2022

Teacher Resilience

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TEACHER RESILIENCE

by

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A DISSERTATION

Presented to the Faculty of

The College of Education and Human Services

Department of Educational Studies, Leadership, and Counseling

at Murray State University

In Partial Fulfilling of Requirements

For the Degree of Doctor of Education

P-20 & Community Leadership

Specialization: pK-12 Leadership

Under the supervision of Professor Dr. Brian Bourke

Murray, KY

May 2022

Abstract

The main purpose of this quantitative research study was to explore the influences that impact teacher resilience. Seven factors that potentially protect teacher resilience were chosen: competency, self-efficacy, agency, relationships, organizational culture, altruism, and sense of humor. These factors were tested against years of service categories and self-perceived resilience scores to determine if relationships exist. A two-part online survey gathered demographic information, self-perceived resilience scores, and resilience factor data from American PreK-12 teachers. To answer the three guiding research questions, the statistical tests of multiple linear regression, Pearson's *r* correlation coefficient, and chi-square test of independence were utilized. The factor of relationships had the largest positive significant relationship with teacher resilience and showed consistency between all years of service. Competence had the strongest relationship with years of service and increased with longevity. Humor was highly ranked on all statistical tests, showing that humor is vital to teacher resilience throughout a career. The results of this study can impact teacher education programs, professional development opportunities for current teachers, and training for administrators. Developing and maintaining resilience is vital for handling challenges, continued growth, and overall success in a teaching career. Continued research is necessary to add to this growing body of research and increase awareness and action.

Keywords: Teacher Resilience, Competence, Self-Efficacy, Agency, Relationships, Organizational Culture, Altruism, Humor, Service Years

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Chapter I: Introduction

A thriving, caring teacher can change the trajectory of a child's life. Unfortunately, in the educational field today, many teachers are not thriving; they are burning out. A recent study of over 12,000 teachers found that 65% identified signs of burning out and 85% were working at an unsustainable rate (Anthony, 2021). A multitude of influences create challenges and obstacles for educators at all experience levels. Students need and deserve resilient teachers who are committed to the profession long-term, thus it is vital to understand what motivates teachers to stay and the factors that influence their ability to adapt to and overcome adverse situations and challenges.

Context

Teaching is a complex and ever-changing profession. The development of resilience can help teachers adjust and become better equipped to handle daily stressors, negative situations, pressures, and work demands (Gu & Day, 2013; Mansfield et al., 2012; Morrettini et al., 2020). Teaching is assumed to be an emotionally and physically demanding job (Gu & Li, 2013). An occupational stress study that measured physical health, psychological well-being, and job satisfaction found that teaching had worse than average scores on all three measures causing it to be ranked one of the most stressful occupations (Donald et al., 2005). Gu and Li (2013) found teachers describe normal working conditions as including a large amount of pressure and responsibility, heavy workload, long hours, low social status, and low salary. These pressures can cause teachers to feel stressed, overworked, and underappreciated.

Several other risk factors impact teacher retention. Compensation does not always reflect the profession's level of difficulty and stress. The difference in earnings between public school teachers and equally educated workers is defined as wage penalty (Morgan, 2020). In 2018, the

weekly teacher wage penalty reached 21.4%, setting a new record (Allegretto & Mishel, 2019). The report also showed that the wage penalty is even greater for males which could account for the profession being dominated by females. Hendricks (2013) suggests that increasing teacher pay would increase the average years of teacher experience yielding improvement in student performance. Though that may be true, salary continues to be an obstacle that teachers must accept to remain in the profession until retirement age.

Teacher shortages, which vary by state and year, have made headlines for years. Rosenburg and Anderson (2021) found it is difficult to determine exact turnover numbers. Barnum's research led to the conclusion that turnover is not as high as many assume because even with all the changes from 1985 to 2020, teacher turnover stayed around 15%-20% (2021). Additionally, the researcher found that during the 2020-2021 pandemic school year, some states found even greater teacher retainment than normal. Harris (2007) did discover that teachers retire considerably earlier than other professions. This could contribute to high turnover numbers even though the study found turnover rates comparable to similar professions. However, when compared to high achieving countries like Finland and Singapore, the United States teacher attrition rate is roughly twice as high (Carver-Thomas & Darling-Hammond, 2017). When teacher turnover does occur, many American school districts have trouble filling vacancies with quality teachers. In these cases, schools are more likely to hire inexperienced and less qualified staff which are then 25% more likely to turn over than qualified teachers (Association of California School Administrators, 2020). Teacher turnover numbers may not be at an all-time high, but retaining experienced, qualified teachers until retirement is important.

In the face of the COVID-19 global pandemic, teachers are experiencing unprecedented challenges, decisions, and changes. Pressley (2021) noted that the global pandemic has caused

teacher anxiety around the COVID virus alongside anxiety about leadership support, family communication, and teaching in the new educational landscape. These were all significant predictors of burnout and stress. The need for resilience is higher than ever. The irregular 2020-2021 school year also caused student learning gaps. This was reported by Northwest Evaluation Association, NWEA, a nonprofit research organization that creates assessments to measure growth and proficiency. The Measures of Academic Progress, MAP, assessments are widely used across the United States and are administered in fall, winter, and spring. Analyzing the Spring 2021 MAP scores of 5.5 million students, larger than normal percentage drops were reported especially in math (Klein, 2021). These gaps were even larger for low-poverty schools and Black and Latino students compared to their White and Asian counterparts. These learning gaps can cause additional stress and challenges to already anxious teachers.

These current challenges have brought teacher resilience into the spotlight and in response, several online resources are addressing these needs. There has been a rise in social media presence regarding teacher self-care, motivation, reflection, and balance. One popular Facebook site, Self-Care for Educators (n.d.) offers daily motivation, books, keynote speaking, and workshops to over 15,000 followers. Websites such as the Resilient Educator, created and maintained by respected educators, offer professional development, de-stressing tips, and relevant educational articles (Resilient Educator, 2021). The increase in groups promoting self-care and resilience highlights the need for teachers to strive for balance to thrive professionally and personally.

There are many benefits to educators developing and growing in resilience. For this study, resilience will be defined as a teacher's ability to successfully adapt to stressful and adverse situations while maintaining positive qualities and growing through the challenges (Gu

& Day, 2013; Morettini et al, 2019; Wu et al., 2013). Becoming resilient can help minimize the impact of negative events and risk factors. Less resilient teachers are more likely to experience negative emotions, fatigue, indifference, and overestimation of risk (de Vera García & Gambarte, 2019) There is also a significant negative correlation between resilience and burnout (Polat & İskender, 2018). This means that as resilience increases teachers become less impacted by challenging conditions. In agreeance, Galea (2018) reported that teacher resilience creates a positive cycle in which resilience reduces challenging behavior and lowers stress and burnout, and the reduced levels of stress and burnout allow the teacher to better respond to such behaviors. Similarly, resilient teachers are not only less likely to experience burnout but they possess greater skill and competence, are more committed and able to overcome difficulties, and experience more positive emotions (de Vera García & Gambarte, 2019). Resilient teachers possess self-efficacy making them feel more confident and competent which leads to greater fulfillment (Beltman, 2011). The immense benefits that come from resilience should make the development and maintenance of resilience a top priority for all schools.

As Gu and Day (2013) point out, to enhance quality in schools, there needs to be a better understanding of "what influences teachers' resilience over the course of a career" and how these factors can be maintained, nurtured, and developed "in the context in which they live and work" (p. 40). Resilience development can lay the groundwork to begin and continue a career on the right foot. This development creates a strong foundation that can sustain a teacher during challenging times, allowing them to thrive in their career. It is important to find specific factors that can possibly impact the development and maintenance of resilience throughout a career. Through this study, the researcher hopes to discover relationships between variables that

potentially impact teacher resilience alongside years of service and perceived resilience. This will add to the large body of current literature on the urgent topic of teacher resilience.

Purpose of Study

The purpose of this quantitative social ecologically grounded study is to discover influences, factors, and supports that impact teacher resilience in conjunction with years of service and self-perceived resilience. First, protective factors have been carefully researched, analyzed, and chosen due to consistency in current research and literature. These protective factors and supports positively impact and influence teacher resilience. This study will include the following resilience factors:

- competence
- self-efficacy
- agency
- relationships
- organizational culture
- altruism
- sense of humor

First, the study will seek to determine if these researched factors are predictors of resilience. It is important to understand which factors bear an influence on teacher resilience. These factors will also be tested to see if they form a significant relationship with resilience. These results will help determine whether these factors are strong protective factors and provide value to this research and should be used for future research.

Using these researched factors, the study will seek to determine if a teacher's years of service impact the importance of these seven resilience factors. Finding potential correlations and relationships between protective factors and years of service will offer new understandings of teachers along the career continuum. The researcher will analyze survey data to determine if significant relationships exist among early-career, middle-career, and late-career teachers and resilience factors. This will provide a specific and unique look at teacher resilience throughout a career span.

Additionally, this study will investigate to determine if a self-perceived level of resilience impacts the same protective factors. Data will be analyzed to detect if a relationship or association exists between resilient or non-resilient teachers and the seven protective resilience factors. This data will provide insight into prevalent commonalities within each group and reveal which developable factors are important to resilient teachers. This information can be used to support pre-service and active teachers in their resilience development.

A conceptual framework provides guidance and context for how interrelated ideas come together to inform a problem. The social ecological framework is the chosen conceptual framework for this study. Previously, resilience was often seen as something individuals have, when in fact resilience should be viewed as a process with inputs from family, school, community, community services, government, and cultural practices (Ungar, 2012a). When dealing with stress, Ungar found that these inputs and influences can be as important as an individual's positive psychological development. This framework justifies the study being grouped into diverse protective factors that include both personal and environmental influences. It supports the idea that a wide variety of challenges can influence and deteriorate resilience development.

A teacher resilience study is needed in education today because it will help discover what motivates teachers to stay in the profession and specifically identify what sustains them through inevitable challenges. This will open a positive dialogue regarding why some teachers not only survive but thrive in the profession (Kutsyuruba et al., 2019). This study will add depth and new understanding to the current research on teacher resilience. By correlating and establishing relationships between resilience factors using years of service and perceived resilience, the targeted information and data will shed light on ways teachers can overcome burnout during different career stages. The sharing of this knowledge can lead to the development of more resilient teachers in the field, therefore positively impacting more students.

Research Questions

This research study will utilize a two-part survey with Likert-type scales to gather data from teacher participants. The teacher will self-rate for level of resilience and rank supportive factors in terms of importance using their lens of experience. This quantitative research study will have three guiding questions.

Research Question #1- What are the influences and factors that impact teacher resilience?

Research Question #2- What is the relationship between years of service and resilience factors?

Research Question #3- What is the relationship between perceived resilience and resilience factors?

Significance of Study

This study will add to the current body of teacher resilience literature. Since every individual experiences stress, sometimes major stress, and many experience trauma or traumatic events, it is valuable to understand resilience. Knowing how to implement positive coping mechanisms can lessen the chance of maladaptive coping that can lead to depression or posttraumatic stress disorder (Wu et al., 2013). This study will focus on the factors that can contribute to resiliency and adaptability and seek to discover commonalities amongst experience levels and self-perceived resilient levels.

Being amid a global pandemic and knowing the multitude of other stressors that teachers face makes this study timely and valuable. It is important to discover the positive influences on teacher retention and longevity and which factors are perceived to enhance or maintain their resilience. Evidence shows that teacher resilience remains important in schools, school systems, and impacts students' lives, and should not be overlooked (Galea, 2018). Since resilience can reduce burnout and lessen stress, it is critical to understand the influences that can impact teacher motivations and persistence (Vera García & Gambarte, 2019). This study calls attention to the multi-faceted nature and complexity of teaching while demonstrating the need for a myriad of skills and continuous development.

The results of this study may impact various stakeholders. Teacher preparation programs can equip teachers for known challenges and begin to develop skills that have been associated with resilient teachers. School leadership can use years of service analysis to provide specific and appropriate resources and support to teachers at various career points. This could be a conversation starter between administration and teachers regarding personal development and resilience maintenance. The data analysis and conclusions drawn will either strengthen and

support or weaken current resilience research. Importantly, this study will test to determine if significant relationships exist between the seven supportive factors of competence, self-efficacy, agency, various relationships, organizational culture, altruism, sense of humor, and the variables of resilience and years of service. The specific conclusions drawn can lead to future research that will further explore this urgent topic.

Education needs resilient teachers to build strong students. Teachers are role models and their skill at handling difficulties and stress can provide a beneficial model to their students. Being able to understand the influences that impact teacher resilience at various stages and then, actually giving teachers the resources they need to further develop these researched skills and competencies, could be a game-changer. Strong, thriving, resilient teachers add an infinite amount of value to students, classrooms, schools, the community, and the world.

Definitions

Altruism is directing concern and help to others without the expectation of a reward (Yavuzer, 2006).

Agency is the perceived control over work and outcomes and the willingness and ability to take action and make informed professional decisions (Bonner et al., 2019; Pyhältö et al., 2011).

Competence is having a clear understanding of subject matter alongside pedagogical skills that increase a teacher's sense of effectiveness (Collie & Perry, 2019).

Organizational culture refers to the shared norms, values, and meanings shared by the members of a school and includes structural, procedural, and leadership aspects (Sadeghi et al., 2013).

Self-Efficacy is the teacher's belief in their capability to effectively navigate and perform the many tasks, challenges, and responsibilities related to their profession at a designated level which impacts the students and the teacher (Bandura, 1994; Barni et al., 2019).

Resilience is a teacher's ability to successfully adapt to stressful and adverse situations while maintaining positive qualities and growing through challenges (Gu & Day, 2013; Morettini et al, 2019; Wu et al., 2013).

Summary

The researcher seeks to understand how the protective factors that influence teacher resilience interact with years of service and self-perceived resilience. Teacher resilience is a paramount topic due to the many daily stressors and challenges including the ever-changing COVID-19 pandemic. Teacher burnout can be combatted by developing and maintaining resilience which can allow teachers to continue to grow and thrive.

Chapter II will review current and relevant research related to teacher resilience. Seven prevalent factors that positively impact teacher resilience will be explored and used in data collection. Three major risk factors will be explored to exemplify the current state of teaching. Comparisons of research between years of service, early-career, middle-career, and late-career, and resilience will be presented. This literature review will attempt to begin answering the first research question by explaining and exploring the selected resilience factors.

Chapter II: Literature Review

Over the last decade, educational research has evolved with an emerged focus on teacher resilience. Prior research often focused on the problems and causes of teachers exiting the profession early leading to high attrition rates. There was an abundance of research conducted to determine the multitude of factors that positively and negatively impact teacher job satisfaction. These types of research studies mainly dealt with what was going wrong for teachers and the profession. Though this is productive and important research that can inform solutions, there has been a paradigm shift towards finding what is working, why most teachers stay as well as thrive, grow, and continue to overcome challenges.

One strand of this new research includes the study of teacher resilience. Teaching is assumed to be a difficult, challenging, and stressful career and teachers must develop resilience to stay committed and thrive. Individuals who demonstrate resilient characteristics are more likely to stay in the profession because they are more equipped to adapt to change and persevere in challenging situations (Mansfield et al., 2012). There is a negative correlation between resilience and burnout; thus, indicating that resilience can be an important solution to the attrition problem (Polat & İskender, 2018).

This study focuses on the factors that influence teacher resilience, determines if years of service impact these factors, and if there is a relationship between perceived resilience and these resilience elements. The literature review synthesizes current research on these topics. To begin with, resilience is conceptualized and a definition of teacher resilience is provided. Next, research regarding protective factors that support teachers and cause them to increase or develop resilience is presented. It is important to understand the myriad factors that interact and contribute to the development and maintenance of resilience. The next section addresses risk

factors or challenges that teachers must overcome to stay in the field. Three current challenges are presented to demonstrate what obstacles teachers are up against and what they must rise above. These risk factors can deteriorate resilience and, if not counteracted by appropriate use of resources and supportive factors, can lead to burnout and teacher attrition. After that, research regarding the relationships and commonalities among resilience, job satisfaction, importance of resilience factors, and years of service is explored. This will look at the different characteristics and influences that teachers tend to experience as they progress throughout their careers and find if resilience fluctuates through the years. Finally, the conceptual framework provides a theory that guides the study. The social ecological model will frame this study and demonstrate the important interactions between person and environment in creating or destroying teacher resilience.

What is Resilience?

Literature proves that there is not an agreed-upon definition of teacher resilience. Definitions of resilience vary by research article and with the purpose of each study. However, there is much agreement in the literature over one aspect of resilience: resilience is developable (Gu & Day, 2013; Mansfield et al., 2012; Yonezawa et al., 2011).

To begin, resilience development is two-fold. First, there is a perceived negative event or stimulus which is followed by an individual's response (Faldi et al., 2020). To develop or demonstrate resilience, one must find a way to cope with the situation, use available resources, and/or respond positively. These actions equip the person for the next negative event. Stress is the necessary component that provides an opportunity to access protective factors, therefore, increasing resiliency development (Doney, 2013). In agreement, Bobek (2002) points out that resiliency development takes place over time and adverse situations are necessary for this

growth. Resilient individuals find ways to utilize available resources to navigate tough situations. Then they use the knowledge learned from each negative situation to inform their decision-making for the next adverse situation. Thus, creating more resources and improving their resilience, therefore stressful or challenging situations are necessary for resilience growth.

There are many varied definitions offered by researchers. A straightforward definition of resilience can be "the ability to adapt successfully in the face of stress and adversity" (Wu et al., 2013, p. 1). Dandiilidou & Platsidou (2018) agree but add that it includes the teacher's ability to "maintain positive attributes in face of a range of challenges, pressures, and demands associated to their work" (p. 17). Another definition includes the teacher's ability to "maintain adaptive functioning" after facing adverse situations (Papatraianou & Le Cornu, 2014, p. 101). Similarly, Gu and Day (2013) found that resilience is more than a teacher's ability to bounce back but includes "the capacity to maintain equilibrium and a sense of commitment and agency in the everyday worlds in which teachers teach," (p. 26). Resilience can explain "why teachers persist and thrive in the face of daily stressors and challenges associated with classroom teaching" (Morettini et al., 2020, p. 58). On the other hand, some researchers take a broader view of the construct. Yonezawa et al. (2011), focus on the interconnectedness between many elements when they describe resilience ''as a dynamic construct that emerges within the interplay between individuals' strengths and self-efficacy and social environments in which they live and work'' (p. 916). In agreement, Mansfield et al., (2012) add that resilience is a dynamic process that is the result of individual and environmental interactions and is demonstrated by an individual's response to adverse events.

The diverse definitions of resilience focus on individuals and contextual factors and indicate the complexity of this term while increasing ambiguity (Mansfield et al., 2012). The

varying array of definitions opens the argument that resilience is an unstable construct due to the many factors that can influence and impact development and maintenance (Gu & Day, 2013).

For this research study, teacher resilience will be defined as a teacher's ability to successfully adapt to stressful and adverse situations while maintaining positive qualities and growing through challenges (Gu & Day, 2013; Morettini et al, 2019; Wu et al., 2013). Adapting to change and challenges is a large part of resilience, and positively adapting while continuing to grow and remain committed takes experience and skills. The following protective factors or supports are presented as ways for teachers to adapt and thrive in an ever-changing profession. Resilience is more than just a list of attributes. There are consistent themes amongst the research that show personal, social, and environmental factors that interact to increase the likelihood of developing resilience which increases resilient outcomes such as commitment, job satisfaction, wellbeing, and engagement (Entesari et al., 2020). The following protective factors cover these intersections.

Protective Factors or Supports

Resilience is a multi-faceted, complex term involving individual and contextual factors that can manifest differently in each person. Research has identified a multitude of factors that support the growth and demonstration of resilience including characteristics, competencies, and attributes (Mansfield et al., 2012). The factors to be included in this study are competency, self-efficacy, agency, relationships, organizational culture, altruism, and sense of humor. Though this is not a comprehensive list of all protective factors found in research, these seven supports were chosen due to the depth and consistency found in current literature. These research-based factors were common threads and since they support the focus and questions of this study, they are the best protective factors to explore and include. The supports offer a diverse scope including

emotional, social, motivational, and professional practices (Mansfield et al., 2012). Resilience is composed of all these areas, so it is important to highlight each of them.

Another protective factor that receives attention is the expansive topic of healthy habits which would include exercise, mindfulness, optimism, a strong moral compass, and balancing work and home life (Kutsyuruba et al., 2019; Leahy &Wolfe, 2021; Meiklejohn et al., 2012;). There is a wide variety of factors within this idea of personal habits or self-care. Though these factors are important for resilience they require more depth and time than this research project allows. Since this study cannot give necessary time each of them it is best to exclude this category from the study.

The chosen strategies and factors help to buffer and minimize potential negative impacts from adverse situations or events. The complexity of resilience cannot be summed up by these factors alone, and possessing one characteristic does not ensure resilience. It is rather the interaction of these factors, along with the environment, implementation, and the continual loop of challenges faced that cause resilience development and growth. It is reasonable to think that resilience can fluctuate along with personal challenges, changes, and tumultuous events such as a global pandemic. Therefore, it can be conjectured that teachers at different stages of their careers find different factors of resilience important or most beneficial.

Competency and Self-Efficacy

Having a deep-rooted belief in one's ability paired with having the actual knowledge is an important paring for teacher resilience. Competency and self-efficacy can work hand-in-hand in preparing teachers for the workload and challenges of teaching.

Competency. Competent teachers must have a clear understanding of their subject matter alongside effective pedagogical skills to teach effectively. Teachers must be adequately skilled

and qualified to teach the subject(s) they are hired to teach. When teachers are competent, they have a firm understanding and sense of their "effectiveness in the role of teacher" (Collie & Perry, 2019, p. 700). When a teacher feels effective and understands their ability, they are more likely to be honest and seek opportunities to grow, thus increasing their competence. Another positive by-product of competence is confidence. Supporting this, Beltman et al., (2011) found that as teachers gained confidence and experience, they were more likely to seek additional challenges.

Currently, there are many challenges to teacher competency. Staying current and relevant in education is vital. Technology is ever-growing, expanding, and changing at an exponential rate with no sign of slowing down. It is pertinent for teachers to stay up-to-date with the newest technology to inform classroom decisions, keep students' attention, and educate students to compete in a world market (Cushner, 2011; Fadli et al., 2020). Teachers of all ages need to feel confident in their ability to use technology and to continually become competent in technology-based learning media (Fadli et al., 2020). Also, teachers need to be interculturally competent and aware of global education (Cushner, 2011). Alongside this, national teacher shortages resulted in few highly qualified, credentialed teachers available. As a result, nearly a third of teachers do not have the educational background for the subject they teach (García, & Weiss 2019). These underprepared teachers are more likely to be unsatisfied with their careers since they do not feel competent in their skillset and may leave the profession.

An English study found that perceived professional mastery is one of the most important, if not the most important, motivator for teachers with ten or more years' experience to stay in their career (Chiong et al., 2017). Knowing this, having and growing in competence is important for all teachers. Feeling confident in subject matter, behavior management, and the many facets

of teaching can increase the teacher's ability to deal with challenging situations (Collie & Perry, 2019; Galea, 2018). One avenue to increased competence is having a strong belief in one's own ability to do so.

Self-efficacy. Closely related to competency is self-efficacy. Bandura (1994) stated that a person's perceived self-efficacy is their "beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (p. 2). His research found that a person's self-efficacy beliefs have influences on how they "feel, think, motivate themselves, and behave" (Bandura, 1994, p. 2). Specifically, teacher self-efficacy is the teacher's belief in their ability to effectively navigate the many tasks, challenges, and responsibilities related to their profession which influences student achievement, motivation, and well-being (Barni et al., 2019). In short, self-efficacy is all about one's belief in themselves. Teachers with high self-efficacy have a strong belief in their ability to figure things out, which can positively impact students.

Morris (2002) found that the highest consistent score on a self-rated scale was that of positive self in teachers with one to three years of service. Morris defined this term as "the belief in one's ability to make a difference or impact the environment" (p. 120). This perspective of capability positively impacts one's belief to improve upon weaknesses and approach challenges with a positive attitude. This can be seen in experienced teachers as they conduct action research in their classroom to further their professional development, thus increasing their competency, self-efficacy, and resilience and proving that they can create their own learning opportunities (Entesari et al., 2020). Teachers with high self-efficacy see their deficiencies, possess the confidence to improve, and then seek out professional development. All of which motivates them to continue this growth cycle.

There are many positive outcomes associated with self-efficacy. Teachers, especially experienced teachers, with high self-efficacy tend to be proactive, effectively cope with behavior problems, use varied instructional strategies, and are more positive about the implementation of new programs (Zee & Koomen, 2016). Teachers who persevere in the face of consistent risk factors strengthen their sense of self-efficacy, therefore, increasing their resilience and level of commitment to the profession (Gu & Li, 2013). From exploring thirty years of research, Evan-Palmer (2010) found that self-efficacy beliefs impact instructional effectiveness more than pedagogical strategies or techniques. Self-efficacy and competence are important factors in teacher resilience, but agency offers an additional element of action.

Agency

Agency is perceived control over work and outcomes and can be viewed through an individual's actions (Bonner et al., 2019; Pyhältö et al., 2011). For this research project, agency will refer to a teacher's willingness and ability to take action and make informed professional decisions. Resilient teachers demonstrate a strong sense of agency or the ability to control what happens to them. As self-efficacy is about what people believe, agency is about what people actually do and their quality of engagement (Biesta et al., 2015). Agency, along with competency and self-efficacy, is an important factor when it comes to continual professional and personal growth. Pyhältö et al., (2012) state that teacher agency is the "intentional and responsible management of new learning" (p.100). Teachers with a strong sense of agency take action to reach their goals and deal with the constant changes in education.

Policy reforms, curriculum changes, and new initiatives all impact teachers. Teachers who develop an individual sense of agency, their perception of their ability to have control over their work and associated outcomes, can increase their influence and acceptance of such

changes and reforms (Bonner et al., 2020). Agency does not mean teachers must agree with all decisions or new initiatives but rather there is perceived power in taking action. A teacher can either choose to show "agency, avoidance, opposition, or resistance" and their choice demonstrates their level of professional agency and proves their resilience or staying power through reform changes (Pyhältö et al., 2012, p. 100).

Howard and Johnson (2004) discovered that teachers in highly disadvantaged schools found agency by depersonalizing challenging events and situations. This strategy was usually taught to them by a more experienced teacher or from personal reflection. Another aspect of their research showed that many of these teachers chose the school knowing the challenges ahead but wanted to make a difference, demonstrating altruism. Both actions, depersonalizing stressful events and choosing the direction of their career, illustrate agency and are protective factors that helped these teachers remain resilient and cope with difficult situations including student behaviors.

Teachers who demonstrate competence, self-efficacy, and agency are more likely to stay in the profession, make good instructional decisions, and continue to grow (Gu & Li, 2013; Manuel et al, 2019). Resilience requires more than these individual characteristics and is influenced by many other factors. For example, agency relates to other protective supports because it is influenced by social networks and the organizational culture (Bartell et al., 2019).

Relationships

One of the most common supportive factors mentioned in teacher resilience research is the importance of relationships (Biesta et al., 2015, Bobek, 2002; Gu & Day, 2013; Papatraianou & Le Cornu, 2014). Having a strong social network helps teachers face challenges, seek advice, and balance work and family life. Since this is a broad category, it will be broken down into

relationships with colleagues, pupils, and social networks. Support can mean being offered advice, being listened to, being appreciated, and being professionally challenged (Papatraianou & Le Cornu, 2014). Often these supports are provided by several people including colleagues, students, and the personal social network of family and friends. A diverse social network increases the likelihood that needs are met, individuals feel supported and it increases their competence, confidence, and resiliency. Doney (2013) found that the most commonly cited protective factor was relational support.

On the contrary, Mansfield et al., (2012) found that relationships were the least cited aspect mentioned by graduating and early career teachers which challenges current research that largely states the importance of this factor. It was hypothesized that early teachers have not been in the career long enough to see the need for a broad social network. Even with this study, most research supports the idea of relationships being a critical part of teacher and personhood development (Doney, 2013; Entesari et al., 2020; Gu & Day, 2013; Howard & Johnson, 2004; Kutsyuruba et al., 2019).

Colleagues and Mentorship. A strong supportive professional network is vital for resilience development and preservation (Bobek, 2002; Entesari et al., 2020; Gu & Day, 2013; Kutsyuruba et al., 2019). For novice teachers, connecting with more experienced teachers can provide expertise and experience when faced with new and challenging situations (Bobek, 2002; Gu & Day, 2011). Morettini et al., (2019) concluded that perceived acceptance in the school and community context can help new teachers overcome unpreparedness in classroom management. Colleague relationships support new teachers and provide them with a resource of someone who understands the trials and tribulations of entering teaching (Bobek, 2002). This is especially important for novice teachers. New teachers do not possess as many resources nor have they

experienced as many conflicts from which to learn; therefore, they often rely solely on social support from colleagues to cope with challenges (Entesari et al., 2020). Building and maintaining these relationships increase belonging, confidence, and self-efficacy all of which help teachers maneuver through negative situations and support their personal mental health and overall wellness (Kutsyuruba et al., 2019).

Some schools have structured mentorship programs for newly hired teachers where they regularly meet with an experienced teacher who serves as a guide or coach. Other schools have less structured or more informal mentor processes. Morettini et al., (2020) discovered that implementing mentoring programs reduced teacher turnover and helped retain teachers at low-performing schools. The study found that teachers perceived more acceptance when involved in formal or even informal mentorship and that experience, in turn, developed their resilience. Such mentorships can help teachers overcome problems with unpreparedness and community acceptance.

Gu and Day (2013) found that over 75% of their 300 respondents cited that positive relationships with colleagues were critical in maintaining commitment, effectively dealing with daily challenges, creating team spirit, and developing "collective efficacy beliefs" (p. 37). In a study with early career teachers, Kutsyuruba et al., (2019) maintained that "consulting a mentor, connecting with colleagues, and collaborating with others" was overall beneficial for a new teacher to thrive (p. 301). They also found that the connectivity between new teachers and colleagues provides a strong foundation, a sense of belonging, and supports the novice teacher's well-being and mental health.

Mentoring can improve an early service teacher's professional knowledge or competence, including but not limited to curriculum, teaching methods, and behavioral interventions,

therefore, increasing their competency and self-efficacy (Morettini et al., 2020; Papatraianou & Le Cornu, 2014). More experienced teachers benefit from these professional relationships, too. The newer, and often younger, teachers can help the veteran teachers adapt to the newest policy or initiative especially when it includes new technology. Teachers see professional connections as a valuable asset that provides "intellectual, spiritual, and emotional resources" for their own development (Gu & Day, 2013, p. 36). Teacher relationships also help teachers feel empowered (Arcelay-Rojas, 2019). Empowered and connected teachers value relationships and that is likely to carry over to their relationships with their pupils.

Pupils. Much research has been conducted to discover the positive impacts on students from strong teacher-student relationships, but little research has been conducted to find possible positive outcomes for the teacher. All humans seek connection and relationships, and teachers may be driven to the classroom by that basic psychological need (Spilt et al., 2011). Biesta et al., (2015) discovered that teachers they interviewed consistently stated that developing relationships with students was critical to the educational process and that it could be accomplished by creating a safe and caring environment. Resilient teachers develop and maintain close relationships with their students which in turn increases a teacher's motivation (Entesari et al., 2020). Papatraianou & Le Cornu (2014) concluded that teachers find enjoyment in their connections with students and are motivated by student engagement and feedback. Witnessing student success, growth, and achievement was the most influential form of feedback that promoted teacher resilience. Pupil relationships also include the teacher's belief in leading students to become competent learners which provides the teacher with additional emotional and professional strength and the resilience to continue their commitment to the profession (Gu & Li, 2013).

Spilt et al., (2011) maintained that positive teacher-student relationships can be a primary source of teacher well-being and that such relationships contribute to a human's basic need for relatedness. As a teacher's resilience increases, they are better able to manage challenging student behaviors and minimize negative effects such as stress levels and burnout (Galea, 2018). Similarly, Hagenauer et al., (2015) found that teachers who felt a closeness or connectedness to their students reported experiencing more joy and this was a significant predictor in experiencing less anxiety and anger. Additionally, they found that positive interpersonal relationships are an important factor in the emotional well-being of the teacher and that this could in turn positively impact the students' well-being. Similarly, results from Corbin et al., (2018) showed that teachers who perceived warmth and openness in their student relationships were more likely to feel competent and find achievement in their careers. Conversely, they found that teachers who perceived negative or lacking student relationships were more likely to feel fatigued, stressed, and emotionally frustrated. Even with strong relationships with fellow teachers and students, teachers benefit from social connections outside of school.

Social Network. Having a strong social and/or family network outside of school remains important to the overall well-being of a teacher. This social network can be made up of family members, friends, and acquaintances. Day (2008) found that the most common factor amongst teachers with a perceived sense of agency and resilience was support from family, and that these relationships helped to continue their professional commitment. Similarly, having a social network comprised of friends and family unrelated to school continue to provide support to experienced, resilient teachers (Howard & Johnson, 2004). Family and friends can offer emotional support through listening and providing a safe space for the teacher to discuss work-related issues. They can offer a unique perspective that provides innovative solutions

(Papatraianou & Le Cornu, 2014). Likewise, they found that having sustained connectedness with family and friends helps a teacher's overall well-being. Some specific contributions they offer include task appreciation, expressing appreciation for their work, identifying positives, and challenging them to find a workable work-life balance.

Having family members in the educational field can be a great resource. Teachers have cited relying on the educational experience and wisdom of family members helps maintain balance and for the encouragement of self-care (Kutsyuruba et al., 2019). This study reported that self-reflection often happens outside classroom hours, so friends and family members can help the teacher reflect and provide them time for this beneficial practice.

Relationships play an integral part in effective teaching along with maintaining teacher growth, commitment, and wellbeing (Entesari et al., 2020; Gu & Day, 2013; Hagenauer et al., 2015; Howard & Johnson, 2004; Spilt et al., 2011). Though colleagues, pupils, family, and friends provide teachers with motivation, support, and care there is another important relationship that helps build and maintain resilience. This relationship is between a teacher and the administration or the leadership team. This relationship will be explored through the lens of organizational culture and leadership.

Organizational Culture and Leadership

The organizational culture of a school refers to the shared norms, values, and meanings shared by the members of the school (Sadeghi et al., 2013). The development and maintenance of a positive organizational culture does not happen by chance; it is led by the administration team of the organization (Gu & Day, 2013). The employees and teachers are a part of this, but the leaders are responsible for the continual adjustments needed to maintain a positive atmosphere. Consequently, for this research, organizational culture will include the structure,

procedures, policies, and leadership to encompass the important aspects of a school that impact resilience.

Since organizational culture is based on the teacher's perception, it is likely that staff in the same building view the culture differently (Polat & İskender, 2018). Even though an individual's outlook or mindset impacts their view of the culture, these beliefs have a large influence on job satisfaction, feelings of resiliency, and organizational commitment. These researchers also found a significant positive relationship between resiliency and organizational culture.

Strong leaders need to create an environment that promotes resilience. This should include clear missions and values that are aligned with school structures and establish and maintain positive relationships with all stakeholders through open, consistent interactions (Gu & Day, 2013). Having an open, honest leadership team that is approachable professionally and personally increases teacher commitment. Great leaders understand the value of relationships and implement structures that promote collegiality and collaboration. Even veteran teachers state that responsive and supportive leadership encourages their commitment and effectiveness (Day & Gu, 2009). This type of supportive encouragement increases a teacher's self-efficacy and school involvement. Though this can come from any of the aforementioned relationships, encouragement and acknowledgment from school leaders are central to this specific type of support (Papatraianou & Le Cornu, 2014). They found that leaders who seek out these types of interactions with staff are more likely to create a positive and committed organizational culture. Supporting this, Ma and MacMillan (1999) found a significant positive relationship between teacher satisfaction and a teacher's perception of a positive relationship with the administration.

School policy plays an important part in organizational culture. Thus, effective school policies can create a resilience-building and connected culture that offers support to teachers as they manage stress effectively. The key factor in maintaining organizational commitment is the perception of meaningful involvement; this includes taking away tasks that seem unrelated to student achievement such as paperwork (Ma & MacMillan, 1999). This research indicated that teachers who feel professionally valued and supported by the administration tend to work harder for the organization. Administrative leaders should support policies that value the teacher's time and acknowledge their contributions. This coincides with another study that found as an individual's level of resilience increases, so does their organizational commitment. The study included that these individuals will contribute more to the organization (Polat & İskender, 2018). Likewise, Gu and Li (2013) found that receiving recognition and support from the leadership team motivates teachers to continue to learn and grow, leading to greater contributions to the organization and their students. A strong supportive organizational culture promotes commitment and enhances resilience. Even with a strong organizational culture, often an individual needs an internal drive to maintain motivation.

Altruism

Altruistic individuals direct their concern to others and can be seen as self-sacrificing because they willingly help others without the expectation of a reward (Yavuzer, 2006). Altruistic teachers view their profession as socially important and valuable. They develop individuals that will, hopefully, positively impact society and they do so without an "immediate personal benefit," therefore showing altruism (De Cooman et al., 2007, p. 126).

Many teachers cite altruist reasons for entering the teaching profession, but it can also sustain teachers throughout their professional career as they continue to meet challenges (Manuel

et al., 2019). Often the reward is internal satisfaction and joy that can increase emotional fulfillment. A research study discovered that nearly two-thirds of their respondents stated their commitment to pupils as a strong reason for staying (Gu & Li, 2013). The teachers' commitment to student achievement and learning was a strong motivator to stay engaged in the profession. Witnessing small and large student growth and success provided emotional strength and drive in the teacher. The respondents felt fulfilled when they saw their students thrive by their own competence which increased their internal drive. Another finding was that student appreciative feedback increased connection and was critical for fulfillment.

In a related study, Day & Gu (2009) found that many late-career teachers continue to find value and self-worth in their pupil growth reinforcing the reason for entering the profession and pushing them to continue to build their resilience repertoire. Teachers report that altruism or having a sense of vocation has an impact on their perception and choices as a professional. This urge and belief that they can help every student increases their self-efficacy and continues to positively impact their commitment.

As teachers face challenges such as disciplinary issues, high workload, and balancing multiple responsibilities, having a passion for teaching can mitigate these daily realities and continue to affirm their love of teaching (Ng et al., 2018). Gu and Day (2013) agree by stating that it takes intellectual and emotional competence and commitment to continue a high level of care for all students throughout a professional career. Many teachers can hold onto this altruistic and intrinsic motivation throughout their careers. Chiong et al. (2017) found that intrinsic and altruistic reasons were the strongest reason for teachers entering and staying, alongside perceived competence, and that teachers serving 30+ years cited these reasons more than lesser years teachers. Many teachers enter and stay in the profession for altruistic reasons such as to

positively impact a student's life, build relationships with their class, and make a difference in the world. Even with a focus on others, teachers need to take care of themselves and not take anything too seriously.

Sense of Humor

Teaching is emotional work and being able to handle a wide array of emotions is critical to success. Mansfield et al., (2012) found that graduating and early career teachers cited the emotional aspects as being most important in teacher resilience. Managing emotions, developing positive coping practices, and being able to bounce back are important. One research-backed method utilized by many teachers is having a sense of humor. Research has shown that humor is beneficial in lessening the negative effects of adverse and challenging events. When dealing with painful experiences, a sense of humor can help ward off depression and mitigate anxieties (Capps, 2006). Tras et al., (2021) found a significant positive relationship between resilience and a sense of humor. Furthermore, they reported that humor is a significant predictor of resilience.

Humor is a great way to build rapport with students and to model how to laugh at themselves. Humor can diffuse behavioral situations and create a positive learning climate. Evans-Palmer (2010) found a positive correlation between self-efficacy and humor in art teachers. In this study, humor was most often used as a coping mechanism for stress. Though the higher the stress, the less likely teachers were to employ this tactic, it is an effective way to relieve stress and diffuse high tensions. Also, appropriate humor can encourage, reduce anxiety, and help relieve the pressure of teaching all while making a relaxed, enjoyable, and engaged learning and working environment (Torok et al., 2004).

Supportive factors are an essential component of the development and maintenance of resilience. The protective factors to be used in this study are competence, self-efficacy, agency, relationships with colleagues, mentors, pupils, family, friends, organizational culture and leadership, altruism, and sense of humor. There are many other positive influences on teacher resilience, but the chosen factors are widely backed by research and work within the constructs of the study. To have a clear view of teacher resilience, it is valuable to look at three factors that create challenges.

Risk Factors or Challenges

Risk factors or challenges are threats to teacher longevity and the development of resilient characteristics. These factors can cause challenges to the teacher and if they are not resilient, can create excessive stress, burnout, and ultimately, lead to exiting the profession. An abundance of research on exiting the profession has uncovered a multitude of risk factors. For this study, three of the most cited factors were chosen: pupil challenges, heavy workload, and lack of respect. These factors can be minimized by implementing one of the prior supportive factors. To remain resilient, teachers need to adapt and find resources to overcome the following challenges.

Pupil Challenges

Longer serving teachers had voiced that they have witnessed pupil challenges or have experienced continued difficulty managing behavior. Beltman et al. (2011) found the most common challenge relating to the classroom context was behavior management. Consistent negative attitudes regarding school alongside disruptive behavior are cited as being a reason for turnover intention (Räsänen et al., 2020). Lack of effective discipline is a significant negative predictor of teacher joy and a positive predictor of anxiety; misbehavior and lack of student

engagement evoke teacher anger (Hagenauer et al., 2015). Another study found the higher the teacher perceived poor student behavior like unruliness, the higher their intention to leave the profession (Conley & You, 2018). In a small study, disrespect toward adults was the only statistically significant behavior that had a decrease in teacher job satisfaction (Landers et al., 2008). On top of that, they found a decreasing level of job satisfaction as the grade level taught increased. Alter (2013) discovered that off-task behavior was found to be the most prevalent and challenging behavior. This could be because off-task behavior can lead to a student engaging in other negative behaviors at the same time.

Positive student-teacher relationships have been explored and shown to have many benefits for the students and the teacher (Corbin et al., 2018; Hagenauer et al., 2015; Spilt et al., 2011). Building and consistently sustaining such relationships with every student can be a challenge. Galea (2018) points out that engaging and relationship building with all students takes substantial emotional effort especially since not all students are eager to learn and some students do not come from stable home lives. Another factor impacting relationships is the schedule structure and time spent with students. Hagenauer et al., (2015) suggested that homeroom teachers experienced more joy, closeness, and engagement compared to minor subject teachers. Though positive student teacher relationships are vital they are not easy to obtain or maintain.

Discipline problems pose a problem for both ends of the teaching spectrum. Newer teachers do not have as many classroom management and behavioral strategies to pull from and veteran teachers can experience emotional and/or physical exhaustion from such behaviors. Late career teachers report lower capacities to remain resilient when dealing with disruptive students, large workloads, and new government policies (Gu & Day, 2013). In agreement, Qin (2020) discovered a higher intention of transferring or quitting when teachers cited more discipline

issues and when there was a high proportion of low-performing students even when accounting for salary information. Showing that behavioral issues lead to such negative effects that cannot always be offset by higher salaries. Pupil challenges are one risk factor but there is often more than one reason teachers lose motivation and have less resilience.

Workload

Teaching is a complex, dynamic, and demanding job with a heavy workload. A focus group of pre-service teachers deemed the large workload as a take-home job (Beutel et al., 2019). This means that the workload is so demanding and large that it cannot be completed during school work hours; therefore, work must be completed at home. Teachers identified the intense cognitive demands required to constantly problem solve and the emotional demands of handling a multitude of responsibilities. Räsänen et al. (2020) pointed out that workload, which can cause emotional exhaustion, high stress, and a sense of inadequacy, was a contributing factor to teacher turnover. They also identified that increasing work responsibility, often with insufficient resources, can lead to trouble balancing personal life along with maintaining high professional standards and meeting each student's academic and emotional needs.

High workloads can be seen as a major health and wellness threat (Kutsyuruba et al., 2019). Many are unable to find a healthy balance between work and home, often at the expense of their personal life. The excess workloads require extra time resulting in after-hours work or taking work home, especially for new teachers who are still adapting to the demands of the challenging career. Thus, Zydziunaite et al., (2020) found workload had a significant relationship with school stress. Workload directly influences stress; therefore, it is a risk factor for teacher resilience. Another study stated that excessive work can impact mental health, lead to emotional exhaustion, and negatively impact the teacher's attitude and behavior (Huyghebaert et al, 2018).

This means that overworked teachers have lower general functioning. Specifically, teachers who are overcommitted have cited more frequent sleep problems and overcommitment negatively correlates to job satisfaction and performance.

Gaps exist in the literature regarding what exactly about workload is causing teachers stress. Jerrim and Sims (2021) found that marking or grading and lesson planning were ranked as more unenjoyable aspects of the job and were strongly associated with workload stress. Secondary school teachers working at challenging schools cite negative pressure coming from heavy workload, poor pupil behavior, and unsupportive leadership (Beltman et al., 2011). Teachers must learn to handle pupil misbehavior and heavy workload, but they also deal with a lack of respect.

Respect

In the United States, educational policy tends to swing with each presidential race. Bush's No Child Left Behind and Obama's Race to the Top initiatives brought about a focus on high-stakes testing along with teacher and school accountability (Ellis, 2007; Howell, 2015). The government wanted to ensure quality education by being able to measure the outcomes and performance of schools and teachers, so they created policies to reflect these goals (Gu & Day, 2013). These high-pressure and high-stakes policies can create additional stressors for the teacher that can lead to burnout and lower job satisfaction. These new policies require continuous change and adaptation and seem to exacerbate all other stressors which lead to teacher turnover (Richards et al., 2016). Veteran teachers worry about developing new pedagogical skills and continuing to cope with these changes and new demands (Day & Gu, 2009). Teachers can perceive this additional work, often without needed resources, as a lack of respect and appreciation.

Additionally, policies can take away teacher autonomy. Teachers can feel that their voices are not heard or represented. Even in Finland where teachers are highly respected in society and experience more autonomy than other countries, teachers perceive the educational changes as top-down decision-making with little consideration for what these changes mean to the daily life of the teacher (Räsänen et al., 2020). Teachers are the ones who implement changes and policies and they seemingly come from people who are not in the classroom and might not understand the struggle and challenge of implementation. Teachers state the bureaucracy has caused job insecurity and they express concern regarding non-educators making important decisions about education (Webb, 2018).

In a large study reporting 32 countries with a total sample of over 100,000 participants, Qin (2020) discovered that perceived teaching status was one of the most significant predictors of teacher turnover. Specifically, teachers were less likely to quit in countries where teachers perceived their profession as respected and valued. Qin hypothesized that countries with high regard for teaching allowed teachers more freedom and autonomy. This study "stressed the role of the government in promoting a positive image of teachers and raising public awareness of the value of the teaching profession" (p. 98).

Lack of respect can still be seen in the relatively low salary of American teachers. Morgan (2020) reported that educators earn less than those workers with similar education levels. Without competitive salaries, the researcher found that high-needs schools had trouble recruiting and retaining quality teachers and often resorted to hiring underprepared teachers. Not surprisingly, countries that provided higher relative salaries saw lower levels of teachers with quit intention (Qin, 2020). This study also found that these salaries reduced the negative effects of stressors such as workload.

These are just some of the many challenges teachers face that can erode resilience. Teachers at various stages in their careers can have differing opinions about protective factors, risk factors, and perceived resilience.

Years of Service Comparisons

Early-career, middle-career, and late-career teachers have different experiences that can in turn impact their level of resilience, competence, motivation, and commitment. It is important to look at teachers in varying career stages to determine if certain supportive factors are more important during specific career timeframes. This information, if used appropriately, can inform preservice teaching programs, help administrators support their teachers based on their specific needs, and possibly improve attrition rates.

Research has sought to determine if differences exist between teachers along the career spectrum. It is assumed that there could be differences in resilience over time due to the multitude of influences and factors that interact. Research supports this idea by stating that resiliency is developable, multi-dimensional, and influenced by many factors including organizational culture, social network, and personal dynamics. Therefore, the level of resiliency fluctuates over time and circumstances (Gu & Day, 2013). Additionally, resilience is influenced by tensions and personal and professional concerns which change continuously showing the complexity of resilience building and maintenance (Day & Gu, 2009). Not only is it the interaction between a combination of factors, but it also depends on an individual's cognitive and emotional capacities to handle these influences (Gu & Li, 2013). Though all these researchers agree on the complexity of measuring resilience and see how commitment and resilience fluctuate over time, possibly in predictable manners, not all researchers agree. There is conflicting literature regarding this topic which will be explored within the years of service

parameters below. Knowing there is conflicting literature, this topic needs to be studied further. This study will add to the body of research and offer a better understanding of the relationship between resilience factors and years of service.

The professional experience ranges, years of service, for this study were chosen because they mimic prominent research. Day's (2007) four-year mixed-method research grouped teachers into six professional life phases. These phases were 0-3 years, 4-7 years, 8-15 years, 16-23 years, 24-30 years, and 31+ years. Though there were six phases, the study presented most of the findings in three ranges, which are the ones utilized for this study. Day based his study on the large-scale 2001-2006 VITAE project commissioned by England's Department for Education and Skills. The VITAE project used the same six ranges. Due to the smaller scale of their study, Gu and Day (2013) placed these six ranges into three professional ranges and termed them appropriately. To follow suit and due to the smaller scale of this study, the VITAE six professional ranges are combined to make only three ranges which mirror Gu and Day's (2013) ranges and match in title: early-career 0-7 years, middle-career 8-21 years, and late-career 22+ years.

Early-Career Teachers

Early-career teachers are quantified as having zero to seven, 0-7, years of experience. All teachers need support from colleagues but the need and reasoning for this support change as teachers remain in the profession. Early service teachers rely on this support to help them develop professional identity (Day & Gu, 2009). Similarly, Choing et al., (2017) found that early career teachers cited quality leaders as motivation for staying, more than any other years of service. In an interview with an early career teacher, Gu and Day (2013) suggest that a strong,

supportive leadership team and positive organizational culture were perceived as a way to build resilience, self-efficacy, and retain commitment.

Conversely, when choosing between four factors- professional, emotional, motivational, and social- that impact resilience, early career teachers consistently ranked emotional aspects as the most important and social aspects as the least important (Mansfield et al., 2012). Day and Gu (2009) agreed, stating that emotional intelligence is necessary to effectively manage the emotional challenges associated with teaching and that teachers lacking emotional resilience could leave the profession early if they are not prepared for the emotional nature of teaching. Some research shows that relationship building is most important but other conflicting literature puts more emphasis on the development of emotional skills.

There is a wide range of teacher experience in the early-career category so there may be differences within the range. Day (2008) found that in the early years, meaning years zero to three, teachers are developing their sense of efficacy and a crucial factor in developing resilience is supportive relationships with the administration while pupil behavior had a negative effect. At the latter end of this range, four to seven years, teachers had a stronger sense of self-efficacy and confidence. Many teachers begin to take on more responsibilities which can either produce a higher level of teacher identity or produce a negative effect. Entesari et al. (2020) found a significant difference in resilience between novice and experienced teachers. Novice teachers were less likely to exhibit resilient qualities when dealing with challenging situations than experienced teachers.

Middle-Career Teachers

Middle-career teachers are quantified as having eight to twenty-one, 8-21, years of experience. Due to the thirteen-year range, teachers on the lower end of this range are likely to

have different feelings and experiences than those on the upper end. Day (2008) found that teachers in the lower end of this range were still engaged in their careers. They experience a lot of professional development and can manage tensions and changes. Those later in this range were handling more work and life tensions as they had additional demands outside of work. Some teachers in the middle-career range begin facing challenges with commitment and motivation due to factors such as career stagnation, pupil behavior, and lack of support from leadership. In terms of colleague support, middle-year teachers rely on this support to help manage the tensions between professional and personal life (Day & Gu, 2009).

Much attention is paid to early-career and late-career teachers which research indicates they are most likely to leave the profession; thus, there is less research conducted on middle-career teachers. But Räsänen et al. (2020) found that middle-career teachers reported more turnover intentions than the other ranges. Yet another study found that early-career and middle-career teachers are more likely to stay resilient compared to veteran teachers (Gu & Day, 2013). This shows that there are more conflicting findings in current research.

Late-Career Teachers

Late-career teachers are quantified as having 22 or more, 22+, years of experience. These teachers are often referred to as veteran teachers. These longest-serving teachers have a different perspective offered by a long career with more experiences, challenges, and opportunities. Day (2008) found that teachers in the 20 years mark were close to evenly split between retaining a strong sense of motivation or struggling to maintain motivation and commitment. Challenges include continuing to change and adapt to policies and initiatives. Additionally, they found that those with 30 years plus experience show a larger percentage that are highly committed due to strong pupil relationships and progress while others are feeling tired and trapped.

It is not surprising that veteran teachers are more resilient than early career teachers which could be attributed to their years of experience and the more complex web of resiliency supports they have acquired. Chiong et al. (2017) suggest that veteran teachers place great importance on their professional mastery found by witnessing their students' progress, obtaining affirmation from their social network, and their sense of progress. This increased perceived professional mastery could be a result of more years of experience that in turn increased their knowledge, confidence, and ability to run a classroom. These teachers also cited school culture over the quality of leadership. Colleague support is used by veteran teachers to help with the adoption of new reforms and policies and to continually change and adjust (Day & Gu, 2009). Veteran teachers can use resources, such as colleagues, to help them positively handle these challenges, but many still struggle.

Experienced teachers face more intense challenges maintaining motivation during challenges compared to early and middle years teachers (Day & Gu, 2009). The authors point out that many of these teachers have additional leadership responsibilities and that the individuals reported struggling to continue to give their best effort to the profession. Pupil behavior and work-life tension along with intensified workload were cited as reasons for this change. Supporting this, Ma and MacMillan (1999) found years of service had a significant negative effect on teacher satisfaction. When there is a lack of collegiality and a lack of administrative support, 44% of veteran teachers reported a struggle to continue teaching and diminishing resilience (Gu & Day, 2013).

Years of experience bring many positives. Choing et al., (2017) found that perceived mastery or competence was more important to veteran teachers. Several studies support the notion that late-career teachers can see the broader picture when it comes to their impact. These

teachers are more aware of how their work benefits the community and society which provided motivation (Chiong et al., 2017; Day & Gu, 2009).

Even with research supporting these differences, there is research that shows the opposite. For example, Polat and İskender (2018) found no meaningful relationships between a teacher's resilience level and their years of service. Supporting this, Gu and Li (2013) did not find that years of experience impact a teacher's perceived sense of resilience. Nor was there an increase or decrease in a teacher's level of commitment to their students as years go by. In contrast, Day and Gu (2009) state that teachers are continually impacted by the interaction between personal and professional life phases, identities, and work and home environments as these dimensions fluctuate and change so do commitment and resilience levels. The conflicting literature shows there is a gap in research that this study can help fulfill by using the social ecological frame.

Conceptual Framework

Resilience is a multi-faceted, developable endeavor which means that teachers with different years of experience have different resource repertoires since these develop over time through growth and change. For this research, the social ecological model will help frame the dynamic and complex interactions between personal and environmental factors that form teacher resilience (Gu, 2018). Resilience is complex and is more than just a set of learned skills. It also is reliant on opportunities and resources that are available and accessible to "individuals, their families, and communities" (Ungar, 2012a, p. 3). Therefore, the environment plays a part in access to such resources and interacts with individual constructs. Ungar (2012a) found that nurture is more important than nature when it comes to children showing resilience even when the odds are against them. The social ecological framework supports this study by showing the

vital importance of relationships and a multitude of interactions that can build or diminish resilience. An individual's family, community, social network, and work relationship play an integral part in development and growth (Entesari et al., 2020; Gu & Day, 2013; Hagenauer et al., 2015; Howard & Johnson, 2004; Spilt et al., 2011). In agreement, Ungar (2012b) found that this perspective supports the use of resources from the social and physical environment to increase personal growth.

There are no clear rules for developing resilience. Each path is varied depending on the availability or lack of supportive factors, amount of exposure to risk factors, personal and professional experiences, and the interplay among them. In teaching, the environment of the school culture and the quality of interactions with colleagues, leadership, and pupils can either hinder or support resilience development (Gu & Li, 2013). As Biesta et al., (2015) point out, a teacher's job exists in the construct of professional environments and governmental control with many external factors that highly impact the teacher's agency or lack thereof. Yonezawa et al. (2011) focus on the interconnectedness among many elements when they describe resilience ''as a dynamic construct that emerges within the interplay between individuals' strengths and self-efficacy and social environments in which they live and work'' (p. 916).

The conceptual framework for this research study is that teacher resilience exists at the intersection of capacities and the environment. Resiliency development is seen as a process that requires a multitude of interactions. Possessing one or two characteristics does not ensure resilience as it is dependent on the quality of characteristics, the environment, resources available, and the situation. With so many factors and influences, the social ecological perspective provides a strong framework. The focus of this study is designed to address

supportive factors that enable teachers to maximize resilient qualities, develop and grow available resources, and minimize the negative effects of challenging situations.

The social ecological framework serves this study because it places teachers in their complex, ever-changing work environment which greatly influences their ability to remain resilient. As Gu (2018) points out, even with these many external challenges such as policy changes, heavy workload, and behavioral issues, many teachers can sustain their resilience and not only grow amidst all the challenges but also thrive. This lens sees resilience as a dynamic, complex, ever-changing construct that is impacted by the interactions of individuals, work environment, and personal growth. This allows for this study to divide the protective factors into seven separate categories which encompass the multitude of forces that impact resilience.

Each part of this study was chosen because it fits into the social ecological construct. Interactions with the environment are seen through organizational culture and leadership, and through the multitude of relationships explored including colleagues, pupils, and personal social networks. Action can be seen through personal self-efficacy and agency. The social ecological model holds that resilience is a "process-oriented latent concept" that supports the acquiring of skills (Gu, 2018, p. 22). In this study, the skills to acquire and develop are competency and a sense of humor. The idea that resilience is a process supports the idea that a teacher's resilience may fluctuate over time and circumstance and that factors may vary in importance at different career stages. Ungar (2012b) concurs by stating that as changes occur in an individual and the environment, factors that correlate to positive outcomes will change as well.

The social ecological model is the best framework for this study because it guides and supports the identification of connections and relationships between the various factors. When researching an issue as complex as resilience it is important to explore multifarious influences to

gain a true understanding of the convergent elements. Searching for relationships between diverse factors, perceived resilience, and years of service will add complexity to this study.

Chapter III: Methodology

Teacher resilience and the associated resilience factors were explored through this quantitative research study. The purpose of this study was to examine and determine if chosen factors impact teacher resilience, and if relationships existed between years of service, self-perceived resilience, and the selected resilience factors. The research design will be presented alongside quantitative methods. Participant selection and procedures will be followed by survey instrument details. The data analysis methodology will describe the variety of tests run to answer the three guiding research questions.

Research Design

This quantitative study followed a non-experimental research design. Quantitative research was chosen because it was clearly the best method to answer the research questions. Ravid (2020) states that quantitative research is "often conducted to study cause-and-effect relationships and to focus on studying a small number of variables and collecting numerical data" (p.15). This study sought to understand the relationship or correlation between teacher resilience and the scale item groupings. Additionally, it determined if significant relationships existed between those scale item groupings and years of service. This study collected numerical data on a small number of variables that were analyzed to determine if a significant relationship exists. Quantitative research was the most appropriate way to accomplish this.

Since there was no manipulation of variables or intervention to be studied, this was a non-experimental design (Ravid, 2020). The variables had been established and data was collected using survey method. A survey is a deliberate and systematic way to gather quantitative descriptors, or statistics, from a sample of or an entire population (Beatty et. al., 2005). Beatty et. al., (2005) continues, surveys are used worldwide and are one of the most commonly used

methods in social sciences. With the widespread use of surveys, many online platforms exist to allow easy distribution. Qualtrics, a trusted cloud-based online platform, was utilized for this study.

There were several inferential statistics used to address the three research questions. One test used to answer Research Question One was multiple linear regression. This predictive test was used to determine if the resilience factors were able to predict the Teacher Resilience Scale score (TRS). Multiple linear regression tests each predictor variable separately but it also tests the predictors as a whole to determine if significant predictive relationships exist (Yockey, 2018).

Two research questions were answered by using Pearson's *r* correlation coefficient. "Correlation is defined as the relationship or association between two or more numerical variables" (Ravid, 2020, p. 96). This study was designed as a correlation research study because the goal was to determine relationships and associations between the variables including years of service, perceived resilience, and resilience factors. It is important to note that correlation does not mean causation because it cannot be inferred that one caused the other. It can only be concluded that they are related (Ravid, 2020).

The only test used to answer all three research questions was the chi-square test of independence. This test was chosen because it provides a test for categorical variables and all the variables used were separated into two or more categories (Yockey, 2018). The results determined if relationships existed between the variables, and this was applicable to all three research questions.

Purpose of the Study

The purpose of this study was to use a variety of quantitative methods to answer the three guiding research questions. The goal was to determine potential influences on teacher resilience, relationships between the positive supports and experience levels, and how the factors interacted with self-perceived resilience. The social ecological framework supported the idea that resilience is a complex and dynamic endeavor with impacts from the interconnected network of resources, relationships, and environmental and personal factors. The research design and methodology explored the interactions and possible relationships between these varied factors. The results of this study will bring new understandings to the crucial topic of teacher resilience.

Research Questions and Hypotheses

Three guiding research questions directed the study.

Research Question #1- What are the influences and factors that impact teacher resilience?

Research Question #2- What is the relationship between years of service and resilience factors?

Research Question #3- What is the relationship between perceived resilience and resilience factors?

Research Question One was first explored through analysis of current literature and used to inform data collection. This exploration narrowed down the topic of teacher resilience to seven main protective factors; competence, self-efficacy, agency, multiple relationships, organizational culture and leadership, altruism, and sense of humor. These supportive factors

were the basis for the creation of Part Two of the instrument and served as independent variables.

Once the data collection process was complete the results were analyzed using multiple linear regression and the chi-square test of independence. First, multiple linear regression was used to determine if any of the seven factors had a predictive relationship with the dependent variable of the Teacher Resilience Scale. Next, the chi-square test of independence was run to determine potential associations between the protective factors and resilience level. Each test had a specific null and alternative hypothesis which will be presented in Chapter 4. The null hypotheses stated that there would not be a predictive relationship or no relationship between the two variables. The alternative hypothesis stated that there would be a predictive relationship or there would be a relationship between years of service and resilience.

Research Question Two was examined using Pearson's *r* correlation coefficient and chi-square test of independence. For correlation research, the variables were the seven resilience factors and years of service, which were grouped as one category for this test. Next, the chi-square test was used to determine relationships between three categories of service years and each of the seven protective factors. The null hypothesis was that there would not be a relationship between the two variables in the population, years of service and the resilience factors. The alternative hypothesis was that there would be a relationship between the two variables in the population, years of service and the resilience factors.

Research Question Three was also tested using Pearson's *r* correlation coefficient and chi-square test of independence. Pearson's *r* was used to find potential significant relationships between the resilience factors and TRS raw score. For the chi-square test, the categorical variables of the resilience factor and perceived-resilience level were used to determine

associations. The null hypothesis was that there would not be a relationship between the two variables in the population, perceived resilience and resilience factors. The alternative hypothesis was that there would be a relationship between the two variables in the population, perceived resilience and resilience factors.

Participants and Procedures

The population surveyed was a small portion of the American working K-12 teachers. The participants varied in many ways including but not limited to geographical region, gender, age, ethnicity, years of experience, and grades/subject taught. This variety of participants provided a rich and wide view of teachers today. Since there is no way to gather data from this whole population, a small sample from this population was used.

To find subjects the researcher utilized non-random sampling methods. The sampling methods are considered non-random because all members of the population do not have an equal chance of being chosen (Beaudry & Miller, 2016). The non-random sampling methods of convenience sampling were coupled with snowball sampling. Convenience sampling is used by a researcher so they can choose participants that are willing and easily accessible (Ravid, 2020). In this study, surveys were emailed to familiar schools around the tri-state area including Kentucky, Tennessee, and Indiana. This allowed the survey to be sent to several hundred teachers. Knowing that survey completion would not be guaranteed, to gain more participants the snowball method was utilized. The snowball method has participants provide names or information about other possible subjects, who then can provide additional prospects (Beaudry & Miller, 2016). Participating teachers with connections to additional school districts were asked to forward the approved participant email and survey link to additional teachers across the nation. By using

convenience sampling and the snowball method the researcher was able to gain 295 surveys opened in Qualtrics with 247 and 243 completed, usable survey responses.

There was no foreseeable risk to participants in completing this survey. Teachers are not considered a vulnerable population and participation was voluntary. The items did not include any foreseeable triggering wording. Respondents could stop completing the survey at any given point if they felt the survey was not appropriate or undesirable to complete. This voluntary participation was another reason why the survey method is ideal. Individuals did not have to open the email or the survey link and completion was of their own free will.

The survey included no identifying markers so participant identity was anonymous. Only three demographic questions were asked which were pertinent to the research. The first demographic question asked about years of service which was later classified into early-career (0-7 years), middle-career (8-21 years), and late-career (22+ years). The second demographic question included multi-select checkboxes for each grade level between preschool and 12th grade. This allowed for additional data analysis to provide more specific information. The last question asked the respondent to include the current state in which they teach. This again allowed for more data analysis but also showed the scope and reach of the study. There would be no way to identify a specific participant with only these three pieces of information. Since the study does not focus on gender, age, ethnicity, or specific names of individuals or districts, these demographic questions were not included. This added additional confidentiality and anonymity to the study.

Instrument

The instrument was distributed using the web-based survey platform, Qualtrics, and consisted of two parts. Part One was the existing Teacher Resilience Scale (TRS) used to

measure self-perceived resilience. Part Two was the Resilience Factors section developed by the researcher. This section allowed the participants to rank the importance of the chosen seven protective factors. The construction of the instrument was intended to smoothly flow from question to question and the two sections allowed for logical grouping (Stockemer, 2019).

Web-based surveys have many advantages, and this method was the most appropriate way to gather data for this educational study. Online surveys can be conducted in a short amount of time, are a low-cost option, and have a wide geographic reach (Nayak & Narayan, 2019). Stockemer (2019) points out that survey research has become a major way to gather data from individuals in the field of social science. The web-based survey was sent to potential subjects via school email. With contacts in several districts, the researcher was able to utilize connections to gain permission to send emails to whole schools and/or districts. Additionally, the researcher sent emails to individual teachers across the nation.

Teacher Resilience Scale

Part One of the study's instrument was comprised of the pre-existing Teacher Resilience Scale (TRS). This scale was developed by Daniilidou and Platsidou (2018) to specifically address teacher resilience, not just general resilience. The scale was created through an analysis of the popular Connor-Davidson Resilience (CD-Risc, Connor & Davidson, 2003) and the Resilience Scale for Adults (RSA, Friborg et al., 2005). Daniilidou and Platsidou (2018) combined the most appropriate subscales from each instrument to construct the TRS. The TRS scale is a brief yet effective measure that is literature-based and assesses both internal and external protective factors; therefore, it was the best fit as it coincides with the social ecological framework. The protective factors included on this specific instrument, two taken from each of the CD-Risc and RSA, are social skills and peer support, family cohesion, personal competencies

and persistence, and spiritual influences. Specially, the composition of the 26 items is as follows: "(a) Personal Competencies and Persistence (9 items), (b) Spiritual Influences (3 items), (c) Family Cohesion (7 items) and (d) Social Skills and Peer Support (7 items)" (Daniilidou and Platsidou, 2018, p. 29). This part of the instrument provided a numerical score regarding self-perceived resilience.

Both sections of the survey contain an interval scale that "place(s) their responses on a continuum of answers that are located at intervals of equal value" (Beaudry, & Miller, 2016, p. 110). Specifically, both parts of the survey utilized a Likert-type scale. On the TRS, there was a 5-point Likert-type scale with one corresponding to *never* and five corresponding to *always*. There was no neutral response on either part of the survey.

The TRS had several of the scale items grouped but a few of the same scale items are split. Though groupings can be preferable, the researcher chose to keep the instrument as close to its original creation, with only one small change. Once the survey was placed in Qualtrics, the researcher discovered the only question mentioning God was the second question on the survey. The researcher decided to move the question towards the end of Part One, to avoid the idea that the survey was religious-based. By placing it at the end of Part One, the participants would have seen all the other questions, had a better understanding of the objective of the survey, and realized that it is not about God or their personal specific religious beliefs.

Daniilidou and Platsidou (2018) calculated the Composite Reliability (CR) which indicated the reliability of scale item grouping as satisfactory. The Average Variance Extracted (AVE) was also calculated and although lower in value, it was deemed acceptable due to high CR values. Keeping nearly all of the instrument's questions in the same order helped protect the reliability since it was distributed in the same format and nearly the same order as it was created

and tested. The level of resilience, the dependent variable, was found by calculating the sums of all 26 scale items.

Resilience Factors

Part Two was the Resilience Factors section. This section was created by the researcher to collect data regarding the researched and chosen protective factors. The survey items were grouped in the following order: Sense of Humor (2 items), Agency (3 items), Altruism (2 items), Competence (3 items), Organizational Culture (2 items), Self-Efficacy (2 items), and Relationships (3 items). Unlike the first section, all scale items were grouped together and each of the independent variables had either two to three items. Though this section also utilized a Likert-type scale with no neutral response, the scale differed from the 5-point scale used in Part One. This section used a 4-point Likert-type scale with one corresponding to *strongly disagree* and four corresponding to *strongly agree*. The sum of each scale item was used as an independent variable. Part Two had 17 total items making the whole instrument 43-items.

Since this was the first time this survey had been administered, part of the analysis included testing for item reliability using Cronbach's alpha. It was important to measure how well the scale item groupings correlated with each other and Cronbach's alpha provided "good reliability estimates" (Ravid, 202, p. 186). This method of determining reliability has been a popular choice for educational research. The scale item groupings were important to the data analysis, reliability, and the determination of correlations.

Data Security

All data has been kept secure. Qualtrics was used for survey creation, distribution, and tabulation of responses. This trusted system was password protected and supported by Murray State University. Qualtrics captured and stored real-time responses from respondents. Once the

data was cleaned and usable responses were pulled out, the data was stored only on the researcher's personal laptop. This laptop was protected with two-factor identification and was password-locked. In addition, data could only be viewed by the researcher and the dissertation chair, Dr. Brian Bourke.

Variables

Depending on the test, the dependent variable in this quantitative study was either teacher resilience or years of service. The independent variables were the scale item groupings. The seven groupings in the Resilience Factors section of the instrument were their own variables because they each represent a different factor that could have influenced teacher resilience. The groupings were sense of humor, agency, altruism, competence, organizational culture, and relationships. The only other independent variable was years of service which was broken into early-career, middle-career, and late-career or ran together as a resilience factor.

Data Analysis Procedures

To deeply analyze the survey data, many methods were employed. First, descriptive statistics were used to help classify and summarize observations about participants and the data set (Ravid, 2020). This provided a way to organize demographic information; and the mean (*M)* and median (*Mdn*) calculations led to the determination of a cut score for resilience so the categorical variables of resilient and non-resilient could be created. Mean scores of the factors were also utilized when running inferential statistical tests.

The scale items used were considered restricted because there were no open responses. Instead, responses were restricted to a specific number of options allowing for easy coding for statistical analysis (Privitera, 2017). Each answer option then corresponded with a numerical

value to indicate the respondent's level of agreeance or ranking. The coding for Part One, TRS, was the 5-point Likert-type scale with one corresponding to *never* and five corresponding to *always.* The dependent variable, teacher resilience, was calculated as the sum of all scale items. Therefore, the resilience scores ranged from 26-130.

The coding for Part Two, Resilience Factors, used a different Likert-type scale. The coding utilized the 4-point scale with one corresponding to *strongly disagree* and four corresponding to *strongly agree*. The independent variables were each of the seven scale item groupings, with two or three items per grouping. This was calculated using a score sum. Each independent variable was tested one at a time. The last independent variable was years of service which offered three ranges: early-career (0-7 years), middle-career (8-21), and late-career (22+ years). Each range was tested against every scale item grouping.

The Resilience Factors section of the survey was not a pre-existing instrument and did not have reliability data. During data analysis, Cronbach's alpha (α) was used to test for item reliability levels. This tested how closely related the item scores were as a group that measured internal consistency (Marshall & Boggis, 2016). This was the best test for reliability because the survey had clear groupings of items related to resilience.

Since this was a quantitative research design, the Pearson product-moment coefficient, more commonly known as Pearson's *r*, was one of the statistical procedures used. The study met the requirements to perform the Pearson's *r* because the scores were measured on an interval scale and the two variables that were correlated had a linear relationship (Ravid, 2020). The Pearson's *r* data analysis produced a correlation coefficient which indicated the degree and directions of the correlation. The correlation could range "between -1 (perfect negative

correlation) to 1 (perfect positive correlation)" (Marshall & Boggis, 2016, p. 32). If a relationship between variables was determined, the strength and direction were found followed by a calculation of statistical significance (Ravid, 2020).

Multiple linear regression was another statistical test performed to determine if one factor could predict values for another factor. The coefficient of determination (r^2) was used to determine effect size which explained the strength of the relationship (Ravid, 2020). Since there were more than two variables used as predictors or independent variables, the procedure was called multiple linear regression. This test allowed for another coefficient of determination (R^2) with ranges from 0 to 1.00 to find if the combined predictors account for the variance of the dependent variable.

The final quantitative test utilized was the chi-square test of independence. The chi-square test used categorical variables and determined if two factors were related or independent of each other (Ravid, 2020). Each factor consisted of two or more categories so it fit the data requirements for this test. Crosstabulations were tables produced from this test which provided a good deal of specific information that was used in answering the research questions.

The two-part survey data gathered results regarding self-perceived resilience levels and ranking of protective factors. Since this was the first time using this test, Cronbach's alpha (α) determined reliability. A good sample size (n = 243, n = 247) was obtained from convenience and snowball methodology from PreK-12 teachers in a variety of states. The results obtained were analyzed in a variety of ways to ensure research questions were thoroughly answered. Possible significant relationships or correlations were determined using multiple linear

regression, Pearson's *r*, and chi-square test of independence. These relationships or lack thereof were closely examined and explained in the following chapters.

Chapter IV: Findings and Analysis

This chapter presents the findings of the study alongside analysis. First, participant demographics are quantified followed by descriptive statistics and reliability measures for the survey. Next, survey data results are presented by each research question. An explanation of each statistical test is followed by the statistical interpretation. By using multiple inferential statistical tests for each research question, robust data is explored to thoroughly answer each guiding research question. The analysis of results provides a link between data and application to this research study and beyond.

Response Rate

The online survey was emailed to many teachers and principals in several states. Utilization of the snowball method was witnessed as recipients forwarded the survey to other teachers or even an entire school or district. There is no way of knowing the exact number of teachers that received the survey in their email. Qualtrics indicated that 295 teachers clicked on the email link and began the survey. After cleaning the data and removing incomplete responses, it was determined that 247 teachers completed the demographic page and Part One of the survey. The resulting sample size of 247 usable surveys was used for data analysis of demographics and the Teacher Resilience Scale (TRS). The response rate for these two parts was determined using the total number of teachers to open the survey compared to the total number of teachers who completed Part One. The response rate is 83.7% which is rather high due to the inability to accurately calculate the total number of teachers to receive the survey.

Part Two of the survey, Resilience Factors, was completed by 243 respondents, comprising a sample size of 243 as opposed to 247 for Part One. This shows that four teachers

completed the demographics and Part One but did not fully complete Part Two. Using the same response rate formula, the response rate for Part Two is slightly lower at 82.4%.

Three demographic questions were included in the survey generating data for years of service, grade levels taught, and current teaching state. Each demographic point was analyzed using frequency tables. The first question on the survey related to years of service. Though this was a fill-in-the-blank question, data was later grouped into the established ranges; early-career 0-7 years, middle-career 8-21 years, and late-career 22+ years to support data analysis and answer research questions. As seen in Table 1, a little over half (51%) or 126 of the participants are categorized as middle-career teachers. The remaining 49% were split nearly equally. Sixty respondents are identified as early-career (24.3%) and 61 are considered late-career teachers (24.7%).

Table 1

Years of Service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	early-career	60	24.3	24.3	24.3
	middle-career	126	51.0	51.0	75.3
	late-career	61	24.7	24.7	100.0
	Total	247	100.0	100.0	

The second demographic question asked participants which grade level(s) they currently teach. This question allowed participants to select multiple grade levels generating a total of 622 (see Appendix C). There were 33 respondents (5.3%) that selected Special Education. The most

frequently selected grade level selected was 11th grade (9.6%) followed by 5th grade (9.2%) and a close third for 12th grade (9%). The least selected grade level was Pre-K with only 1.9%.

The last demographic question asked participants to indicate the state in which they teach. The results showed that 13 different states in the United States were represented in the data set (see Table 2).

Table 2

Current Teaching State

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		2	.8	.8	.8
	AZ	6	2.4	2.4	3.2
	CO	1	.4	.4	3.6
	IL	1	.4	.4	4.0
	IN	104	42.1	42.1	46.2
	KY	73	29.6	29.6	75.7
	MT	1	.4	.4	76.1
	NE	2	.8	.8	76.9
	NJ	2	.8	.8	77.7
	RI	1	.4	.4	78.1
	TN	34	13.8	13.8	91.9
	TX	1	.4	.4	92.3
	UT	1	.4	.4	92.7
	VA	18	7.3	7.3	100.0
	Total	247	100.0	100.0	

Six states had only one respondent and two states had two respondents. Due to these small numbers, a clear majority of participants came from three states. Indiana constituted the largest percentage with 42.1% having 104 participants. Kentucky had 73 participants (29.6%) and Tennessee had 34 participants (13.8%). Together these three states represented 85.5% of the overall sample. Only two other states had percentages above 1%, Virginia (7.3%) and Arizona (2.4%). This demographic data was used to help establish and understand the make-up of the participants in order to properly analyze data, determine limitations, and draw proper conclusions.

Analysis of Survey Data

The use of IBM SPSS Statistical Software was utilized to gather quantitative data to analyze the survey and answer the three research questions. Namely, descriptive statistics were used to determine the cut score for TRS, and Cronbach's alpha was used to test the reliability of each survey section and the whole survey. Multiple linear regression, chi-square test of independence, and Pearson *r* correlation coefficient were used in combination to have at least two different statistical tests per research question. Results are presented in narrative and often in table form.

Descriptive Statistics

The descriptive statistics produced by SPSS were used to analyze and calculate central tendencies for each part of the survey. Measures of central tendencies provide common statistics that allow the researcher to view the data as a whole (Ravid, 2020). The mean (*M*) and median (*Mdn*) were used to understand the disbursement of data and to help determine a cut score for resilient and non-resilient teachers.

First, the Teacher Resilience Scale, Part One of the survey, had a sum score range of 26-130. The descriptive statistics stated that the minimum score was 79 and the maximum score was 130. The mean (M = 104.2) and the median (Mdn = 105) had a difference of less than one. This shows the data set had symmetrical distribution (Ravid, 2020). The standard deviation for this data was 8.9. This information was utilized to determine a cut score between resilient and non-resilient teachers. The teachers were considered to be resilient if they had scores of 104 or above. Non-resilient teachers had a score of 103 or below.

The TRS mean was determined to be the optimal cut score. Through analysis of the mean, median, and from viewing the scatterplot (see Appendix G) it was seen that the data was normally distributed around the mean. Another option for the cut score was to take the mean and add the standard deviation making the cut score 113. Using the higher cut would result in few teachers being deemed resilient. Another observation was that the resilience scores are fairly equally distributed across the TRS sum score in all three years of service categories. By selecting the mean (M = 104.2) as the cut score, it allows the data to be divided in a natural way that will provide good data points for both non-resilient and resilient teachers.

Reliability

The reliability of each scale part was determined as well as the reliability of the whole instrument. The existing Teacher Resilience Scale already had composite reliability determined to be satisfactory by Daniilidou and Platsidou (2018). To confirm the reliability and the movement of one question, Cronbach's alpha (α) was used to determine internal consistency. According to Yockey (2018), a coefficient alpha of .90 and above is considered to be excellent and a coefficient alpha of .80-.89 is considered good. The 26-item TRS had a Cronbach's alpha score of .84 which was considered good reliability.

Since Part Two of the instrument, Resilience Factors, was created by the researcher, reliability had never been assessed. Cronbach's alpha was used to determine the internal consistency of the 17 scale items by seeing if participants were consistently responding to like items (Yockey, 2018). The Cronbach's alpha score for the 17 items was .89 indicating good and very close to excellent reliability. Testing the survey instrument as a whole indicated excellent reliability and had the highest coefficient alpha ($43\ \text{item};\ \alpha = .90$). This score indicated that each of the two parts of the survey along with the combination of the parts was reliable and is likely to consistently produce the same results if given to the same population (Ravid, 2020).

Results by Research Question

With the survey having good to excellent reliability, it increased confidence in data accuracy. Data results and analysis are separated and presented by research question. Explanations of statistical tests used are followed by applicable tables and descriptions of data. Due to the sample size, there are many significant relationships. To properly analyze data and draw proper conclusions, the effect size was determined for each relationship. Effect size expresses the strength of the association between the variables (Ravid, 2020). Since there are several significant relationships, the effect size helped determine which variables formed the strongest relationships, denoting more significance, and these factors and relationships became the focus of each question's analysis. Important information was discovered by examining the relationships with the smallest effect sizes.

Research Question #1

1. What are the influences and factors that impact teacher resilience?

The inferential statistic of multiple linear regression was used to determine if the protective factors had any influence on teacher resilience, specifically if having a specific factor

could predict the presence of resilience. Inferential statistics are used when studying a selected sample. The conclusions and inferences made about the sample probably holds true about the population from which the sample was drawn (Ravid, 2020). In addition, the chi-square test of independence was used as well. The chi-square test of independence is also known as the test of associations because it tests relationships or associations between two categorical variables, each with two or more categories (Yockey, 2018). Since all data in this study are grouped into two to seven categories, this is the most appropriate test.

Multiple Linear Regression. A multiple regression analysis was conducted with Teacher Resilience Scale as the dependent variable and the potential protective factors (relationships, service years, altruism, agency, humor, competency, organizational culture, and self-efficacy) as the predictors. As seen in Table 3, overall, the regression was significant (R^2 = .41, F(8, 234) = 20.22, $p < .001$). The strength of the effect size is expressed as the R^2 value. The values are broken into 0.02, 0.13, and 0.26 as small, medium, and large, respectively (Cohen, 1998). This multiple regression showed a large effect size and a strong predictive relationship.

There were three protective factors with a $p < .05$ that were determined to be predictors of resilience. Relationships significantly predicted teacher resilience (β = .42, $p < .001$) and was the only factor to have a large effect size. Agency predicted teacher resilience (β = .21, $p = .001$), as did humor (β = .16, $p = .012$). Agency and humor both maintained medium effect sizes. The regression weights for each of the predictors are positive. The two factors least likely to be significant predictors of resilience were altruism (β = 0.05, p =.937), and organizational culture (β = 0.05, p = .932). Interestingly, the only factor to have a negative regression weight was that of self-efficacy (β = -.063) indicating that as self-efficacy increases there is likely to be a decrease in resilience score.

Table 3

Teacher Resilience Scale Regression Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	t
1	(Constant)	42.565	5.257		8.097
	ServiceYrs	.259	.727	.020	.357
	Humor	1.569	.616	.155	2.547
	Agency	1.507	.468	.208	3.219
	Altruism	.053	.669	.005	.079
	Competency	.605	.480	.090	1.259
	OrgCulture	.048	.568	.006	.085
	SelfEfficacy	-.585	.691	-.063	-.847
	Relationships	2.984	.480	.412	6.210

Teacher Resilience Scale Regression Coefficients[a]

Model		Sig.	95.0% Confidence Interval for B	
			Lower Bound	Upper Bound
1	(Constant)	.000	32.208	52.923
	ServiceYrs	.722	-1.172	1.691
	Humor	.012	.355	2.783
	Agency	.001	.585	2.429
	Altruism	.937	-1.266	1.372
	Competency	.209	-.342	1.551
	OrgCulture	.932	-1.071	1.167
	SelfEfficacy	.398	-1.946	.776
	Relationships	.000	2.037	3.930

a. Dependent Variable: TRS

Chi-Square Test of Independence. To further analyze the data, the chi-square test of independence was used to answer each research question. Repeating the same statistical test

provides consistency between research questions and strengthens data analysis and conclusions when looking at results as a whole.

The variables used to answer Research Question One were the three years of service categories and the teacher resilience categorical variable created using the sum score of 104 or greater to mean resilient and the sum score of less than 104 to mean non-resilient (see Table 4). There was a significant relationship between years of service and perceived teacher resilience, $\chi^2(2, N = 247) = 6.34$, $p = .042$, Cramer's V = .16. Small, medium, and large effect sizes were determined using Cramer's V at .10, .30., and .50, respectively (Cohen, 1998). Since the effect size was small and the *p*-value was nearing .05, though it was considered to be a significant relationship, it can be viewed as a relationship of small strength.

Table 5 shows the highest percentage of resilient teachers were late-career ($n = 43$, 70%), followed by early-career ($n = 32$, 53%), and closely followed by middle-career ($n = 65$, 52%). Again, the difference between early- and middle-career teachers could be due to the larger sample size of middle-career teachers, or it could be that middle-career teachers are slightly less resilient.

Table 4

Service Years and TRS Categories Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.344[a]	2	.042
Likelihood Ratio	6.526	2	.038
Linear-by-Linear Association	3.649	1	.056
N of Valid Cases	247		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 25.99.

Table 5

Service Years and TRS Categories Crosstabulation

Count

		TRScategory		
		1.00	2.00	Total
ServiceYrs	early-career	28	32	60
	middle-career	61	65	126
	late-career	18	43	61
Total		107	140	247

Analysis. Taken together, the multiple regression and chi-square tests show that there are influences and factors that could potentially impact teacher resilience. Relationships were the strongest predictor of resilience ($p < .001$) followed closely by agency ($p = .001$) showing that the presence of these two protective factors could influence a teacher's resilience level. The only other factor to significantly predict resilience was humor ($p= .012$). Since they all have positive regression weights, a one-point increase in any of these factors would predict a specific increase in the resilience score, assuming all other predictors held constant (Yockey, 2018).

Furthermore, it is important to consider the factors that were not statistically significant and not likely to predict resilience. Two of these factors were altruism ($p = .937$) and organizational culture ($p = .932$) because their significance score was near one. These results suggest that these two characteristics are not good predictors of resilience. It is possible that altruism and organizational culture are not important for resilience or it could possibly mean that these factors are important for all teachers regardless of their resilience level. It is important to note the other factors that were not significant. The multiple regression coefficient found the remaining factors to lie in the following order competency ($p = .209$), self-efficacy ($p = .398$), and service years ($p = .722$).

Interestingly, these tests give mixed results. The multiple regression had a large effect size, and significant relationship with resilience score showing that there are factors that impact teacher resilience. The same test showed that service years were not predictors of resilience. Yet, chi-square determined a significant relationship between years of service and perceived teacher resilience, but the effect size was small with a Cramer's V of .16 and small effect size begins at .10 so the strength of this relationship is rather small. Additional statistical tests conducted to

answer other research questions will analyze these relationships in greater detail and provide more clarity.

Hypotheses. The multiple linear regression test null hypotheses for each factor were that the beta weights (β) of each factor were equal to zero so it did not predict resilience. The alternative hypothesis was that the beta weights of each factor were not equal to zero so it did predict resilience.

H_0: $\beta_{relationships} = 0$

H_1: $\beta_{relationships} \neq 0$

H_0: $\beta_{agency} = 0$

H_1: $\beta_{agency} \neq 0$

H_0: $\beta_{humor} = 0$

H_1: $\beta_{humor} \neq 0$

Since relationships, agency, and humor did not have beta weights equal to zero, then the null hypothesis was rejected making the alternative hypothesis true, meaning that relationships, agency, and humor predicted resilience.

H_0: $\beta_{service\ years} = 0$

H_1: $\beta_{service\ years} \neq 0$

H_0: $\beta_{altruism} = 0$

H_1: $\beta_{altruism} \neq 0$

H_0: $\beta_{competency} = 0$

H_1: $\beta_{competency} \neq 0$

H_0: $\beta_{organizational\ culture} = 0$

H_1: $\beta_{organizational\ culture} \neq 0$

H_0: $\beta_{self\text{-}efficacy} = 0$

H_1: $\beta_{self\text{-}efficacy} \neq 0$

Service years, altruism, competency, organizational culture, and self-efficacy had beta weights equal to zero, so the null hypothesis was not rejected meaning that these five factors did not predict resilience.

In addition to the individual predictors, there were hypotheses to determine if the regression equation, with all factors included, predicted resilience. The null hypothesis was that all the predictors, as a whole, did not account for any variance in teacher resilience.

H_0: $R^2 = 0$

The alternative hypothesis was that all the predictors, as a whole, did account for variance in teacher resilience.

H_0: $R^2 \neq 0$

Since there was a large effect size predictive relationship, then the null hypothesis was rejected making the alternative hypothesis true, meaning that the resilience factors did predict resilience.

The chi-square test of independence null and alternative hypotheses were:

H_0: There was no relationship between years of service and resilience.

H_1: There was a relationship between years of service and perceived resilience.

Since the $p = .042$ the null hypothesis was rejected making the alternate hypothesis true, meaning there was a relationship between years of service and perceived resilience.

Research Question #2

2. What is the relationship between years of service and resilience factors?

To address this research question, responses were examined in a variety of ways to gather the most conclusive and encompassing data. The inferential statistics of Pearson *r* correlation coefficient and chi-square test of independence were both utilized. The use of two tests allows for deeper analysis to discover commonalities, differences, and to determine if the findings are consistent.

Pearson *r* Correlation Coefficient. First, Pearson *r* was used to determine the degree of linear relationships between the continuous variables. These relationships can be expressed as positive or negative correlations and can range from a perfect positive relationship, 1.0, to a perfect negative relationship, -1.0 (Yockey, 2018). The variables were all seven protective factors and service years. For this statistical test, service years were not divided into the three experience levels; the test was run with service years as one category. There were positive relationships between four of the protective factors and service years (see Table 6). The effect size was determined using the correlation coefficient (*r*) with values ± .1, ± .3, and ± .5 being categorized as small, medium, and large effect sizes, respectively (Cohen, 1998).

The following results were listed in order of highest effect size, with only competency being medium and the remaining being small effect sizes with the last two factors having the exact same significance. There was a significant positive relationship between years of service

and competency, $r(241) = .46$, $p < .001$, and self-efficacy, $r(241) = .29$, $p < .001$. There was also a significant positive relationship between years of service and humor, $r(241) = .20$, $p = .002$, and agency, $r(241) = .20$, $p = .002$.

Likewise, it is important to examine the factors that did not form significant relationships. Factors were listed in ascending order of effect size, which are all small. Factors are in order of ascending correlation as well. Relationships did not have a significant relationship with service years, $r(241) = .01$, $p = .125$, nor did organizational culture, $r(241) = .01$, $p = .122$. Lastly, altruism did not have a significant relationship with service years, $r(241) = .011$, $p = .076$.

Table 6

Resilience Factors and Service Years Correlations

		1	2	3	4
1. Humor	Pearson Correlation	1	.429**	.428**	.342**
	Sig. (2-tailed)		.000	.000	.000
	N	243	243	243	243
2. Agency	Pearson Correlation	.429**	1	.463**	.391**
	Sig. (2-tailed)	.000		.000	.000
	N	243	243	243	243
3. Altruism	Pearson Correlation	.428**	.463**	1	.409**
	Sig. (2-tailed)	.000	.000		.000
	N	243	243	243	243
4. Competency	Pearson Correlation	.342**	.391**	.409**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	243	243	243	243
5. OrgCulture	Pearson Correlation	.292**	.437**	.380**	.295**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	243	243	243	243
6. SelfEfficacy	Pearson Correlation	.374**	.519**	.429**	.628**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	243	243	243	243
7. Relationships	Pearson Correlation	.434**	.378**	.398**	.343**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	243	243	243	243
8. ServiceYrs	Pearson Correlation	.195**	.195**	.114	.455**
	Sig. (2-tailed)	.002	.002	.076	.000
	N	243	243	243	243

Resilience Factors and Service Years Correlations

		5	6	7	8
1. Humor	Pearson Correlation	.292**	.374**	.434**	.195**
	Sig. (2-tailed)	.000	.000	.000	.002
	N	243	243	243	243
2. Agency	Pearson Correlation	.437**	.519**	.378**	.195**
	Sig. (2-tailed)	.000	.000	.000	.002
	N	243	243	243	243
3. Altruism	Pearson Correlation	.380**	.429**	.398**	.114
	Sig. (2-tailed)	.000	.000	.000	.076
	N	243	243	243	243
4. Competency	Pearson Correlation	.295**	.628**	.343**	.455**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	243	243	243	243
5. OrgCulture	Pearson Correlation	1	.491**	.565**	.099
	Sig. (2-tailed)		.000	.000	.122
	N	243	243	243	243
6. SelfEfficacy	Pearson Correlation	.491**	1	.460**	.291**
	Sig. (2-tailed)	.000		.000	.000
	N	243	243	243	243
7. Relationships	Pearson Correlation	.565**	.460**	1	.099
	Sig. (2-tailed)	.000	.000		.125
	N	243	243	243	243
8. ServiceYrs	Pearson Correlation	.099	.291**	.099	1
	Sig. (2-tailed)	.122	.000	.125	
	N	243	243	243	247

**. Correlation is significant at the 0.01 level (2-tailed).

Chi-Square Test of Independence. Again, the chi-square test of independence was used to determine if any relationships or associations existed. The categorical values used were the pre-determined years of service categories and the same seven resilience factors. To make the resilience factors categorical, one was used to represent data below the mean and two was used to represent data greater or equal to the mean. The mean for each factor is shown in Table 7.

Table 7

Resilience Factors Means

	N	Mean
Humor	243	7.2263
Agency	243	10.0000
Altruism	243	7.3827
Competency	243	10.8560
OrgCulture	243	6.6872
SelfEfficacy	243	7.0988
Relationships	243	10.5720
Valid N (listwise)	243	

The chi-square test of independence data showed six significant relationships between service years and the resilience factors (see Table 8). Results were written in descending order of Pearson chi-square values as well as Cramer's V measurements of association. There was a significant relationship between service years and competency, $\chi^2(2, N = 243) = 43.36$, $p < .001$, Cramer's V =.42, self-efficacy, $\chi^2(2, N = 243) = 19.39$, $p < .001$, Cramer's V =.28, and humor, $\chi^2(2, N = 243) = 13.12$, $p = .001$, Cramer's V =.23. There was also a significant relationship between service years and altruism, $\chi^2(2, N = 243) = 8.64$, $p = .013$, Cramer's V =.19,

organizational culture, $\chi^2(2, N = 243) = 7.82$, $p = .020$, Cramer's V =.18, and agency, $\chi^2(2, N = 243) = 7.70$, $p = .021$, Cramer's V =.18.

To understand the strength of these relationships, Cramer's V effect sizes of small, medium, and large effect sizes at .10, .30., and .50, respectively, were used (Cohen, 1998). No factors had a large effect size and only competency had a medium effect size (Cramer's V =.42) and all other factors had a small effect size. According to Table 9, late-career teachers were at or above the mean for competency at a much higher percentage (85%) than middle-career (67%) and early-career teachers (24%). Self-efficacy had the highest small effect size. Again, late-career teachers were at or above the mean for self-efficacy at a much higher percentage (71%) than middle-career (48%), and early-career teachers (31%).

It is important to note that the only factor not determined to have a significant relationship with service years was relationships, $\chi^2(2, N = 243) = 4.83$, $p = .089$, Cramer's V =.14. The significant level for relationships was well above $p \leq .05$ and showed almost no association with years of service. Over half the teachers at all experience levels were at or above the mean for relationships. Specifically, late-career teachers maintained the highest percentage (69%), followed by early-career teachers (53%) and middle-career teachers had exactly half (50%). These teachers claimed they felt confident in their relationships with pupil, colleagues, and their social networks. Of all the factors, relationships had the closest scores across every experience category.

Table 8

Resilience Factors and Service Years Chi-Square Tests and Symmetric Measures

Competency and Service Years Chi-Square Tests and Symmetric Measures

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	43.357[a]	2	.000
Likelihood Ratio	44.329	2	.000
Linear-by-Linear Association	40.359	1	.000
N of Valid Cases	243		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 22.09.

		Value	Approximate Significance
Phi	.422	.000	
Cramer's V	.422	.000	
N of Valid Cases		243	

Self-Efficacy and Service Years Chi-Square Tests and Symmetric Measures

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	19.381[a]	2	.000
Likelihood Ratio	19.928	2	.000
Linear-by-Linear Association	19.146	1	.000
N of Valid Cases	243		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 29.14.

		Value	Approximate Significance
Nominal by Nominal	Phi	.282	.000
	Cramer's V	.282	.000
N of Valid Cases		243	

Organizational Culture and Service Years Chi-Square Tests and Symmetric Measures

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.821[a]	2	.020
Likelihood Ratio	7.896	2	.019
Linear-by-Linear Association	1.625	1	.202
N of Valid Cases	243		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 29.38.

		Value	Approximate Significance
Nominal by Nominal	Phi	.179	.020
	Cramer's V	.179	.020
N of Valid Cases		243	

Altruism and Service Years Chi-Square Tests and Symmetric Measures

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.638[a]	2	.013
Likelihood Ratio	8.744	2	.013
Linear-by-Linear Association	8.599	1	.003
N of Valid Cases	243		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 24.04.

		Value	Approximate Significance
Nominal by Nominal	Phi	.189	.013
	Cramer's V	.189	.013
N of Valid Cases		243	

Agency and Service Years Chi-Square Tests and Symmetric Measures

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.704[a]	2	.021
Likelihood Ratio	7.859	2	.020
Linear-by-Linear Association	7.473	1	.006
N of Valid Cases	243		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 25.49.

		Value	Approximate Significance
Nominal by Nominal	Phi	.178	.021
	Cramer's V	.178	.021

N of Valid Cases	243

Humor and Service Years Chi-Square Tests and Symmetric Measures

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13.123[a]	2	.001
Likelihood Ratio	13.444	2	.001
Linear-by-Linear Association	11.959	1	.001
N of Valid Cases	243		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 28.65.

		Value	Approximate Significance
Nominal by Nominal	Phi	.232	.001
	Cramer's V	.232	.001
N of Valid Cases		243	

Relationships Chi-Square Tests and Symmetric Measures

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.831[a]	2	.089
Likelihood Ratio	4.946	2	.084
Linear-by-Linear Association	3.291	1	.070
N of Valid Cases	243		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 25.49.

		Value	Approximate Significance
Nominal by Nominal	Phi	.141	.089
	Cramer's V	.141	.089
N of Valid Cases		243	

Chi-square crosstabulations provided specific information regarding how each experience level rated the factors. Table 9 displayed this information, which allowed for ranking of factors per each year of service category. The ranking only included teachers who ranked the factor at or above the mean (2.00) showing they felt confident in that protective factor. The factors were listed in descending order, starting with the factor with the highest number of responses at or above the mean for that factor. Early career teachers felt the most confident with both relationships (53%), and organizational culture (53%), followed by agency (46%), and altruism (46%). Humor (40%), self-efficacy (31%), and competency (29%) were the factors with the lowest percentages, showing that early-career teachers have lower confidence in these areas.

Middle-career teachers rated competency (67%), altruism (60%), and agency (55%) as the top factors, followed by relationships (50%), humor (48%), and self-efficacy (48%). Organizational culture (42%) was the factor with the lowest percentage showing middle-career teachers are least confident with this factor.

The longest-serving teachers expressed the most confidence in competency (85%) and altruism (72%). A three-way tie existed among agency, self-efficacy, and humor with 43 teachers

(71%), feeling confident in these abilities. The last two factors, relationships (69%) and organizational culture (64%), had the lowest percentages but were still well over half.

Table 9

Resilience Factors Crosstabulations

Count

		Competency		
		1.00	2.00	Total
ServiceYrs	early-career	42	17	59
	middle-career	40	83	123
	late-career	9	52	61
Total		91	152	243

		Self-Efficacy		
		1.00	2.00	Total
ServiceYrs	early-career	41	18	59
	middle-career	64	59	123
	late-career	18	43	61
Total		123	120	243

		Organizational Culture		
		1.00	2.00	Total
ServiceYrs	early-career	28	31	59
	middle-career	71	52	123
	late-career	22	39	61
Total		121	122	243

		Altruism		
		1.00	2.00	Total
ServiceYrs	early-career	32	27	59

	middle-career	50	73	123
	late-career	17	44	61
Total		99	144	243

		Agency		
		1.00	2.00	Total
ServiceYrs	early-career	32	27	59
	middle-career	55	68	123
	late-career	18	43	61
Total		105	138	243

		Humor		
		1.00	2.00	Total
ServiceYrs	early-career	36	23	59
	middle-career	64	59	123
	late-career	18	43	61
Total		118	125	243

		Relationships		
		1.00	2.00	Total
ServiceYrs	early-career	28	31	59
	middle-career	58	65	123
	late-career	19	42	61
Total		105	138	243

Analysis. The results for Research Question Two showed a small but significant relationship between service years and self-perceived teacher resilience while another statistical

test showed service years were not a predictor of resilience. This research question broke down this relationship into more specific categories and provided clarity.

Pearson's r correlation data showed the strongest relationship among service years and competence ($p < .001$) and self-efficacy ($p < .001$). This finding may be explained by longer-serving teachers having greater perceived competence and self-efficacy since they have had more experiences and faced challenges in their careers. Also, a significant yet smaller relationship was formed with agency ($p = .002$) and humor ($p = .002$). Interestingly, relationships ($p = .125$) were not correlated which could be explained by the finding that all experience levels had closely related percentages at or above the mean. Organizational culture did not form a significant relationship with years of service either. From analyzing chi-square data middle-career teachers rated organizational culture at a lower percent (42%) than the other two experience levels. Altruism did not form a relationship with service years and early-career teachers rated this category at a much lower percent (46%) compared to late-career teachers (72%).

The chi-square results showed the strongest relationship between years of service and competency ($p < .001$), self-efficacy ($p < .001$), and then humor ($p < .001$). These findings are consistent with Pearson's *r* findings as they have the same top three factors. Again, the only factor that did not have a significant relationship was the relationships factor ($p < .089$), which was consistent with Pearson's *r* findings.

According to both tests, competency was the only factor to have a medium effect size so it holds the strongest relationship with service years. All other significant relationships had small effect sizes. The data showed that relationships maintain importance during all levels of the teaching career and are not related to experience

Hypotheses. The Pearson *r* correlation coefficient null hypothesis was that there was no relationship between the two variables in the population:

H_0: $p = 0$

The alternative hypothesis was that there was a relationship between the two variables in the population:

H_1: $p \neq 0$

Since four (competency, self-efficacy, humor, and agency) of the seven factors formed a significant relationship, the null hypothesis was rejected making the alternate hypothesis true, meaning there was a relationship between two variables in the population.

The chi-square test of independence null and alternative hypotheses were:

H_0: There was no relationship between years of service and resilience factors.

H_1: There was a relationship between years of service and resilience factors.

Since six of the seven factors formed a significant relationship, the null hypothesis was rejected making the alternate hypothesis true, meaning there was a relationship between years of service and six resilience factors.

Since the relationship resilience factor did not form a significant relationship with years of service, the null hypothesis was not rejected for this specific factor.

Research Question #3

3. What is the relationship between perceived resilience and resilience factors?

The final research question had many similarities to Research Question Two. A relationship or lack of relationship was being determined; therefore, the same two inferential statistical tests were used. The Pearson *r* correlation coefficient and chi-square test of independence provided the same information and data tables. Having similar information allowed for consistent analysis between research questions.

Pearson *r* Correlation Coefficient. First, Pearson *r* was used to determine the degree of linear, positive, or negative, relationships between the continuous variables. The variables are the same seven protective factors used in Research Question Two but the focus was on the relationship with the Teacher Resilience Scale raw score. For this test, the TRS sum score was used and not divided into the resilient and non-resilient categories. All seven factors formed a significant relationship to TRS because each maintained a $p < .001$ so the results and analysis focused on the Pearson *r* correlation coefficient and the corresponding effect size (see Table 10). The results were listed in descending order of effect size. Again, correlation coefficient (*r*) was used to express the effect size with values ± .1, ± .3, and ± .5 being categorized as small, medium, and large effect sizes, respectively (Cohen, 1998).

Results were presented in descending order of *p* value and correlation coefficient (*r*). There was a significant positive relationship between TRS and relationships, $r(243) = .57$, $p < .001$. The factor of relationships was the only factor that had a large effect size over .5 so it held the strongest relationship with TRS. The remaining six factors had medium effect sizes. There was the same significant positive relationship between TRS and agency, $r(243) = .44$, $p < .001$ and humor, $r(243) = .44$, $p < .001$. There was also a significant positive relationship between TRS and organizational culture, $r(243) = .38$, $p < .001$, self-efficacy, $r(243) = .36$, $p < .001$, and

altruism, $r(243) = .35$, $p < .001$. The least significant positive relationship was between TRS and competency, $r(243) = .34$, $p < .001$.

Table 10

Resilience Factors and TRS Raw Score Correlations

		1	2	3	4
1. TRS	Pearson Correlation	1	.439**	.441**	.346**
	Sig. (2-tailed)		.000	.000	.000
	N	247	243	243	243
2. Humor	Pearson Correlation	.439**	1	.429**	.428**
	Sig. (2-tailed)	.000		.000	.000
	N	243	243	243	243
3. Agency	Pearson Correlation	.441**	.429**	1	.463**
	Sig. (2-tailed)	.000	.000		.000
	N	243	243	243	243
4. Altruism	Pearson Correlation	.346**	.428**	.463**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	243	243	243	243
5. Competency	Pearson Correlation	.339**	.342**	.391**	.409**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	243	243	243	243
6. OrgCulture	Pearson Correlation	.374**	.292**	.437**	.380**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	243	243	243	243
7. SelfEfficacy	Pearson Correlation	.360**	.374**	.519**	.429**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	243	243	243	243
8.Relationships	Pearson Correlation	.567**	.434**	.378**	.398**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	243	243	243	243

Resilience Factors and TRS Raw Score Correlations

		5	6	7	8
1. TRS	Pearson Correlation	.339**	.374**	.360**	.567**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	243	243	243	243
2. Humor	Pearson Correlation	.342**	.292**	.374**	.434**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	243	243	243	243
3. Agency	Pearson Correlation	.391**	.437**	.519**	.378**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	243	243	243	243
4. Altruism	Pearson Correlation	.409**	.380**	.429**	.398**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	243	243	243	243
5. Competency	Pearson Correlation	1	.295**	.628**	.343**
	Sig. (2-tailed)		.000	.000	.000
	N	243	243	243	243
6. OrgCulture	Pearson Correlation	.295**	1	.491**	.565**
	Sig. (2-tailed)	.000		.000	.000
	N	243	243	243	243
7. SelfEfficacy	Pearson Correlation	.628**	.491**	1	.460**
	Sig. (2-tailed)	.000	.000		.000
	N	243	243	243	243
8.Relationships	Pearson Correlation	.343**	.565**	.460**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	243	243	243	243

Chi-Square Test of Independence. The chi-square test of independence, Table 11, was used to determine the relationships or associations between the categorical variables of perceived resilience and each of the resilience factors. The TRS categories were created using one as non-resilient, below 104 raw score, and two representing resilient, at or above 104 raw score. The resilience factors were created using one to denote below the mean and two to denote greater or equal to the mean. All factors were determined to have a positive relationship with perceived resilience by using a significance score of $p < .05$, therefore, the results were presented in order from highest to lowest value of *p*-value, chi-square, and Cramer's V, showing effect size order as well.

The first three factors of relationships, humor, and organizational culture each had a medium effect size. There was a significant relationship between perceived resilience and relationships, $\chi^2(1, N = 243) = 33.60$, $p < .001$, Cramer's V =.37, humor, $\chi^2(1, N = 243) = 22.99$, $p < .001$, Cramer's V =.31, and organizational culture, $\chi^2(1, N = 243) = 22.22$, $p < .001$, Cramer's V =.30. All the remaining factors had a small effect size. There was a significant relationship between perceived resilience and agency, $\chi^2(1, N = 243) = 20.17$, $p < .001$, Cramer's V =.29. There was a significant relationship between perceived resilience and altruism, $\chi^2(1, N = 243) = 15.21$, $p < .001$, Cramer's V =.25, self-efficacy, $\chi^2(1, N = 243) = 8.62$, $p = .003$, Cramer's V =.19, and competency, $\chi^2(1, N = 243) = 7.59$, $p < .001$, Cramer's V =.18.

Table 11

Resilience Factors and TRS Chi-Square Tests and Symmetric Measures

Relationships and TRS Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	33.600[a]	1	.000
Continuity Correction[b]	32.103	1	.000
Likelihood Ratio	34.202	1	.000
Fisher's Exact Test			
Linear-by-Linear Association	33.461	1	.000
N of Valid Cases	243		

Chi-Square Tests

	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square		
Continuity Correction[b]		
Likelihood Ratio		
Fisher's Exact Test	.000	.000
Linear-by-Linear Association		
N of Valid Cases		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 45.80.

b. Computed only for a 2x2 table

Relationships and TRS Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.372	.000

	Cramer's V	.372	.000
N of Valid Cases		243	

Self-Efficacy and TRS Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.617[a]	1	.003
Continuity Correction[b]	7.874	1	.005
Likelihood Ratio	8.676	1	.003
Fisher's Exact Test			
Linear-by-Linear Association	8.582	1	.003
N of Valid Cases	243		

Chi-Square Tests

	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square		
Continuity Correction[b]		
Likelihood Ratio		
Fisher's Exact Test	.004	.002
Linear-by-Linear Association		
N of Valid Cases		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 52.35.

b. Computed only for a 2x2 table

Self-Efficacy and TRS Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.188	.003
	Cramer's V	.188	.003
N of Valid Cases		243	

Organizational Culture and TRS Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	22.215[a]	1	.000
Continuity Correction[b]	21.013	1	.000
Likelihood Ratio	22.587	1	.000
Fisher's Exact Test			
Linear-by-Linear Association	22.124	1	.000
N of Valid Cases	243		

Chi-Square Tests

	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square		
Continuity Correction[b]		
Likelihood Ratio		
Fisher's Exact Test	.000	.000
Linear-by-Linear Association		

N of Valid Cases	

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 52.78.

b. Computed only for a 2x2 table

Organizational Culture and TRS Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.302	.000
	Cramer's V	.302	.000
N of Valid Cases		243	

Competency and TRS Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.585[a]	1	.006
Continuity Correction[b]	6.867	1	.009
Likelihood Ratio	7.577	1	.006
Fisher's Exact Test			
Linear-by-Linear Association	7.554	1	.006
N of Valid Cases	243		

Chi-Square Tests

	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square		

Continuity Correction[b]		
Likelihood Ratio		
Fisher's Exact Test	.007	.004
Linear-by-Linear Association		
N of Valid Cases		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 39.70.

b. Computed only for a 2x2 table

Competency and TRS Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.177	.006
	Cramer's V	.177	.006
N of Valid Cases		243	

Altruism and TRS Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	15.212[a]	1	.000
Continuity Correction[b]	14.203	1	.000
Likelihood Ratio	15.278	1	.000
Fisher's Exact Test			
Linear-by-Linear Association	15.149	1	.000
N of Valid Cases	243		

Chi-Square Tests

	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square		
Continuity Correction[b]		
Likelihood Ratio		
Fisher's Exact Test	.000	.000
Linear-by-Linear Association		
N of Valid Cases		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 43.19.

b. Computed only for a 2x2 table

Altruism and TRS Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.250	.000
	Cramer's V	.250	.000
N of Valid Cases		243	

Agency and TRS Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	20.168[a]	1	.000
Continuity Correction[b]	19.012	1	.000
Likelihood Ratio	20.349	1	.000

Fisher's Exact Test			
Linear-by-Linear Association	20.085	1	.000
N of Valid Cases	243		

Chi-Square Tests

		Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square			
Continuity Correction[b]			
Likelihood Ratio			
Fisher's Exact Test		.000	.000
Linear-by-Linear Association			
N of Valid Cases			

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 45.80.

b. Computed only for a 2x2 table

Agency and TRS Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.288	.000
	Cramer's V	.288	.000
N of Valid Cases		243	

Humor and TRS Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	22.993[a]	1	.000
Continuity Correction[b]	21.769	1	.000
Likelihood Ratio	23.359	1	.000
Fisher's Exact Test			
Linear-by-Linear Association	22.899	1	.000
N of Valid Cases	243		

Chi-Square Tests

	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square		
Continuity Correction[b]		
Likelihood Ratio		
Fisher's Exact Test	.000	.000
Linear-by-Linear Association		
N of Valid Cases		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 51.47.

b. Computed only for a 2x2 table

Humor and TRS Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.308	.000

	Cramer's V	.308	.000
N of Valid Cases		243	

Again, the chi-square crosstabulation results allowed for the creation of a ranking order of factors. This was determined by looking at the number of resilient teachers that scored each factor at or above the mean (see Table 12). Resilient teacher data (*n* =137) ranked the factors in the following order beginning with the factor with the highest percentage: relationships (*n* = 100, 73%), a tie between altruism and competency (*n* = 96, 70%), agency (*n* = 95, 70%), humor (*n* = 89, 65 %), organizational culture (*n* = 87, 64%), and lastly, self-efficacy (*n* = 79, 58%). In order, this showed the areas resilient teachers felt the most confidence in their abilities to the areas they felt the least confident.

Non-resilient teacher data (*n* = 106) ranked the factors in the following order beginning with the factor with the highest percentage: competency (*n* =56, 53%), altruism (*n* = 48, 45%), agency (*n* = 43, 41%), self-efficacy (*n* = 41, 39%), relationships (*n* = 38, 36%), humor (*n* = 36, 34%), and lastly, organizational culture (*n* = 35, 33%). This order represented the factors non-resilient teachers felt most capable to the factors they felt least capable.

Table 12

Resilience Factors and TRS Category Crosstabulations

Count

		Relationships		
		1.00	2.00	Total
TRScategory	1.00	68	38	106

	2.00	37	100	137
Total		105	138	243

		Self-Efficacy		
		1.00	2.00	Total
TRScategory	1.00	65	41	106
	2.00	58	79	137
Total		123	120	243

		Organizational Culture		
		1.00	2.00	Total
TRScategory	1.00	71	35	106
	2.00	50	87	137
Total		121	122	243

		Competency		
		1.00	2.00	Total
TRScategory	1.00	50	56	106
	2.00	41	96	137
Total		91	152	243

		Altruism		
		1.00	2.00	Total
TRScategory	1.00	58	48	106
	2.00	41	96	137
Total		99	144	243

		Agency		
		1.00	2.00	Total
TRScategory	1.00	63	43	106
	2.00	42	95	137

Total		105	138	243

		Humor		
		1.00	2.00	Total
TRScategory	1.00	70	36	106
	2.00	48	89	137
Total		118	125	243

Analysis. Using Pearson's *r* correlation, all factors formed a relationship with the overall teacher resilience score since all factors had a *p*-value < .001. Using the strength of the medium effect sizes, relationships formed the strongest relationship with overall TRS followed by agency and humor. These scores mirror the exact results of the multiple regression from Research Question One predicting TRS scores using the exact same factors. The factors in each test were ranked in the same order, as well.

The chi-square test had slightly different results, relationships again had the strongest association and a medium effect size followed by humor and organization culture. Agency was the next factor but had only a small effect size. All four factors had a *p*-value < .001.

The strongest effect size in each of the two tests ran for this research question was relationships proving to maintain the strongest correlation to TRS score or resilience level. Interestingly, the next three factors, though each test produced a slightly different order of effect size and ranking order, were the same factors consisting of humor, agency, and organizational culture. This shows that relationships, agency, humor, and organizational culture impact teacher resilience more than the other factors.

By examining the differences between resilient and non-resilient teachers at or above the mean scores of each factor, resilient teachers maintained the highest scores on relationships

(73%) which greatly outweighed non-resilient teachers (36%). Besides relationships, it is interesting to note the commonalities, albeit in slightly different orders, in the top three percentages for resilient (there was a tie for the second factor) and non-resilient teachers. Both sets of teachers found altruism, competence, and agency as the areas in which they felt the most confident. This shows that all teachers demonstrated the need to have these specific protective factors. It is important to notice the large difference in the percentage of teachers at or above the mean in each category. For example, the lowest category for resilient teachers was that of self-efficacy but still, 58% felt good about their capability in this area. On the other hand, the top-rated factor, competence, for non-resilient teachers only had 53% of the teachers felt strong in their ability.

Hypotheses. The Pearson's *r* correlation coefficient null hypothesis was that there was no relationship between the two variables in the population:

H_0: $p = 0$

The alternative hypothesis was that there was a relationship between the two variables in the population:

H_1: $p \neq 0$

Since all factors have a *p*-value of < .001 then the null hypothesis was rejected, and the alternative hypothesis was accepted, meaning that there was a relationship between the two variables in the population.

The chi-square test of independence null and alternative hypotheses were:

H_0: There was no relationship between perceived resilience and resilience factors.

H_1: There was a relationship between perceived resilience and resilience factors.

All factors had a *p*-value of < .05 so the null hypothesis was rejected, and the alternative hypothesis was accepted, meaning there was a relationship between perceived resilience and resilience factors.

Conclusion

The online survey gathered a reasonably sized data set that was then tested using a wide variety of quantitative tests including multiple regression, Pearson's *r* correlation, and chi-square. These data and results from each research question were clearly presented and deeply analyzed. Effect sizes were critical for data analysis since many significant relationships were formed with the protective factors and years of service and resilience. These results will lead to many conclusions about the factors that influence and impact teacher resilience and highlight the need for action.

Chapter V: Conclusions and Discussion

The final chapter will discuss the overall conclusions regarding each research question and the study as a whole. These conclusions will be tied back to other pertinent research to detail commonalities and differences between results. The discussion will include the practical significance of the results and implications for the P-20 continuum. Limitations will be presented followed by future research recommendations to improve potential studies that could counteract known limitations.

Summary

The purpose of this quantitative study was to determine if relationships existed between teacher resilience, protective factors, and years of service. Current literature was presented and analyzed to back the formation of the seven protective factors and three experience level categories used in this study. A two-part online survey gathered data from 243-247 current United States PreK-12 teachers. The survey used an existing survey to find self-perceived resilience levels. Part Two of the survey was created by the researcher and questioned teachers on their self-perceived capabilities on the seven protective factors. Each of the three research questions was answered using two inferential statistical tests. Results were presented and analyzed by research question as an attempt to begin answering each question. Conclusions and discussions will follow to provide more encompassing and in-depth answers to each question while also looking at teacher resilience to understand the commonalities and potential impacts.

Conclusions

The statistical results sufficiently answer the three guiding questions. Clear relationships show specific influences on teacher resilience. The consistency of the wording between the questions was beneficial to data collection and analysis. Since the questions are similar the

statistical tests are the same, making it easier to compare and synthesize results. Additionally, the structure of the research questions and the chosen methodologies are compatible and reasonable. This is seen by the rejection of nearly every null hypothesis. The researcher's hypothesis that relationships will exist between some of the test variables proves to be true. This supports the idea that this research study was soundly constructed and administered.

The results support the idea that various protective factors have a relationship with years of service. The consistency between the results of the two tests provides confidence in those results. The key findings from Research Question One are twofold. First, some factors can predict resilience, and there is a small strength relationship between service years and teacher resilience. It is most important for a teacher to demonstrate and feel confident in their ability to form valuable relationships. Teachers must be able to make informed professional decisions and be willing to take action. The ability to use humor in the classroom and as a coping mechanism to handle stress increases resilience, as well.

The data analysis supports the idea that several relationships exist between service years and the protective factors. Again, the results of each statistical test are similar, providing more certainty. It is not surprising that as a teacher gets more experience their competence grows, and it is also not surprising that competence was the second highest rated factor of resilient teachers. Teachers that feel they are effective at their job are likely to experience more self-confidence, fulfillment, and possibly less stress. It makes sense then that the next factor is self-efficacy. Competent teachers are likely to believe they can perform at high levels and effectively handle the responsibilities and challenges of teaching. Lastly, humor is highly rated for late-career teachers and the third factor on each statistical test. Humor is a developable skill that can assist teachers through tough times.

Research Question Three was amply answered by Pearson *r* correlation and chi-square tests. Results are similar but the effect size of each factor varies by test. The relationship between teacher resilience and the protective factors has one clear winner, relationships. The factor of relationships is the only one to have a large effect size, and it has this twice. It is the strongest predictor of resilience and holds the strongest correlation. Teachers that have strong relationships in school, with their students, and a supportive relationship with family and friends have higher resilience. If strong student-teacher relationships exist, there may be fewer behavior problems. When challenges do arise, they have colleagues and a social network to lean on. All this proves that relationships are a key factor in teacher resilience. Humor was again in the top three on both tests. The results imply that being able to laugh in and outside the classroom is beneficial. Lastly, competence has the weakest relationship in both tests. Competence was one of the most highly rated factors by both resilient and non-resilient teachers which shows it is not tied to resilience level. All teachers must feel some level of competence to remain in the profession.

Relationship To Research

Teacher resilience is a highly researched topic, and this study will add to this increasing body of work. Comparing the results of this study to the larger body of research will support and challenge previous claims. Most of the results are consistent with previous literature. This is not surprising because all elements of the survey and the whole research project are research-based. Factors were chosen because of their consistency in resilience research and because they encompass diverse ideas.

The most researched and important protective factor was relationships. Relationships are a critical part of teacher development, longevity, and resilience (Bobek, 2002; Doney, 2013; Entesari et al., 2020; Gu & Day, 2013; Howard & Johnson, 2004; Kutsyuruba et al., 2019). The

current findings are consistent with previous literature, the factor of relationships has the strongest association and the largest effect size of any factor in the study. Interestingly, one study found that relationships were the least cited factor for graduating and early-career teachers (Mansfield et al., 2012). However, the present results show the opposite: early-career cite the factor of relationships first and teachers with more experience rank it much lower. Seeking relationships and connection is a basic human need and teachers must have this need met to become the best teacher they can (Spilt et al., 2011).

The factor with the smallest breadth of research is the connection between teacher resilience and humor. The present study's results are consistent with Tras et al., (2021) work that found humor as a predictor of resilience and a significant positive relationship between humor and resilience. This could be explained by Torok et al., (2004) work that detailed the benefits of humor including reducing anxiety, relieving pressures, and making teaching enjoyable. In this study, humor is a predictor of resilience and has significant relationships with teacher resilience and years of service. Clearly, humor is a valuable tool for teachers.

Literature has suggested that altruism is a reason why many teachers enter the educational field and their commitment to the greater good help them remain in the field (Gu & Li, 2013, Manuel et al., 2019). This study found that of all the seven tested factors, altruism was the least likely to predict resilience. Altruism was not highly correlated or strongly associated with teacher resilience, but when results are broken down altruism is highly rated by all experience levels and both resilient and non-resilient teachers. Clearly, altruism is important at all times during a teaching career. Research by Chiong et al. (2017) found that altruism was the strongest reason for teachers to enter the career and to remain, along with competence, which this study also supports.

Competence research suggests that when teachers feel competent, they seek out challenges and continue to grow more competent (Beltman et al., 2011). The present research finds competence to be an important factor in service years. The longer teachers are in the field, the more competent they become, and competence was highly rated by both resilient and non-resilient teachers. This supports research by Chiong et al., (2017) that found competence is an important motivator for middle- and late-career teachers to remain in their careers.

The present research, therefore, contributes to the growing body of evidence that teacher resilience is a topic worthy of study and important developable factors exist that can increase the likelihood of developing and maintaining resilience throughout a career. Both current and past research supports the idea that teacher resilience is strongly tied to relationships and altruism. This research adds the idea that humor is another factor that is significantly tied to teacher resilience and would be worth future research.

Discussion

The results strongly suggest that many relationships exist between teacher resilience, several protective factors, and years of service. Research Question One found influences and factors that impact teacher resilience. The three significant predictive factors of relationships, agency, and humor predict teacher resilience. Conversely, the factors least likely to predict teacher resilience are altruism and organizational culture. When taking all the predictors, as a whole, the result of the multiple regression indicates that the eight predictors explain 41% of the variance in TRS scores. The research suggests that having and maintaining a variety of relationships with colleagues, pupils, and a social network will most likely lead to resilience.

Interestingly, the top three predictive protective factors are all within the control of the teacher. An individual teacher is responsible for the development and maintenance of all their

relationships. They are also in charge of their ability to take action and to choose humor as a tool in challenging situations. Conversely, organizational culture, which largely did not predict resilience, can be out of a teacher's control. A resilient teacher with strong relationships, a sense of agency, and a sense of humor may be able to overcome any difficulties or challenges that may exist in the organization's culture.

Altruism was also not a predictor of resilience but for a different reason. The other two research questions found small or no relationships between altruism and years of service or resilience level. Interestingly, when looking at the three years of service categories altruism was one of the top three highest rated factors for each level. Supporting this finding, altruism was the second ranking factor for both resilience and non-resilient teachers. Therefore, it can be inferred that altruism is important to teachers at all experience and resilience levels.

Opposing data was present regarding years of service and the impact on self-perceived resilience. One statistical test revealed a small effect size yet significant relationship between the three experience levels ($p = .042$) and the two levels of resilience. On the other hand, there was not a predictive relationship between service years and the level of resilience. It is important to note that the chi-square test used specific categorical data while multiple linear regression did not categorize service levels which could account for the mismatch of results. Either way, there is no overwhelming support for the idea that years of service impacts teacher resilience levels. Not surprisingly, the teachers with the longest career (70%) tend to self-rate as resilient more than other service levels (52-53%).

Clearly, the factor of relationships had the strongest relationship with teacher resilience. Relationships was the only large effect size factor in two different statistical tests, predicting resilience and correlating to TRS. According to the chi-square results, it was the top medium

effect size factor related to TRS. Relationships was also the top-rated factor of teachers deemed to be resilient (73%) by a large margin over non-resilient teachers (36%). In conclusion, the factor of relationships with pupils, colleagues, and a social network impacts a teacher's self-perceived level of resilience. Having and maintaining strong relationships in all areas positively impacts teachers' resilience levels.

Research Question Two found relationships between years of service and the protective factors. Results from both statistical tests show that there is one factor that had a medium effect size on both tests, competence. The top three factors were the same on each test further supporting the same idea that competence followed by self-efficacy and humor have the largest relationship with years of service. Again, organizational culture and altruism formed small or not significant relationships with service years.

It is not surprising that teachers with more years of experience have higher competence and self-efficacy. More years in the educational field lead to more challenges and experiences which could lead to more self-perceived competence and self-efficacy. Humor has the third strongest relationship with years of service, but it was a small effect size. With experience, it is reasonable to think that teachers grow competence in their ability to use humor effectively with students, to diffuse situations, build relationships, and handle stress. Humor was also a predictor of resilience, and late-career teachers make up the largest percentage of resilient teachers.

Relationships either had the lowest correlation or no significant relationship with years of service. Though this factor varied in the percentage of self-perceived capability per service level, it was the factor with the lowest range of percentages among the early-, middle-, and late-career teachers, (53%, 50%, 69%, respectively). It can be concluded that relationships are important at all experience levels.

Research Question Three found significant relationships between perceived resilience and the protective factors. Since most resilient teachers came from the late-career level, it is expected to find commonalities between the results of these statistical tests and the results from the previous research question. Again, relationships had the only large effect size correlation to TRS, had the strongest medium association with TRS, and was the top percentage rating of resilient teachers. It can be concluded that relationships have the strongest connection with teacher resilience ratings and levels.

The next three factors of agency, humor, and organizational culture rounded out the top four relationships for each test. Each test produced a varying degree of correlation or association and thus different ranking order; but after relationships, these factors are in the top four strongest relationships for both tests. Finding commonalities between tests increases confidence in the accuracy of the results. This shows that agency, humor, and organizational culture impact teacher resilience.

Besides relationships, agency is the only one of these significant factors to be ranked highly by all experience and resilience levels. In all three experience levels, agency was the third highest percentage to show teachers at all levels feel confident in their ability to take action. Agency was again the third highest percentage on the TRS for both resilient (70%) and non-resilient teachers (41%), albeit at different levels of self-perceived confidence. Agency was also a strong predictor of resilience using the multiple linear regression test. These results along with a medium and small effect size relationship, show that agency is fairly important to teacher resilience.

Humor is the only factor to be in the top three for every research question. Humor was a factor in a total of five different statistical tests and in every single test, humor had anywhere

from the second to the third strongest relationship. It can be concluded that humor predicts teacher resilience, is related to years of service, and is related to perceived resilience. Humor is the most consistent factor in all areas of this research study. Humor has an important significant relationship with teacher resilience.

Conflicting results on organizational culture exist depending on the research question. First, two different statistical tests show that organizational culture has a medium effect size relationship with TRS. Contrarily, Research Question One shows that organizational culture does not predict resilience. This factor is ranked last by middle- and late-career teachers and comes in second to last for resilient teachers. These mixed results could be because teachers who have a large repertoire of resources may be able to overcome challenges and remain resilient despite the poor cultural conditions.

Though there was not a specific research question targeting the relationship between service years and perceived resilience, a few data points are looking at this relationship. For example, service years are not a predictor of resilience. From analysis, several data points suggest otherwise. First, most resilient teachers come from the late-career category. Next, the factor rankings were different at each service level showing that self-perceived abilities vary throughout a career. Interestingly, early-career teachers rated relationships and organizational culture highest which are both somewhat out of their control and rely on other people. Conversely, both middle- and late-career teachers rank competence, altruism, and agency highest which are all within a teacher's control and show self-reliance.

Lastly, the results of this study support the social ecological framework. The idea that resilience is interrelated and reliant upon a multitude of interactions is supported by data analysis. As a teacher grows through a career, the resources, relationships, and experience build

their repertoire and lead to increased competence and agency. One cannot exist without the other. The experience of teaching is a web of continual learning expanding in many directions at once. Reliance on others is necessary and belief in one's self is vital and the interplay between the two creates resilience.

Practical Significance

The current research study adds to the current and growing body of literature regarding teacher resilience. This study is unique in the fact that it examines seven potential factors, determines significance, and finds commonalities across resilience levels and years of experience. Taken together, the findings can impact teachers, students, administrators, and teacher preparatory schools.

The pandemic has caused many new challenges for American teachers. Even as the pandemic subsides, the impacts on children and school culture will be felt for many years to come. The developable skill of resilience is an idea that needs to be at the forefront of teaching literature and education. This topic should be the topic of professional development in schools across America and in higher educational institutions. To keep teachers for the duration of a career, resilience is necessary if not mandatory. Students deserve strong teachers, and the modeling of resilience will benefit students as they continue to face similar challenges themselves.

P-20 Implications

Conclusions from this study have application in the P-20 continuum in a variety of ways. P-20 is the connectivity and transition between P-12, postsecondary institutions, and community resources to career attainment and success (Doctorate of Education in P-20 and Community

Leadership, 2017). Viewing education from an integrated approach encourages innovative solutions that can open diverse opportunities for all.

The results, analysis, and conclusions could lead to P-20 improvements. Higher education could use this information to improve their teacher preparation programs. Helping preservice teachers understand the value of developing and maintaining resilience would start new teachers off on solid footing. Challenges are inevitable so educating students on the researched-backed resilience factors could provide them with valuable resources when problems arise.

To begin, sharing the results that early-career teachers rate relationships, organizational culture, agency, and altruism highest will give them a basis to begin their career. It is important to share what can keep them in the career and which factors to develop over time. Late-career teachers are most confident in their competence, altruism, agency, self-efficacy, and humor. It is understandable that new teachers will not excel with competence but adding humor could be a game-changer. Relationships and humor are highly rated in all tests. Professors could guide new teachers on how to build relationships with new colleagues and students along with appropriate ways to use humor. Stress will be high as a new teacher, so openly discussing this and teaching them practical ways to handle this stress will enhance their resilience and staying power.

Once teachers are in the field, it is important to continue to provide professional development training. Using this study's conclusions could guide school-wide initiatives and training. Building professional development programs around the idea of resilience including research-based ideas and taking the time to provide high-quality training would be a better alternative than the administration telling teachers to just relax and not to think about school this weekend. Having a school full of confident, resilient teachers would enhance culture and

increase teacher retention. Administrators need to provide training to the teachers on how to reach and maintain a strong sense of resilience throughout a career.

For this to come to fruition, the administration would first need to be trained and kept up to date on the latest research. Understanding the significant factors that relate to years of service and perceived resilience could be the backbone of the training. Relationships within the school could be strengthened through the use of a mentor program, allowance for autonomy, and encouragement of action to increase agency. Modeling the appropriate use of humor could create a pleasant working environment and scaffold this behavior.

Limitations

There are at least three potential limitations concerning the results of this study. The first limitation concerns the sample size ($n = 247$, $n = 243$). In relation to the whole population of American PreK-12 teachers, the sample size is extremely small. The study did have participants from several states and across all grade levels, but it is far from encompassing the ideas and values of the whole population. A large majority of the responses came from just three states, Indiana, Kentucky, and Tennessee. The small sample size increased the number of significant relationships seen during data analysis. In particular, on the Pearson's *r* correlation coefficient test ran for Research Question Three, all seven factors formed significant relationships with $p < .001$. Understanding this limitation, results were presented by looking at effect size and other variables that could help explain the strength of the relationships and focused on the strongest relationships. It is still important to note this limitation and that many relationships had small effect sizes. The results of this study cannot be generalized to the whole population but can provide insight into factors that potentially impact resilience and add to the body of current resilience literature.

A second potential limitation is the length of the survey and the limited number of survey items. Specifically, Part Two of the survey, Resilience Factors, was created to be short and quick to encourage more responses. This survey had a total of 17 questions to encompass all seven factors so each factor only had two to three survey items. If this study were to be repeated, it would be suggested to increase the number of survey items per factor. This change would allow for a deeper analysis of each factor, especially the factor consisting of several parts such as relationships.

The third potential limitation is the timeframe of survey administration. The survey was sent to teachers in January 2022. This was roughly two years into the COVID pandemic. At this time, cases of the Delta variant were increasing, masks were still required at many schools, and uncertainty was high. The years of stress from the global pandemic have likely impacted resilience levels and altered data results. If given at a different time in history, the results of this survey may have differed.

Lastly, though this is not the main limitation, it is important to mention that teacher resilience does not mean the same as teacher effectiveness. This study did not cover or attempt to test teacher effectiveness. Even though a teacher may cite having resilience this does not necessarily mean that the teacher is effective or highly effective.

Recommendations for Future Research

The limitations could be addressed in future research. First, it would be interesting to determine if consistent results would be found with increased sample size. Increasing the sample size with more diverse national respondents would provide a more complete picture of teacher resilience nationally. It would be justified to infer that with a larger sample size there would be less significant relationships, but it would be interesting to see if the order and ranking of the

factors remained the same. It would be useful to repeat this study in the future when COVID does not have such a large impact on daily teacher life to determine if the historical timeframe significantly impacted the results. A retest on a larger scale at a different time would either support or disprove the finding of this smaller study.

In terms of future research, it would be useful to extend the current findings by examining each of the resilience factors more in-depth. For example, the relationship factor was proven to be an integral part of teacher resilience by being the strongest predictor of resilience, having the strongest relationship with resilience score, and being the only factor to not form a relationship with years of service. The Resilience Factors part of the survey only had three questions regarding this factor and each question pertained to a different relationship strand such as pupil relationships, social networks, and colleague relationships. By including several questions about each type of relationship the data could be sorted by relationship type to determine if one of those relationships predicts resilience or forms a significant relationship. This information would provide useful and more specific information that would give a clearer picture of how the different relationships interact with resilience.

Humor is an often overlooked factor in current research. When selecting the seven factors to use for this study, humor had the least amount of timely literature from which to draw. The results of this study show the importance of humor at all experience levels and its predictive nature on teacher resilience. It is recommended that more research is completed on the nature of the relationship between humor and resilience. Quantifying humor into different facets would provide information about what specific ways humor can be used and which facets have the strongest relationship with resilience.

Future research could continue defining details on which positive supports most impact teacher resilience. Much more remains to be done before a full understanding of the extent that these protective factors potentially impact teacher resilience throughout a career.

Conclusion

This quantitative research study contributes to the growing body of evidence suggesting that teacher resilience is a topic of importance. This study sought to understand the influences on teacher resilience and potential relationships between supportive factors and teacher resilience. The online survey gathered data from current American PreK-12 teachers. This data was analyzed using a variety of descriptive and inferential statistical tests which was then used to clearly answer all three guiding research questions.

Some key findings from this study include the importance of relationships with colleagues, pupils, family, and friends to support resilience and longevity. Teachers need agency and competence to make informed decisions and then take action. Altruism allows a teacher to see their career from a wider scope of influence and can help maintain their commitment to the profession. At different points in a long career, different factors change importance. As teachers gain experience they increase their supportive factor resources and are likely to increase their resilience level. Lastly, having a sense of humor is a somewhat unexpected but significant factor in teacher resilience. Despite the limitations, this unique study has enhanced our understanding of the relationships between teacher resilience, resilience factors, and years of service.

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Appendix A

Recruitment Script

Dear Current Preschool-12th Grade Teacher,

My name is Kristen Whipple, and I am a doctoral student at Murray State University. I am writing today to invite you to participate in a study, which explores the relationship between teacher resilience, years of service, and factors that may impact resilience. As a study participant, you will be asked to complete an online survey. The survey is anonymous and should take approximately 10 minutes to complete. If you are interested in participating in this survey, the link below will take you to a page containing more information about the survey and a link to the survey itself. This study utilizes the snowball method so please forward this email to any teacher in the nation who may be interested in completing the survey.

https://msucoehs.sjc1.qualtrics.com/jfe/form/SV_8kLAJpMrumlRs34

Thank you!

Appendix B

Electronic Informed Consent Form

Consent Information for Electronic Survey

Study Title: Teacher Resilience
Investigator: Kristen Whipple
Doctoral Candidate Ed.D P-20 and Community Leadership
(317)437-4673
Faculty Sponsor: Dr. Brian Bourke
College of Education and Human Services, Murray State University
(270)809-3588

You are being invited to participate in a survey research study conducted through **Murray State University**. As such, I am providing the following information so that you may make an informed decision on whether you would like to participate:

1. The purpose of this study is to explore the relationship between teacher resilience, years of service, and factors that may impact resilience.
2. Your participation is strictly voluntary and you are free to withdraw/stop participating at any time.
3. All of your responses will remain anonymous. (No one will know which answers are yours.) All data will be secured on a password-protected computer assigned to Kristen Whipple.
4. This survey will take approximately 20 minutes to complete.
5. Although your responses will remain anonymous, your data/answers may be combined with the data/answers of others and submitted for presentation at conventions or in publications in scholarly journals.
6. You will receive no direct benefits because you participated in this research study. However, your participation will help to expand our understanding of teacher resilience.
7. There are no foreseen risks associated with your participation in this research study.
8. Your completion of this questionnaire indicates that you voluntarily consent to participate in this study. You are free to discontinue your participation at any time.

THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY THE MURRAY STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD (IRB) FOR THE PROTECTION OF HUMAN SUBJECTS. ANY QUESTIONS ABOUT THE CONDUCT OF THIS PROJECT SHOULD BE BROUGHT TO THE ATTENTION OF Brian Bourke in the Educational Studies, Leadership, and Counseling Department at (270)809-3588, or bbourke@murraystate.edu. ANY QUESTIONS ABOUT YOUR RIGHTS AS A RESEARCH PARTICIPANT SHOULD BE BROUGHT TO THE ATTENTION OF THE IRB COORDINATOR AT (270) 809-2916 or msu.irb@murraystate.edu.

By clicking I Agree, you acknowledge that you have read and understand the information provided, and thereby provide your informed consent to participate in this research study.

Appendix C

IRB Approval Form

MURRAY STATE UNIVERSITY

Institutional Review Board

328 Wells Hall
Murray, KY 42071-3318
270-809-2916• msu.irb@murraystate.edu

TO: Brian Bourke, Educational Studies Leadership and Counseling

FROM: Jonathan Baskin, IRB Coordinator

DATE: 12/6/2021

RE: Human Subjects Protocol I.D. – IRB # 22-099

The IRB has completed its review of your student's Level 1 protocol entitled *Teacher Resilience Dissertation*. After review and consideration, the IRB has determined that the research, as described in the protocol form, will be conducted in compliance with Murray State University guidelines for the protection of human participants.

The forms and materials that have been approved for use in this research study are attached to the email containing this letter. These are the forms and materials that must be presented to the subjects. Use of any process or forms other than those approved by the IRB will be considered misconduct in research as stated in the MSU IRB Procedures and Guidelines section 20.3.

Your stated data collection period is from 12/6/2021 to 12/5/2022.

If data collection extends beyond this period, please submit an Amendment to an Approved Protocol form detailing the new data collection period and the reason for the change.

This Level 1 approval is valid until 12/5/2022.

If data collection and analysis extends beyond this date, the research project must be reviewed as a continuation project by the IRB prior to the end of the approval period, 12/5/2022. You must reapply for IRB approval by submitting a Project Update and Closure form (available at murraystate.edu/irb). You must allow ample time for IRB processing and decision prior to your expiration date, or your research must stop until such time that IRB approval is received. If the research project is completed by the end of the approval period, then a Project Update and Closure form must be submitted for IRB review so that your protocol may be closed. It is your responsibility to submit the appropriate paperwork in a timely manner.

The protocol is approved. You may begin data collection now.

Appendix D

Survey Instrument

Demographic Questions

How many years have you taught?

In which state do you currently teach?

Which grade levels do you currently teach? Select all that apply.

Pre-K	Kindergarten	1st	2nd	3rd
4th	5th	6th	7th	8th
9th	10th	11th	12th	Special Education

Part 1: Teacher Resilience Scale

Adapted from Daniilidou and Platsidou, 2018

Instructions: This survey explores the self-perception of teacher resilience. The scale for this part offers five options: always, often, sometimes, rarely, never.

A/A	Items	Never	Rarely	Sometimes	Often	Always
1.	I am able to adapt to change.	1	2	3	4	5
2.	Sometimes I believe things happen for a reason.	1	2	3	4	5
3.	Under pressure, I am able to focus and think clearly.	1	2	3	4	5
4.	I prefer to take the lead in problem solving.	1	2	3	4	5
5.	I am not easily discouraged by failure.	1	2	3	4	5
6.	I think of myself as strong person.	1	2	3	4	5
7.	If necessary, I can make unpopular or difficult decisions that affect other people.	1	2	3	4	5
8.	I can handle unpleasant feelings, such us anger or fear.	1	2	3	4	5
9.	Sometimes I have to act on a hunch.	1	2	3	4	5
10.	I like challenges.	1	2	3	4	5
11.	I work hard to attain my goals.	1	2	3	4	5
12.	In my workplace, I enjoy being together with other people.	1	2	3	4	5

13.	New friendships are something I make easily in my workplace.	1	2	3	4	5
14.	Meeting new people in my workplace is something I am good at.	1	2	3	4	5
15.	In my workplace when I am with others, I easily laugh.	1	2	3	4	5
16.	My family's understanding of what is important in life is very similar to mine.	1	2	3	4	5
17.	I feel very happy with my family.	1	2	3	4	5
18.	My family is characterized by healthy coherence.	1	2	3	4	5
19.	In difficult periods, my family keeps a positive outlook on the future.	1	2	3	4	5
20.	Facing other people, our family acts loyal towards one another.	1	2	3	4	5
21.	In my family, we like to do things together.	1	2	3	4	5
22.	I can discuss personal issues with my peers.	1	2	3	4	5
23.	The bonds among my peers and me are strong.	1	2	3	4	5
24.	I get support from my peers.	1	2	3	4	5
25.	When needed, I have always someone in my workplace who can help me.	1	2	3	4	5
26.	Sometimes fate or God can help me overcome my challenges.	1	2	3	4	5

Figure A1

Part 2

Resilience Factors

Instructions: This survey explores self-perception on factors potentially related to teacher resilience. The scale is different from the last section. It offers four options: strongly agree, agree, disagree, and strongly disagree.

A/A	**Items**	**Strongly Disagree**	**Disagree**	**Agree**	**Strongly Agree**
1.	Having a sense of humor can help me overcome difficulties at school.	1	2	3	4
2.	I use humor in my classroom.	1	2	3	4
3.	I have the ability to control my work and related outcomes.	1	2	3	4
4.	I am willing to take action.	1	2	3	4

5.	I can make informed professional decisions.	1	2	3	4
6.	I see my career as valuable and socially important.	1	2	3	4
7.	I am in this career because I want to help students.	1	2	3	4
8.	I am confident in and understand the subject matter I teach.	1	2	3	4
9.	I am an effective teacher.	1	2	3	4
10.	I have confidence in my pedagogical skills needed to teach my subject matter.	1	2	3	4
11.	I have a positive relationship with my school's administration.	1	2	3	4
12.	The mission and values of my school are clear.	1	2	3	4
13.	In terms of my career, I believe in my capability to perform at a high level.	1	2	3	4
14.	In terms of teaching, I feel confident in my ability to effectively handle responsibilities and challenges.	1	2	3	4
15.	I have a strong, positive relationship with my students.	1	2	3	4
16.	I feel supported by my personal social network including family and friends.	1	2	3	4
17.	I have strong, positive relationships with my colleagues.	1	2	3	4

Appendix E

Survey with Matching Factors

A/A	Items	Related Factor
1.	Having a sense of humor can help me overcome difficulties at school.	Sense of humor
2.	I use humor in my classroom.	Sense of humor
3.	I have the ability to control my work and related outcomes.	Agency
4.	I am willing to take action.	Agency
5.	I can make informed professional decisions.	Agency
6.	I see my career as valuable and socially important.	Altruism
7.	I am in this career because I want to help students.	Altruism
8.	I am confident in and understand the subject matter I teach.	Competency
9.	I am an effective teacher.	Competency
10.	I have confidence in my pedagogical skills needed to teach my subject matter.	Competency
11.	I have a positive relationship with my school's administration.	Organizational Culture
12.	The mission and values of my school are clear.	Organizational Culture
13.	In terms of my career, I believe in my capability to perform at a high level.	Self-efficacy
14.	In terms of teaching, I feel confident in my ability to effectively handle responsibilities and challenges.	Self-efficacy
15.	I have a strong, positive relationship with my students.	Relationships
16.	I feel supported by my personal social network including family and friends.	Relationships
17.	I have strong, positive relationships with my colleagues.	Relationships

Appendix F

Grade Level Frequencies

Grade Level Frequencies

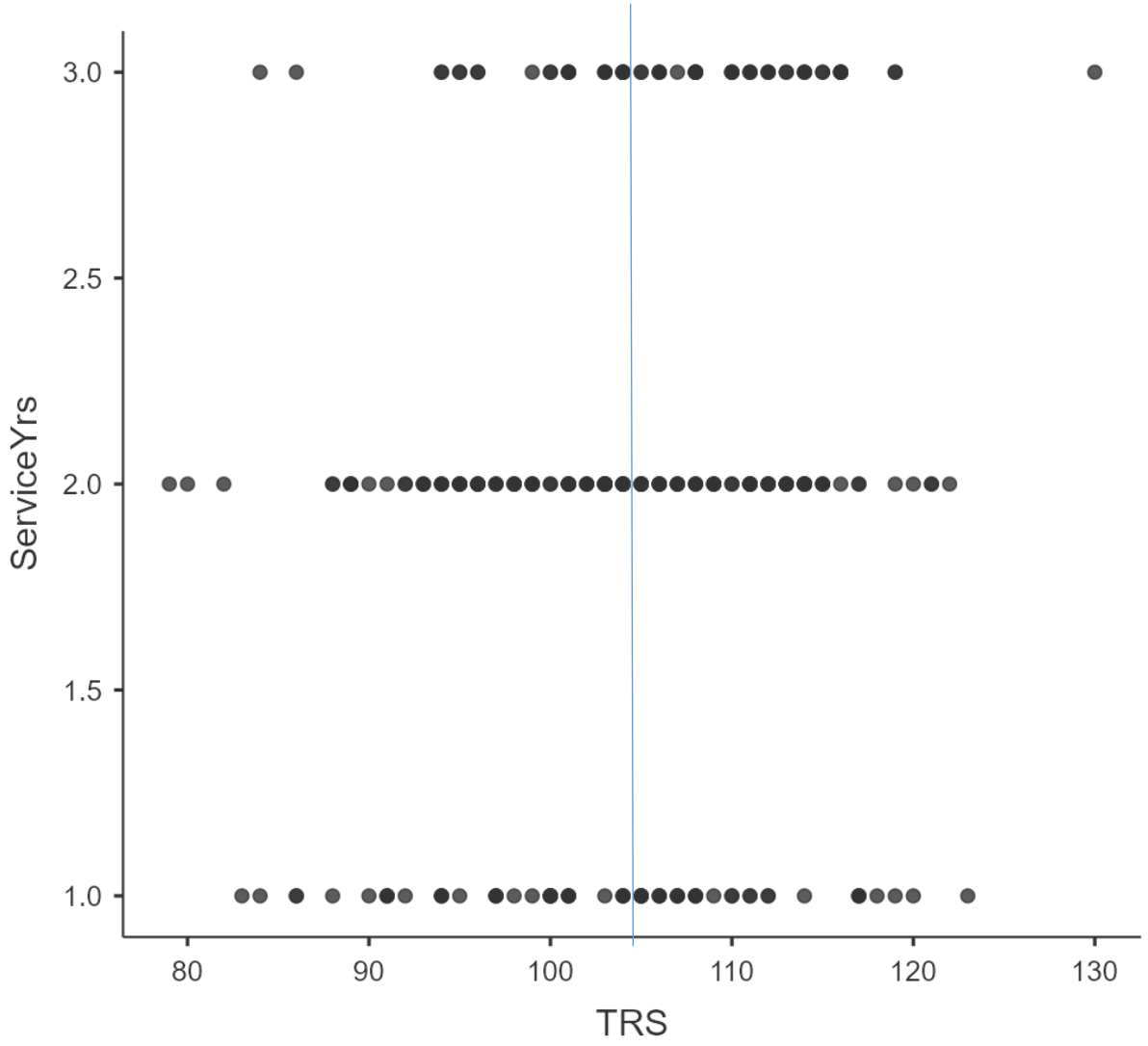
		Responses		
		N	Percent	Percent of Cases
GradeL[a]	Which grade level(s) do you currently teach? Select all that apply. Pre-K	12	1.9%	4.9%
	Which grade level(s) do you currently teach? Select all that apply. Kindergarten	29	4.7%	11.8%
	Which grade level(s) do you currently teach? Select all that apply. 1st Grade	41	6.6%	16.7%
	Which grade level(s) do you currently teach? Select all that apply. 2nd Grade	37	5.9%	15.1%
	Which grade level(s) do you currently teach? Select all that apply. 3rd Grade	40	6.4%	16.3%
	Which grade level(s) do you currently teach? Select all that apply. 4th Grade	53	8.5%	21.6%
	Which grade level(s) do you currently teach? Select all that apply. 5th Grade	57	9.2%	23.3%
	Which grade level(s) do you currently teach? Select all that apply. 6th Grade	35	5.6%	14.3%
	Which grade level(s) do you currently teach? Select all that apply. 7th Grade	31	5.0%	12.7%
	Which grade level(s) do you currently teach? Select all that apply. 8th Grade	34	5.5%	13.9%

	Which grade level(s) do you currently teach? Select all that apply. 9th Grade	50	8.0%	20.4%
	Which grade level(s) do you currently teach? Select all that apply. 10th Grade	54	8.7%	22.0%
	Which grade level(s) do you currently teach? Select all that apply. 11th Grade	60	9.6%	24.5%
	Which grade level(s) do you currently teach? Select all that apply. 12th Grade	56	9.0%	22.9%
	Which grade level(s) do you currently teach? Select all that apply. Special Education	33	5.3%	13.5%
Total		622	100.0%	253.9%

a. Dichotomy group tabulated at value 1.

Appendix G

Teacher Resilience Scale Scatterplot



Note. Line represents mean (M = 104) which was used to determine non-resilient and resilient teachers.