accuracy of implementation, all participants pointed out that the absence of adequate training and resources to assist students with moderate and high-risk needs is a major hindrance in adopting MTSS.

**Research Question 2: What systemic barriers do teachers perceive hinder the implementation of MTSS?**

*This is Why We Can't Have Nice Things* collectively felt that limited time, poor communication, and lack of resources to the many students who are demonstrating moderate and high-risk levels is a major obstacle to implementing an effective MTSS framework. These educators expressed a need for improved family engagement and more support in holding students accountable for attendance and work submission. They felt that parents of virtual middle school students need more training and more frequent communication to better support their learners.

When asked about the current procedures that impede the adoption of MTSS, most of the respondents of *Long Live* cited a lack of clarity regarding the expectations



and priorities of the many initiatives currently being implemented within the school. They believed that school administrators at the middle school inconsistently prioritize these initiatives and provide unclear communication regarding expectations and prioritization of current initiatives. Additionally, this group felt family engagement and support are significant obstacles to implementing MTSS. They expressed a desire to have more support from administration in engaging families and developing stronger policies that increase accountability for students and parents.

*Mastermind* firmly believes lack of support, communication, and collaboration from administration is the most significant hinderance to implementing the framework. They believe chronically absent students need more support and accountability. Finally, they want more MTSS training and staff to help high-risk students and unengaged families.

According to *You're on Your Own Kid*, the most significant obstacle to the successful implementation of MTSS is the insufficient time to examine data, plan, and implement the necessary interventions to appropriately support students.

Finally, when *Glitch* was asked to identify which processes and practices hinder the fidelity of implementation, each of these participants identified the lack of training and resources to support moderate and high-risk students as a significant obstacle in implementing MTSS.

### **Research Question 3: How do teachers perceive the fidelity of implementing the elements of the MTSS framework?**

In the post-sort survey, participants of the study were asked to specify the element of MTSS that they believed were presently being implemented with the highest and

lowest levels of fidelity. This information is essential to the study, as it offers a more thorough comprehension of the participants and their perspectives on the full implementation of the MTSS framework. According to 38% of the participants ( $n = 9$ ), Tier 1 Core: Standards Aligned Instruction is being implemented with the highest levels of fidelity among the elements. Teaming Structures accounted for 21% ( $n = 5$ ), whereas Professional Development accounted for 17% ( $n = 4$ ).

Family engagement is thought to be the least strong component; according to 33% ( $n = 8$ ) of participants, it has the lowest implementation fidelity. Next, Tier 2 & 3 Supports are reported by 25% ( $n = 6$ ) of participants, while Universal Screeners & Data-Based Decision Making are mentioned by 21% ( $n = 5$ ).

### **Interpretation of Findings**

This study provides perspectives of core content areas middle school teachers who work in a cyber charter school. Teaming Structures and Shared Leadership were the two elements with the MTSS framework that educators perceived to be the most influential in achieving high levels of fidelity of implementation. The strongest consensus among the participants was that it is essential to have teams of instructors support the same group of students to implement MTSS in a virtual environment.

Regardless of the factor in which participants were significantly loaded, all participants expressed the value of working as a team to support a group of shared students within their Q-Sort and the open-ended responses. These educators believe that this approach enhances communication among staff and with families, enables more effective coordination of assistance, and is the most suitable framework for meeting the requirements of their numerous learners who exhibit moderate and high-risk levels.

Participant 51V7 stated, “Being able to support students as a team of teachers helps to keep everyone up to date on student progress and to better identify those students who are most at risk.” Participant AK36 concurred by stating, “Team support is crucial between content teachers in order to best support our students.” Participants also expressed their appreciation for having designated meeting times to work together, strategize, and analyze shared student data with their core teaching teams, content area teams, and grade level teams.

Teachers consider Shared Leadership to be a crucial component in the implementation of MTSS alongside teaming arrangements. School leaders who collaborate with teachers to address issues and find solutions, as well as the existence of school policies, resources, and procedures that endorse a three-tiered approach, were widely agreed upon by educators as essential for ensuring a high level of fidelity in the implementation of MTSS. Ultimately, virtual educators believed that it is crucial to establish a schedule that accommodates the time commitments necessary for the components of the MTSS framework, including screening, data analysis, problem-solving meetings, interventions, planning/monitoring, and professional development. Furthermore, clear, and consistent communication and expectations from administrators with respect to teachers were emphasized by numerous participants as vital to effectively implementing MTSS.

Virtual educators perceive the primary obstacle to establishing a successful MTSS framework in an online middle school setting to be the limited involvement of families, low levels of student engagement, and the significant number of students experiencing severe chronic absences. Participant Z4NO stated, “Lack of family engagement is very

big. We struggle to get parents to respond to e-mail and many do not answer the phone.” Many participants emphasized the need for stricter policies and assistance to enhance the level of attendance and general responsibility among students and their families in the virtual environment. A substantial proportion of participants expressed the opinion that the schools' existing structure does not provide as strong support for attendance and behaviors as it does for academic needs. Participant NJPS stated, “Parents and attendance or engagement do not really seem integrated into our current MTSS framework. I think it would make a real difference for parents to be more involved.” Additionally, participant 80WH expressed, “Students are not held accountable. They can miss work and many days of school and not be given anything less than a 50. We need more attendance interventions and help getting unengaged students in class so we can focus on the ones who are coming.” Overall, teachers felt that limited resources, interventions, support, and measures to hold students and families accountable for severe chronic absences in a virtual environment was the most significant barrier in implementing MTSS in a virtual environment.

### **Context of the Findings**

The results of this study contribute to addressing the research void regarding the implementation and efficacy of an MTSS framework in a middle school virtual environment. Prior studies have identified various obstacles in the implementation of MTSS in traditional educational settings. These studies have found that barriers include insufficient training (Braun et al., 2020), absence of collaborative practices across the entire school (Dillard, 2017), resistance from staff members, and inadequate school leadership (Mason et al., 2019).

Many implemented MTSS frameworks at the secondary level have been found to be ineffective. The ineffectiveness of the system can be attributed to various factors, such as incongruent and inefficient systems, limited staffing resources, inadequate professional development regarding the MTSS process, and the diverse needs of middle-level learners (Bouck & Cosby, 2019; Hollingsworth, 2019; Nagro et al., 2019; Scott et al., 2019). Effective implementation of MTSS requires a thorough approach to initiatives through strategic planning involving all critical stakeholders and adopting an evidence-based implementation strategy (Bohanon et al., 2016; Gibbs, 2011; Von der Embse et al., 2022).

This study established the importance of collaboration and communication when implementing an MTSS framework in a virtual environment. Scheduling, personnel, selecting age-appropriate evidence-based interventions, and fostering a collaborative team approach are among the numerous obstacles that the MTSS framework poses when implemented at the secondary level (Castro-Villarreal et al., 2014; Christopoulos & Redmond, 2023; Thomas et al., 2020). A structure that allocates time for teachers to collaborate, examine data, and plan the implementation of supports for their students is highly valued by teachers.

Administrators' collaboration and support are indispensable components of successful MTSS implementation. It is imperative that policies, processes, and practices are in accordance with the highest standards and that learners are provided with the requisite support to ensure that they can meet those standards. Finally, this study found that teachers needed clear, consistent communication and expectations between administrators, staff, and students. Researchers have determined that the lack of

intentional and significant communication between teachers and administrators is a significant factor of the ineffective implementation of MTSS (Thomas et al., 2020).

### **Implications of Findings**

Gaining insight into instructors' perspectives on the degree to which MTSS implementation is faithfully carried out in a virtual environment is significant for numerous cyber schools running across the country. Identifying the factors that either help or hinder the degree to which a virtual environment is faithfully implemented is advantageous for all virtual educators and leaders.

Significant implications for an online middle school virtual environment are derived from the findings that educators regard Teaming Structures and Shared Leadership as the most influential elements within the MTSS framework for attaining high implementation fidelity levels. *This is Why We Can't Have Nice Things* perceived collaboration among staff, leaders, and families as vital in increasing fidelity of MTSS implementation. They valued parents being involved in problem-solving meetings and teams of teachers supporting shared students to increase the effectiveness of MTSS implementation. *Long Live* found significant value in a system that allocates significant time for a team of teachers who support shared students to meet and strategize to align students' support. They valued collaboration with leadership that supports them through building a system that promotes implementing interventions at multiple tiers and in coaching on how to implement and monitor response to these interventions. *Mastermind* strongly values the opportunity to collaborate and plan at the grade level and course level. Similar to *Long Live*, they valued having comprehensive leadership collaboration and support through a system that encourages collaboration as well as coaching for

implementing and problem-solving for their students. *You're on Your Own Kid* values the autonomy of implementing MTSS; however, found that collaboration with parents is an important element in increasing fidelity of implementation of MTSS.

Teaming Structures enable educators to collaborate in a structured, systematic manner, thereby ensuring that all students' s needs are identified and supported in all courses. Effective teaming can help bridge the gap created by physical distance in a virtual environment, enabling instructors to coordinate interventions, share insights, and monitor student progress cohesively. This structured collaboration is essential for the preservation of consistency and responsiveness in student support, which can be difficult to achieve in an online environment.

In addition to fostering a sense of collective ownership and accountability, Shared Leadership also improves the implementation of MTSS by distributing responsibilities among a variety of stakeholders. Shared leadership enables educators to promote a supportive and inclusive learning environment, make informed decisions, and take initiative with the cooperation and support of school leaders. When all stakeholders own and support every student, a stronger system that encompasses policies, resources, training, and consistent, continuous support can be built to meet the diverse needs of all learners. This collaborative approach guarantees that interventions are more responsive and adaptable to the changing requirements of students in an online environment.

Ultimately, these results emphasize the importance of cultivating distributed leadership and robust collaboration to achieve high fidelity in the implementation of MTSS within virtual middle schools. These practices not only improve the efficacy of interventions, but also foster a more supportive and engaged educational community.

### **Limitations of the Study**

The Q-methodology was employed to obtain the perspectives of participants, and it does not result in generalization to other populations of individuals, which can be interpreted as a limitation. However, the results of Q-method studies, such as this, generalize to the general discourse regarding subjective experiences. The Q-methodology presumes participants' sincerity in their categorization of the concourse statements. While Q-methodology can mitigate social desirability responding, it cannot completely eradicate bias in a participant's answer pattern. Q-methodology is grounded in the subjective perspectives and viewpoints of the participants. The interpretation of statements and variables that influence the implementation of MTSS may vary based on individual perspectives; therefore, leading to the introduction of bias in the results. The Q-method is more appropriate for analyzing perspectives and patterns rather than establishing causality.

All study participants were general education core content teachers from a K-12 cyber school in the state of Pennsylvania. The researcher has also been employed by this school for over 15 years. The K-12 school educates approximately 5,000 students. The school's requirement that students attend daily live synchronous courses, which adhere to a conventional bell schedule found in traditional brick and mortar schools, is a significant distinguishing feature among cyber schools. Less than 5% of the approximately 1,200 pupils enrolled in the middle school adhere to an asynchronous learning schedule, which is a common structure in virtual learning.

The *Q Method Software* effectively ensured accurate recording of all responses without any data entry errors. However, the utilization of the online software program did



not provide participants with the opportunity to inquire about the researchers during the study. Participants could only rely on the help box within the online program for support if they had any questions. Furthermore, although the training video on how to perform the Q-sort was included in the Q-sort administration, there was no mechanism to guarantee that the participants viewed the movie in its entirety prior to commencing the Q-sort. This could have resulted in a misinterpretation regarding the method of completing the sorting task, perhaps influencing the way in which certain items were sorted by the participants. This study relied on participants loading statistically to one of four factors.

Though there were 25 participants that completed the Q-sort, five participants did not load statistically to one of the four factors. This could be attributed to a decrease in mental capacity throughout the duration of the trial, which included the pre-sort and Q-sort. In addition, the researcher analyzed and classified open-ended responses from participants which could potentially be coded differently by another individual's perspective.

### **Future Directions**

This study enhances current research by providing a thorough understanding of the methods used by middle school teachers while applying MTSS in a virtual setting. Moreover, this research has the potential to enhance future studies by providing valuable insights into the optimal strategies for implementing MTSS at the secondary level in various educational frameworks.

More research is required to determine the precise implementation of MTSS in a virtual school environment, as a result of the recent increase in enrollment in cyber charter schools. Previous research has shown that cyber schools have lower academic

performance levels than traditional public in-person schools and charter schools (Woodworth et al., 2015). In virtual institutions, these students may encounter difficulties in obtaining the requisite support, as they require in-person assistance (Ahn & McEachin, 2017).

Additionally, future research studies should explore implementing MTSS into other models of virtual schools, specifically schools that follow asynchronous learning structures. The findings of this study could be compared for contrasting and comparable perspectives. Furthermore, it would be beneficial to broaden the scope of this investigation to investigate the perceptions of educators who are in the process of implementing the MTSS framework in other virtual schools in Pennsylvania that adhere to comparable synchronous models. This would allow for an analysis of the efficacy of MTSS implementation in enhancing the learning outcomes of virtual students. Additionally, conducting this investigation at the high school level would be advantageous, as scheduling constraints and content-level teams are more prevalent.

Finally, a longitudinal study that monitors the long-term effects of MTSS implementation in virtual environments and the impact of sustained adherence to the framework on academic performance, socio-emotional development, and overall student success over time would be advantageous for cyber schools. Addressing these research areas will enhance the understanding of educational leaders regarding the implementation of MTSS in online middle schools, while also providing practical strategies and insights to enhance fidelity and optimize the positive impact on student learning experiences. More research is necessary to ensure that a robust MTSS framework is implemented with true fidelity throughout a cyber school system for the future of cyber charter schools.

## Conclusion

Ensuring the successful graduation of all high school students and providing them with the requisite skills to make meaningful contributions to society are essential responsibilities of a school leader. In the 21st century, students face a variety of academic, social, and emotional challenges that originate from both within and outside the school environment (Garbacz et al., 2016). Educational institutions must acknowledge and resolve these obstacles. School administrators are perpetually striving to identify practical strategies that can be implemented to accommodate the changing requirements of a student body. The effective implementation of an MTSS framework is essential for promoting student success in the swiftly changing virtual education landscape. The development of system capacity and staff capabilities is necessary for the effective and sustainable implementation of MTSS routines in district reform (Eagle et al., 2015). Consistently prioritizing the selection of appropriate practices, ensuring their proper implementation, and monitoring their progress is essential for educators to improve their effectiveness. With the growth of online education in the K-12 arena, studies like this are needed to understand how to maximize educational outcomes for remote students. The implementation of these frameworks in schools across the country is a recognized component of educational improvement initiatives in numerous states. MTSS is one solution that can promote academic growth and excellence if embraced by education professionals and implemented with fidelity.

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## Appendix A

Mar 15, 2024 2:15:44 PM EDT

Karen Larwin  
Teacher Ed and Leadership St

Re: Exempt - Initial - 2024-213 Examining Teachers' Perceptions of Implementation Fidelity of a Multi-tiered Systems of Support Framework in an Online Middle School Environment

Dear Dr. Karen Larwin:

Youngstown State University Human Subjects Review Board has rendered the decision below for Examining Teachers' Perceptions of Implementation Fidelity of a Multi-tiered Systems of Support Framework in an Online Middle School Environment

Decision: Exempt

Selected Category: Category 1. Research, conducted in established or commonly accepted educational settings, that specifically involves normal educational practices that are not likely to adversely impact students' opportunity to learn required educational content or the assessment of educators who provide instruction. This includes most research on regular and special education instructional strategies, and research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

Any changes in your research activity should be promptly reported to the Institutional Review Board and may not be initiated without IRB approval except where necessary to eliminate hazard to human subjects. Any unanticipated problems involving risks to subjects should also be promptly reported to the IRB.

The IRB would like to extend its best wishes to you in the conduct of this study.

Sincerely,  
Youngstown State University Human Subjects Review Board

## Appendix B

Link to larger images of Factor Array's: <https://shorturl.at/kb4mW>

## Appendix C

Link for all Q-Sort and Qualitative Raw Data <https://shorturl.at/VT58p>