COVID-19 AND THE RISK OF TEACHER ATTRITION IN THE UNITED STATES

By

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DEDICATION

First, I would like to dedicate the completion of this project to my best friend and husband, André Dugger. His unfailing love and support empowered me to pursue my dream of higher education. He continued to keep me motivated and was confident that I could achieve my goal. He was loving, patient, and understanding when I spent countless hours completing coursework and research.

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ABSTRACT

SARAH BOWLIN DUGGER. Covid-19 and the Risk of Teacher Attrition in the United States (under the direction of DR. JOHN R. McCONNELL, III).

A secondary analysis of data from the Teaching and Learning International Survey (TALIS) 2018 and the COVID Response Survey (CRS) 2020 was completed to evaluate the implications of COVID-19 on teacher risk of attrition. This study involved two stages. In stage one, data from the TALIS 2018 was analyzed using a hierarchical regression to specify a model predicting teacher risk of attrition, the criterion variable. Predictor variables for model one included teacher-related factors of total years in the profession, ICT preparedness, teacher age, job satisfaction, and regret and disappointment with the profession. For model two, the predictor variable of job-related stress was added. Data analysis indicated a statistically significant correlation between the predictor variables and the correlation variable, with model two accounting for 36.1% of the variance in teacher risk of attrition. Considering the rate of teacher attrition in the United States was 8% prior to COVID-19, it is incumbent upon educational governing bodies to understand the potential impact of natural disasters such as a pandemic upon this rate so they may institute measures to help reduce it. While much research has been done about teacher attrition, scant research exists about the relationship between COVID-19 and the rate of teacher attrition. Extrapolation using data from the CRS 2020 was completed by using mean values for similar survey items inserted into model two, the model which accounted for more variance in the criterion variable. The results of this extrapolation indicated that COVID-19 has an impact on the rate of teacher attrition.

Keywords: teacher attrition, COVID-19

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Chapter I

Introduction

Educational policy professionals and leaders frequently field concerns related to the attrition of qualified teachers; however, those concerns have escalated as issues such as the job market, teacher support, and the impact of global crises such as the novel coronavirus (COVID-19) pandemic have impelled many qualified teachers to seek out employment options outside the traditional classroom (Dee & Goldhaber, 2017; Ingersoll, 2001; Murnane & Olsen, 1991; Papay et al., 2017). The United Nations Educational, Scientific, and Cultural Organization (UNESCO) (2020) asserted that there is a critical shortage of qualified teachers around the world, and this deficit will increase as more teachers reach retirement age and as the number of P-12 students continues to grow. The Organisation for Economic Co-operation and Development (OECDa) estimated that the global teaching workforce will need to replenish at least one-third of the current workforce over the next 15 years if student population growth remains steady (Ainley & Carstens, 2018). Teacher attrition is a financial problem, as well. A 2015 study estimated the overall expenses related to teacher attrition in the United States at approximately 7.3 billion dollars per year (Carroll, 2015). Furthermore, teacher attrition related to teacher well-being and job satisfaction issues impacts the degree of educational equity in the classroom (Boyd et al., 2009; Carver-Thomas & Darling-Hammond, 2017; Lankford & Wyckoff, 2002). The problem of recruiting and retaining teachers is critical and has far-reaching effects for all stakeholders (Ainley & Carstens, 2018). With the onset of the COVID-19 pandemic, the problem of ensuring safe teaching environments where teachers also feel satisfied with their jobs has emerged as an entanglement of federal, state, and local policies that fluctuate with the severity of the pandemic.

On March 11, 2020, the World Health Organization (WHO) elevated the status of the outbreak of COVID-19 from Public Health Emergency of International Concern to that of a Global Pandemic (Cucinotta & Vanelli, 2020). Shortly after this declaration, many countries reacted by instituting measures such as travel restrictions, quarantines, business closures, and school closures. According to data collected by UNESCO, as of March 24, 2020, 160 countries across the globe had closed their schools due to COVID-19. These closures impacted more than one billion students (approximately 57.3% of all enrolled students) and 63 million teachers (UNESCO, 2020). As the severity and scope of the COVID-19 pandemic escalated, the number of school closures rose, thus presenting an unparalleled plight to education systems around the globe. The full force of COVID-19 on education may not be realized for many years; however, this type of global health crisis will potentially heighten educational gaps, educational inequalities, and teacher shortages because of socioeconomic disparities that widen during natural disasters like a pandemic. Garcia and Weiss (2020) asserted that "emergencies lead to undeniably negative impacts on educational processes and outcomes; the most disadvantaged population subgroups experience the largest, and most lasting, negative consequences; and contingency plans—absent during the ongoing pandemic—are of critical importance" (p. 16).

Teachers are foundational to any education system and are a critical conduit for disseminating content and guiding students to reach learning goals no matter the content or setting for their teaching. Globally, teachers have become front-line workers tasked with the job of ensuring student learning continues whether students are in the physical school building or not. With the dawn of COVID-19 school closures, teachers were propelled into providing quality and equitable education to students who were not in the classroom and who had varying levels of technology available. Additionally, teachers became the chief source of communication between

students, their families, and the schools for information related to school, COVID-19, social-emotional well-being, safety, hunger, and available resources. Throughout these challenging times, many teachers had families of their own, financial concerns, and personal health concerns that were affected by the COVID-19 pandemic.

Varadharajan (2020) suggested that teachers have been" responding adaptively to become 'educarers', providing empathy, stability, and security to students when they were feeling anxious and uncertain about the future of their families and loved ones" (p. 3). Although teachers routinely multitask in the classroom, transitioning to the type of multitasking associated with balancing different delivery methods such as remote teaching and hybrid teaching with caring for students and caring for their personal circumstances has developed into an uncharted territory of challenges to teacher health and well-being. Furthermore, financial concerns related to educational budget cuts and reallocations, childcare expenses, and potential unemployment have added to the uncertainty and anxiety many teachers may experience due to the COVID-19 pandemic.

Theoretically, the physiological needs of individuals and the safety and security needs of individuals must be maintained to form a foundation upon which all other needs rest (Maslow, 1943). Suh et al. (2020) devised a computational framework using Maslow's Hierarchy of Needs to attempt to quantify how the pandemic was affecting individuals. Their framework used trends in web searches to identify changes in basic needs over the course of the first four months of the COVID-19 pandemic. Interestingly, the Suh et al. (2020) study held implications related to the complete array of human need factors, thus giving credence to the notion that employers need to be cognizant of life disruptions related to COVID-19 may provide employees resources to endure and overcome such disruptions. If teachers' basic needs are met, they are better equipped

to meet their students' basic needs. Just as parents must secure their own air masks first and then their child's air mask when an airplane depressurizes, educators must have their own needs secured before they can meet the needs of their students. The uncertain circumstances surrounding emergency situations such as the COVID-19 pandemic effectively precipitated deficits related to physiological needs, safety and security, and social needs as lockdown protocols, stay-at-home orders, quarantines, and panic-induced supply hoarding ensued. Teachers were not immune to the impact of these deficits. Furthermore, since these foundational human needs were not met, the upper echelon needs of esteem and self-actualization, now unsupported, imploded in the wake of unemployment fears, lack of appreciation, isolation, and nebulous new work expectations. Self-determination theory identifies competence and autonomy as two additional basic human needs that must be met to realize a healthy life and an overall sense of well-being (Ryan & Deci, 2000). These needs fall under the umbrella of self-efficacy beliefs.

Further complicating the educator's plight is the issue of teacher perceived self-efficacy in both the traditional and the virtual classroom. Bandura (1994) defined perceived self-efficacy as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (p. 1). He further asserted that individual's self-efficacy beliefs stem from four unique sources, which include personal successes, social model experiences by proxy, social persuasion, and revising negative stress responses to an individual's own capabilities (Bandura, 1994). The rapid transition from traditional education to crisis response education resulted in significant challenges for all educational stakeholders. Teachers were tasked with maintaining a sense of normalcy in abnormal times. Baloran and Hernan (2020) determined that teachers with firm self-efficacy beliefs prior to the COVID-19

crisis demonstrate a higher commitment to their profession, thus enabling them to effectively adapt to the pedagogical delivery challenges. Park (2016) determined self-efficacy beliefs could potentially predict how prepared that individual is for a crisis and what behaviors that individual was likely to exhibit during that crisis which may be paramount to determining how committed a teacher is to their profession during a crisis.

Adding to the incertitude teachers experienced physically and mentally when the COVID-19 pandemic developed, school systems were faced with budgetary deficits and dilemmas due to decreased funding (Al-Samarrai et al., 2020). The complex balance between number of students and funding allocations was stressed when COVID-19 fear led to many families choosing to abandon public and private schools in exchange for private home education (Eggelston & Fields, 2021). Decreased funding led to decreased budgets and decreased student populations led to a potentially decreased need for faculty (Al-Samarrai et al., 2020). Many systems were unable to provide annual raises or to maintain benefits for teachers at the pre-pandemic level (Al-Samarrai et al., 2020). Older teachers, who were at greater risk of severe COVID-19 illness, left the profession, thus opening the door for younger, inexperienced, and less expensive teachers to enter the profession (Al-Samarrai, 2020).

As financial issues have developed for both teachers and school systems, the theory of supply and demand is suitable for any discussion of the impact of a medical disaster such as COVID-19. Freeman (1986) suggested that one fundamental issue motivating "economic analysis of education is the extent to which education contributes to national output and, in the context of economic growth, the extent to which increased educational attainment contributes to long-run increases in productivity" (p. 357). Loeb and Myung (2020) determined that "the supply and demand model provides a simple framework for considering recruitment and

retention" (p. 473). The supply and demand model relates the number of available jobs to the number of qualified individuals who are willing and able to fill available jobs, dependent upon compensation levels (Ehrenberg & Smith, 2016). Regarding teachers, shortages result when the supply of qualified teachers who are willing to work falls short of the demand for teachers (Donitsa-Schmidt & Zuzovsky, 2014). According to data collected by the National Center for Educational Statistics (NCES), the diminishing supply of teachers is troubling and is contributing to an ever-widening gap between the supply of teachers and demand for teachers (NCES, 2017). Donitsa-Schmidt and Zuzovsky (2014) determined that when the supply of teachers is low, schools resort to hiring underqualified teachers to fill classroom gaps. Carver-Thomas et al. (2021) found that "teacher shortages remain a critical problem" (p. v). They further noted that the practice of hiring subpar teachers negatively affects student learning and this negative impact is even more pronounced in school districts that are socio-economically disadvantaged and in school districts with larger numbers of minority students. Additionally, Carver-Thomas et al. (2021) identified that the COVID-19 pandemic heightened the already severe, ongoing shortages of teachers in smaller rural school districts.

Currently, there are several gaps in the literature that this study aims to address. First of all, there is a gap regarding the impact that COVID-19 pandemic has on the well-being of teachers. While much literature exists about potential effects of the pandemic on students, few studies have attempted to examine how teachers have been affected by the pandemic. Secondly, there is a gap regarding the effects that the COVID-19 pandemic may have on teacher job satisfaction. Finally, another gap in the literature will be filled by examining variables that influence teacher attrition such as teacher age, number of years in the profession, information

and communications technology (ICT) preparation, job satisfaction, regret in choosing teaching as a profession, and stress in light of the COVID-19 pandemic.

Ebersöhn (2014) noted that teachers can "craft their lives to manage persistent adversity and remain in the profession…and can ceaselessly adapt in a sequence of linked incidents to respond to a procession of risks" (p. 580). Communities do not just need teachers to respond and adapt in order to survive. Communities need teachers to be thriving, resilient, and successful individuals whose well-being is at the forefront of all policies educational entities impose. The purpose of this study was to examine the implications of the COVID-19 pandemic on teacher-level factors and job-related factors as related to teacher attrition by analyzing data obtained through the Teaching and Learning International Survey (TALIS) 2018 and data from the COVID-19 Response Survey (CRS) 2020.

Chapter II

Review of the Literature

For most of the world's countries, the first quarter of 2020 concluded with the genesis of a global pandemic as COVID-19 circulated fiercely, rapidly, and comprehensively across the globe. This event plunged educational systems into a most difficult and challenging end to the 2019-2020 school year as copious numbers of schools closed in response to the pandemic (Chavatzia et al., 2020). Teachers scrambled to provide remote learning for students so that there would be no learning gaps to address in the next school year; however, this goal may have become less important as other student needs manifested. As the pandemic continued, teachers experienced additional stressors in both their work and personal lives.

In order to evaluate the impact that the COVID-19 pandemic may have on the teacher-level factors of age, years in the profession, ICT preparedness, job satisfaction, dissatisfaction and regret with the profession; the job-level factor of stress; and risk of attrition, two foundational theories must be understood. Maslow's theory of the hierarchy of basic human needs depicts how basic needs are manifested in daily life. Teachers have the same basic human needs as anyone else and, if those needs are not being met, may suffer burn out and dissatisfaction in the workplace (Maslow, 1943; Taorimina & Gao, 2013). Additionally, in his theory of self-efficacy, Bandura (1991) maintained that a person's perceived self-efficacy beliefs were strongly tied to their own accomplishments as well as to their stress levels, susceptibility to depression, and other cognitive, adaptive, affective, and motivational processes.

Maslow's Hierarchy of Needs Theory

Teachers have experienced an exponential increase in their workload and time demands since the pandemic-related school closures and school responses began (Flack et al., 2020).

When comparing work hours before and during the pandemic, CRS 2020 data reflected a 40.82% increase in teachers working more than 40 hours per week. Walker et al. (2020) reported that in addition to increased work hours, teachers are profoundly affected by pressures from additional responsibilities associated with remote teaching. This is significant as there is a significant relationship between time constraints and emotional exhaustion (Skaalvik & Skaalvik, 2010). When addressing teacher well-being, factors such as emotional exhaustion play pivotal roles in operationalizing the issue. An examination of factors influencing teacher well-being through the lens of Maslow's theory can identify teacher issues-that will be most strongly affected by the COVID-19 pandemic.

Maslow (1943) stated that "the integrated wholeness of the organism must be one of the foundation stones of motivation theory" (p. 370). His theory of a motivational hierarchy focused on the motivational determinant of behavior by identifying five basic human needs that are foundational to human well-being. The first four levels of the hierarchy, physiological, safety, love/belonging, and esteem needs, are often grouped together under the classification of *deficiency needs* (McLeod, 2007). This means that these are needs that arise in response to some type of deprivation and are highly motivating to people when they remain unmet. Within this category of deficiency needs, two sub-categories may be assigned: basic needs (physiological and safety needs) and psychological needs (love/belonging and esteem needs). Seeking to fill these needs becomes increasingly stronger the longer that these needs are not fulfilled and motivation to fill these needs is reciprocal to needs being met (McLeod, 2007, p. 2). Maslow (1943) found that as lower levels of needs are been reasonably met, a person would naturally move up the hierarchy to the next level of needs. The top level of needs has been categorized as growth needs. The self-actualization need is the sole occupant of the growth needs category. In

contrast to deficiency needs, motivation to meet growth needs increases linearly as those needs are fulfilled (McLeod, 2007).

At the most basic level, teachers physiological and safety needs may be negatively impacted by crisis situations such as the COVID-19 pandemic. The Kaiser Family Foundation (KFF) (2020, July 10) estimated that there are approximately 1.5 million teachers in the United States who have one or more comorbidities that give them an increased chance of critical illness if they contracted COVID-19. While this nearly one fourth of the teaching workforce is a daunting number, even more daunting are the multiple challenges teachers face while attempting to provide instruction safely as confined classrooms make social distancing difficult. Moreover, Ozamiz-Etxebarria et al. (2021) stressed that teachers' physiological and safety concerns have the potential to significantly impact teachers psychological well-being and ultimately their classroom performance.

Individuals may be motivated by needs in the hierarchy simultaneously, especially in times of crisis (Thompson, 2020). The COVID-19 pandemic ushered in practices such as masking and social distancing in order to staunch the spread of disease. Other measures, such as school closures, forced teachers into the realm of teaching in isolation. During challenging times like a pandemic, when people are forced to isolate for extended periods of time, the urgent desire for connection rises to the forefront of human needs. Researchers have determined that social connection, a manifestation of love needs, is a critical component of mental health; moreover, social distancing has damaged face-to-face social connection and support and has resulted in individuals who experience feelings of loneliness and isolation (Abel & McQueen, 2020). Isolation and lack of social interaction between colleagues may lead to greater stress and may have a profound effect on teachers' well-being. Floden and Buchmann (1992) realized that

persevering through uncertain circumstances helps individuals strive to justify and reduce those uncertainties; however, they recognized that when unanticipated circumstances are extensive and uncertain those uncertainties may be unsettling to an individual. They advocated teachers using routines as a way to deal with uncertainties. Therefore, disruptive and uncertain issues surrounding the COVID-19 pandemic may impact the safety and stability needs that teachers have.

As the COVID-19 pandemic has progressed, many jobs and professions have been scrutinized and evaluated as to their necessity and worth (Kramer & Kramer, 2020). While teaching has historically been a culturally esteemed profession (Counts, 1925), teachers tend to believe that society undervalues their profession (Adhikari, 2020; Cohen, 1967; McCallum, 2020). Asbury and Kim (2020) reported that as school systems considered delaying reopening schools in 2020, there were multiple instances of teachers being labeled by slanderous terms such as *lazy*, *snowflakes*, and *fear mongers*. With pre-existing beliefs regarding teachers believing that their profession was undervalued, these social attacks may have intensified these beliefs and served to reduce teachers' self-esteem as well as their public esteem. In addition, Asbury and Kim (2020) disclosed that teachers believe they have no voice in policymaking surrounding COVID-19. By failing to esteem teachers' opinions and input, policymakers, whether on the school, district, state, or national level, demonstrate disrespect for teachers and further denigrate the profession. Gratch (2000) asserted that teachers, as professionals, are not afforded their due respect when they are mandated to incorporate programs, policies, and procedures but are not given a seat at the table when these protocols are being evaluated for feasibility and best fit for a school population. Finally, as mitigating practices such as stay-at-home orders, social distancing, and school closures became the norm rather than the exception,

teachers were isolated from their support systems of fellow teachers, administrators, students, parents, and the community. Gratch (2000) hypothesized that many stakeholders mistakenly believe that classroom autonomy means teaching in isolation rather than teaching collaboratively. More current research has revealed the value of teacher support through collaboration. Johnson (2003) determined collaboration was linked to higher teacher self-esteem as well as mutual esteem between colleagues. COVID-19 has brought challenges to the collaborative support network between teachers. Teachers feel undervalued and underappreciated because their esteem needs are not being met (Asbury & Kim, 2020).

As the COVID-19 virus has spread throughout the world, leaders have implemented policies such as social distancing and stay-at-home orders in order to mitigate the spread of the disease. These policies have forced individuals to focus on meeting their most basic needs rather than to consider how to reach their full potential (Fachriansyah, 2020; Kampf et al., 2020; Syakriah, 2020). Moreover, COVID-19 heaped mountains of uncertainty upon the labor market without regard for the work sector. Imran and Ahmed (2020) identified those in the education field to be at a high risk for COVID-19. Furthermore, they conjectured that due to stressors surrounding the pandemic, teachers may experience high levels of job insecurities and low levels of job satisfaction. Citing school closures, health concerns, and financial woes, Montenovo et al. (2020) reported the precarious nature of job security for teachers in the United States. Moreover, as teachers struggle to have their basic needs met, including their physiological needs and their safety needs, their interest in educational and professional advancement may wane. Struggles with adapting to the technological and pedagogical challenges of teaching amidst the pandemic, health concerns of teachers working in a traditional classroom, and fears of unemployment not

only result in the decline of teachers' motivation for self-actualization but also result in frustration for not pursuing self-actualization (Jena, 2020).

It is important to note that situations encountered and individual differences dictate that the order in which needs are prioritized is not a rigid hierarchy but is meant to be flexible. Regardless of how a person perceives their own needs, the key to reaching full potential is simply that their needs are met. The COVID-19 pandemic manifested as a constantly evolving situation, especially in education. Lockdowns, shifting instructional platforms, changing health and safety policies, anxiety, stress, and fear are a number of issues that have arisen not only among teachers, but also among people in general (Aperribai et al., 2020). These unprecedented circumstances have caused many teachers to struggle with having their most basic physiological and safety needs met. This means that these teachers may be struggling even more to have their higher level needs of love/acceptance, self-esteem, and self-actualization met. The implications of these deficits of Maslow's hierarchy of needs for teachers have the potential to negatively affect not only teacher performance in the classroom but also student achievement (Aperribai et al., 2020).

Bandura on Self-Efficacy

Bandura (1994) defined perceived self-efficacy as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (p. 1). Bandura (1994) asserted that individuals maintain control over their own behaviors within the parameters of their own self-efficacy beliefs and their environment. An individual's self-efficacy beliefs predispose their perceptions of environmental options as either possibilities or challenges (Bandura, 2006) thus influencing what activities they choose, how vested they will be in those activities, and how resilient they will be when they encounter

impediments in those activities (Pajares, 1997). It is undoubtedly significant for an individuals' well-being that they encounter an enrichment in their capacity to control their own performance, but it is notably critical in light of what is expected from professionals, such as teachers, during a global health crisis like the COVID-19 pandemic. In their 2013 study, Taormina and Gao discovered a strong correlation between Maslow's physiological and esteem needs to self-actualization needs. Curiously, they suspected that the relationship may have been due to an individual's self-efficacy beliefs being manifested as their physiological and esteem needs were not only met but exceeded. Arslan (2017) identified correlations between these needs in teachers. As individuals felt that their needs were being fulfilled, they gained more confidence which motivated them to meet opportunities in life more positively.

Skaalvik and Skaalvik (2010) explored the concepts of teachers' individual self-efficacy beliefs in conjunction with perceived collective teacher efficacy particularly in relation to teacher well-being and job satisfaction. Additionally, Cansoy et al. (2020) investigated the relationship between self-efficacy beliefs and teacher well-being. Multiple factors may influence teacher self-efficacy including individual experiences, collective experiences, and indirect experiences, with each of these resulting in changes in a teacher's feelings of confidence and motivation to improve and advance. Bandura's (1997) self-efficacy theory holds that an individual constructs their own beliefs about their own competence through their experiences, whether positive or negative. During the COVID-19 pandemic, policies such as mask-wearing, isolation, and rapidly changing policies and procedures have not only physically separated teachers from their colleagues but also from their students in many cases (Apperibai et al., 2020; Lambert et al., 2020). These negative experiences have left teachers with exacerbated feelings of loneliness, inefficacy, incompetence, and incapacitation, as well as physical issues (Apperibai et al., 2020).

As teachers are traditionally classified as frontline professionals, the very nature of their work requires them to invest large stores of intense emotion (Day & Hong, 2016). Furthermore, during a crisis, such as the COVID-19 pandemic, they unwittingly become intermediaries for students and families who are experiencing crisis related trauma (Manning & Jeon, 2020). These types of situations may result in additional stress for teachers, known as "secondary traumatic stress," compounding underlying stressors teachers have in their own lives. This stress overload may negatively impact not only teachers' well-being but also teacher self-efficacy as teachers struggle with psychological burnout and feelings of inadequacy (Manning & Jeon, 2020, p. 4).

Conceptual Framework - The Job Demands-Resource Model

Demerouti et al. (2001) formulated a framework to better grasp the concept of burnout in the workplace. The Job Demands-Resource (JD-R) Model suggested that demands and resources are common to every job and that an imbalance between the demands and available resources may lead to burnout (Schaufeli, 2017). Not only has the COVID-19 pandemic impacted job demands and stresses on those demands, the pandemic has changed the dynamic of job resources for teachers. Demorouti et al. (2001) defined job resources as "physical, psychological, social, or organizational aspects of the job that may do any of the following: (a) be functional in achieving work goals; (b) reduce job demands at the associated physiological and psychological costs; (c) stimulate personal growth and development" (p. 501). They further divided job resources into two categories: external resources, which included organizational and social resources, and internal resources, which focused on human cognition and behavior. For the purposes of the JD-R model, only external resources were considered (Demorouti et al., 2001). Interestingly, the list of external resources included items such as "job control, potential for qualification, participation in decision making, and task variety," (Demorouti et al., 2001, p. 501) which are strikingly

similar to self-actualization needs. Furthermore, the list of social resources all concerned support, similar to esteem needs. The JD-R model described that when these external resources are lacking, an individual will experience lack of motivation and will, in effect, withdraw from the job as a method of self-preservation. Al-Samarrai et al. (2020) reported that financial analysts from the World Bank Group estimated education funding will be affected by COVID-19 similar to how it was affected during other recent global crises. Baker and Di Carlo (2020) similarly predicted a decrease in education funding with an increase in proposed spending. Further predictions estimated that this decrease in funding will result in a net loss of resources for education as spending for frontline protective items like masks, personal protective equipment, and cleaning supplies will take precedent over spending for non-critical items, teacher salaries, and teacher benefits. As Demerouti et al. (2001) suggested, this financial crisis will cause teachers to become frustrated at their inability to grapple with job demands since resources are unavailable, thus increasing withdrawal from the job.

Maslach (1982) described burnout as a group of symptoms related to emotional lassitude, dehumanization, and perceived failure that may develop in individuals who work in giving professions such as teaching. Maslach and Leiter (2016) later refined the definition of burnout as, "a psychological syndrome emerging as a prolonged response to chronic interpersonal stressors on the job" (p. 103). Additionally, they identified three distinct dimensions common to burnout as exhaustion, cynicism, and inefficacy. Demerouti et al. (2001) closely examined Maslach's definition and created a more generalized conceptual interpretation of the different dimensions of burnout by equating exhaustion with stress reactions "such as fatigue, job-related depression, psychosomatic complaints, and anxiety" and the cynicism dimension with indifference and withdrawal (pp. 499-500). Furthermore, Demerouti et al. (2001) compiled empirical evidence

which supported the notion of the compelling relationship between stress and burnout. The JD-R model analyzes the relationship of job demands and related workplace stressors with job resources. The JD-R model has been applied to many different job settings (Christian et al., 2011; Crawford et al., 2010; Halbesleben, J., 2010; & Mauno et al., 2010); however, scant research has been conducted analyzing the validity of this framework to educational occupations such as teaching. Schaufeli and Bakker (2004) asserted that the JD-R model is generalizable across all occupations because demands and resources are common.

While the COVID-19 pandemic was a global crisis, it was not the adumbration of teachers' stress; on the contrary, stress was a component of teachers' lives well before the advent of COVID-19. Kyriacou and Sutcliffe (1978) identified this phenomenon as a type of occupational stress specific to the context of the teaching profession. However, the addition of new health and safety protocols, different teaching environments, and changing family dynamics has compounded the stress teachers feel. A study by the Tulsa SEED Study Team (2020) indicated that teachers feel more stress in their job than they did prior to the COVID-19 pandemic, whether they are teaching in person or in a remote environment. Manning and Jeon (2020) asserted that teacher stress in the workplace is further impacted by constant communication and interaction with students and families who may be the victims of pandemic related traumas. Additionally, many teachers have had to learn to manage remote learning environments, traditional classroom environments that now include COVID-19 protocols, and, in some cases, hybrid environments where teachers must juggle both remote and traditional environments, sometimes in the same class (Apperibai et al., 2020). Moreover, as teachers are humans, many have experienced food needs, job insecurity for themselves or family members, illness, and caring for other family members and friends during the pandemic (Kraft et al., 2020).

Demorouti et al. (2001) included these external or environmental stressors as corresponding stressors that increase the effect of job demand stress in their model. These additional stressors tend to cause individuals to subconsciously compensate and respond to the stress resulting in lower energy levels and a chronic state of exhaustion (Demorouti et al., 2001).

A Brief Timeline of Educational Policy

The Senate approval of the Elementary and Secondary Education Act (ESEA) in 1965 launched the federal government's official passage into the world of public education (Hanna, 2005). This policy document, although complex, was instrumental in the arena of educational equity as it included provisions for helping students in need (Title 1), segregation, and many supplemental services by allocating federal funding for more than 27,000 school districts (Hanna, 2005). The 1965 iteration of ESEA remained in place until reauthorization in 1994 under the Clinton administration. This version established uniform educational standards that applied to all students, including students who were covered by Title 1 (Hanna, 2005). In 2001, President George W. Bush authorized a new version of this policy called the No Child Left Behind Act (Paul, 2016). This reauthorization established accountability requirements based on standardized testing and it established guidelines for highly qualified teacher status. While NCLB was instrumental in helping close achievement gaps, it was rife with issues related to accountability measures, incentives, punitive measures, and cookie-cutter intervention policies (Paul, 2016). In 2015, the Obama administration reauthorized the ESEA calling it the Every Student Succeeds Act (ESSA). This reauthorization moved much of the responsibility for NCLB provisions to the states, affording states flexibility in the implementation of these different policies (Paul, 2016)

These different renditions of ESEA each had their merits and downfalls but beginning with the NCLB adaptation, teacher responsibilities with regard to student achievement increased sharply (Dee & Jacob, 2011; Grissom et al., 2014). Ryan et al. (2017) linked increased teacher stress levels and a potentially higher teacher turnover rate to assessment-based policies such as NCLB and ESSA. In addition, Garcia and Weiss (2020) determined standardized assessment practices during a crisis such as COVID-19 may yield ambiguous results and may be interpreted as condemning to students. Furthermore, they emphasized that these testing practices may overwhelm already stressed teachers and students causing emotional stress, anxiety, burnout, and poor performance. As many states require the use of student standardized assessment data as one piece of the teacher evaluation puzzle, Ryan et al. (2017) discovered that stress related to these high-stakes tests related to higher rates of teacher attrition; furthermore, policies that revolve around testing data for evaluative purposes such as merit pay and tenure significantly impact symptoms of stress and burnout in teachers whether or not they remain in the profession.

Potential Influences on Teacher Attrition

Workplace Well-Being and Stress

The teaching profession has been identified as one of the most stressful occupations in which to work (De Nobile, 2017; Manning & Jeon, 2020). However, teacher well-being is a critical determinant with regard to educational outcomes. There is a solid body of empirical evidence that supports the correlation between teacher well-being and positive student affects such as academic achievement and social-emotional maturation (Briner & Dewberry, 2007; Hamre & Pianta 2001; Jennings & Greenberg, 2009; Mclean & Connor, 2015; Marzano et al., 2004). Kyriacou & Sutcliffe (1978) and Kyriacou (2001) concluded that stress in the workplace may be used to indicate a portion of the concept of well-being; however, this factor typically

depicts negative feelings that are connected to an individual's work. Many factors may contribute to workplace stress for teachers such as autonomy issues, workload issues, discipline issues, and financial issues. Notably, teachers across the globe have reported incidences of extreme stress over the years (Asa & Lasebikan, 2016; Chaplain, 2008; Hassan, et al., 2018; Kristensen, et al., 2005; Travers & Cooper, 1996). Msosa (2020) reported serious challenges related to teacher shortages in South Africa. Kataoka et al. (2014) reported that in Japan, 5724 teachers were absent related to stress in 2011. As the COVID-19 pandemic has progressed, workplace stress factors have increased due to increased demands on teachers and decreased resources available for teachers. Zhou and Yao (2020) reported that instances of mental health issues such as anxiety, depressions, and stress-related disorders have increased as the COVID-19 pandemic has progressed. The escalation in these disorders is considered to be acute stress symptoms and has been known to significantly diminish individual immune system responses (Tao, 2006), thus contributing to a reduction in overall well-being (Holbrook et al., 2005). With regard to teachers, they not only must deal with their own physical and mental health issues during the pandemic but also must care for students who are exhibiting the same traumas. This combination of individuals experiencing personal stress stacked with empathetic stress may negatively affect teacher's well-being and may potentially trickle down and affect student well-being (Chen et al., 2014). Zhou and Yao (2020) indicated that increasing social support to individuals experiencing acute stress symptoms may reduce symptoms and increase well-being because this type of support satisfies basic relational needs and helps individuals feel more control. In their study, they noted statistically significant positive relationships between social support and the three basic psychological needs of autonomy, competence, and relatedness; however, social support did not exhibit a positive relationship with control or acute stress

symptoms. Interestingly, the three psychological needs showed statistically significant positive relationships with control and exhibited a negative relationship with acute stress symptoms. Additionally, an individual's sense of control was negatively related with acute stress symptoms (Zhou & Yao, 2020). Zhou and Yao (2020) concluded that teachers thrive in times of crisis through relationships. This has proven to be the conundrum during the crisis of COVID-19.

Kanekar and Sharma (2020) reported that as multiple public health policies have been implemented to mitigate the spread of disease, opportunities for social support have waned. These policies have included such practices as isolation of infected individuals, quarantines and contact tracing, social distancing guidelines, mask-wearing, stay-at-home orders, and limitations on gatherings such as religious services and sporting events (Huang & Zhao, 2020). Furthermore, increased use of social media sensationalized different aspects of the pandemic resulting in widespread fear and increased emotional distress (Huang & Zhao, 2020). Additionally, Rogers & Cruickshank (2020) reported that stress levels have increased as individuals have become more concerned about the welfare and well-being of others, particularly friends and family members, as related to COVID-19. Therefore, when in the workplace, teachers must juggle stresses from their personal life, social life, work-life, and students' lives. Addressing teacher well-being is paramount during times of peace as well as during times of crisis.

Kabito and Wami (2020) conducted a cross-sectional study in Gondar city in northwest Ethiopia to examine workplace stress among teachers. In their study, data revealed that 58.2% of teachers reported that they perceived some type of work-related stress issues. One issue that was most significantly tied to work-related stress was high job demands. In their 2020 study, Sokal et al. examined demands, resources, and burnout in the context of teaching during a global crisis such as a pandemic. Their findings were supportive of the JD-R model and indicated that "most

demands are more strongly related to exhaustion, followed by cynicism, then accomplishment" (p. 72). Furthermore, Shanafelt et al. (2020) asserted that workers in frontline professions such as nursing, emergency services, and teaching are most markedly distressed by quickly fluctuating job demands. In addition, Reimers and Schleicher (2020) revealed that 72% of school delegations from 98 countries across the globe indicated that ensuring the well-being of teachers was a challenging priority. Amri et al. (2020) conducted a cross-sectional study in Morocco that revealed teacher stress was exacerbated during the COVID-19 pandemic due to feelings of technological inadequacy, exorbitant workload, conflicts between work life and home life, and lack of resources. Christian et al. (2020) additionally identified workload stress due to *techno-overload* (TO) manifesting in teachers when they are encouraged by administrators to complete more work in a shorter amount of time using technology thus increasing overall teacher workload. They determined that this type of workload stress not only causes emotional exhaustion and mental health concerns but also causes physical symptoms related to repetitive use of body parts such as the hands and wrists and other cumulative health issues. Furthermore, Alhija (2015) suggested that teachers' feelings of stress related to workload were more pronounced along gender lines with women experiencing higher levels of workload stress, suggesting that the difference in socially accepted norms regarding gender-based behaviors may a contributing factor to this increased stress level. Consequently, Amri et al. (2020), in their study of primary school teachers in Morocco, determined that teachers who were confined in some way due to COVID-19 experienced increased job demands related to increased time pressure on them to complete more numerous and more complex tasks related to their teaching, increased anxiety related to family responsibilities, and struggles related to distance education in general. These heightened stressors resulted in a greatly increased burnout rate among these

teachers. Although teachers know how to adapt and persevere through challenging and changing situations, the demands placed upon them in the midst of the COVID-19 pandemic are stretching teachers to the breaking point.

Self-Efficacy

In their study dealing with crisis self-efficacy and work commitment of teachers in the Philippines, Baloran and Hernan (2020) reported a significant relationship between teachers' level of work commitment to their crisis self-efficacy during the COVID-19 pandemic. In a study involving almost 8,000 teachers across nine states in the United States, Kraft et al. (2020) discovered that the emergent nature of the COVID-19 pandemic forced rapid pedagogical shifts and challenges that resulted in swift declines in teachers' self-esteem and self-efficacy beliefs. They further determined that overall school working conditions during the pandemic greatly impact teachers and their sense of success; however, as the pandemic had progressed since their study, opportunities to experience working conditions such as recognition of effort and meaningful collaboration with colleagues have diminished due to pandemic social restrictions. These restrictions may have caused disproportionate decreases in feelings of success and self-efficacy among teachers as they swiftly had to incorporate information and communication technology (ICT) practices when hybrid classrooms and virtual classrooms became widely accepted practices.

ICT Preparedness

Fu (2013) described ICT as the use of technologies such as computers, the internet, and other electrical communication devices like television and radio to enhance education. With the sweeping move to include some type of remote education since COVID-19, teachers are experiencing pressures related to feeling adequately prepared to incorporate ICT and being

experienced in the use of ICT for teaching. ICT refers to different technologies that have been developed to give access to a myriad of information by using communication tools such as smart phones, the internet, and other wired and wireless equipment. Hero (2020) pointed out that the use of ICT in education is a complicated endeavor that requires adequate preparation so that both teaching and learning are purposeful and effective. By the same token, Instefjord and Munthe (2017) indicated that both teachers' attitudes toward ICT and their perceived level of ICT preparedness influenced teacher's willingness to incorporate ICT into their instructional practices, noting a significant relationship between acceptance of ICT and the integration of ICT. Moreover, as education systems have had to shift to hybrid and remote learning during the pandemic, Gouëdard et al. (2020) suggested that teacher workload related to the use of ICT has changed relative to teacher adeptness in utilizing ICT skills in their teaching. This shift potentially has implications on teacher self-efficacy and overall well-being (Gouëdard et al., 2020). Historically, researchers have determined that during times of crisis, there is a marked increase in teacher's perceived job demands and a correlating marked decrease in teacher's self-efficacy beliefs (Kraft et al., 2020; Seyle et al., 2013). In a cross-sectional study conducted in India, Christian et al. (2020) reported that teacher's self-efficacy beliefs drop significantly due to insecurity with ICT use and deep-seated feelings of job insecurity that arise as technology capabilities increase. They emphasized swiftly changing technologies, lack of adequate ICT training, and ambiguities in technology use expectations as further contributors to teachers developing feelings of uncertainty that undermine their self-efficacy beliefs. On top of increased technology and pedagogical responsibilities, teachers are expected to be attuned to student social-emotional issues, whether in person or virtually, so they may make appropriate administrative or counselor referrals when needed (Farmer, 2020). Jacobs and Teise (2019)

observed that many teachers have been exploited by administrators who pile on unfair amounts of work in addition to regular classroom responsibilities.

Job Satisfaction

Evans (1997) defined job satisfaction as "a state of mind determined by the extent to which the individual perceives her/his job-related needs to be met" (p. 328). Although teachers are frontline workers responsible for student learning achievement, often teachers' satisfaction with their job is grossly ignored (Toropova et al., 2021). Researchers have long recognized the correlation between teacher job satisfaction and teacher well-being; moreover, additional research has revealed that teachers who are satisfied with their job experience lower levels of stress and fewer incidences of burnout (Kyriacou, 2001; Kyriacou & Sutcliffe, 1978; Skaalvik & Skaalvik, 2010, 2014). Further research has demonstrated that teachers who have high levels of job satisfaction demonstrate higher levels of commitment to their profession and provide higher quality instruction, and instructional support, for their students (Skaalvik & Skaalvik, 2014; Taormina & Gao, 2013; Toropova et al., 2021).

Several themes emerge when examining literature related to teacher job satisfaction. Among these themes are teacher identity (self-esteem), teacher autonomy (self-efficacy), teacher value (esteem), teacher stress linked to increased workload and performance evaluation (physiological and self-efficacy), and working environment (safety) (Toropova et al., 2021). For example, the ministry of education in Sweden has been reforming educational policies to help improve working conditions for teachers in hopes of increasing teacher job satisfaction (Toropova et al., 2021). In their 2020 study, Toropova and others identified gender, amount of participation in professional development, and self-efficacy beliefs as the top three factors associated with teacher job satisfaction. Interestingly, in this study, women exhibited higher

levels of job satisfaction than men; however, the researchers concluded that this phenomenon may be due to the de-professionalization and subsequent feminization of the teaching profession (Weiner, 2006).

Total Years in the Profession

VanGeffen and Poel (2014) determined that teachers who had more total years of teaching experience were less likely to leave the profession while teachers who had fewer total years of teaching experience were more likely to leave the profession. However, Goodwin et al. (2019), when relating age and total years of teaching experience to teacher attrition, found that teachers who were older were more likely to leave the profession regardless of the number of years of teaching experience. This differential may be attributed to teachers choosing to retire once they have reached the number of years of experience necessary to receive full retirement benefits. Borman and Maritza-Dowling (2008) depicted the relationship between years of experience and teacher attrition as a curve with the peak level of teacher attrition corresponding to new teachers (0-5 years of experience) and teachers who are 50+ years of age who opt for retirement. McCarthy et al. (2020) suggested that high levels of unexpected stress heavily contribute to novice teachers leaving the profession.

The COVID-19 pandemic adds a layer to the impact of total years of teaching experience as related to teacher attrition. MacIntyre et al. (2020) recognized substantial teacher stress increases as COVID-19 unfolded due to issues such as swift conversion to online teaching, blurred boundaries between work-life and home-life, health concerns, and uncertainty about a myriad of life and work issues. This unexpected increase in stress may contribute to novice teachers who are not trained to balance these stressors effectively resorting to leaving the profession entirely. Montenovo et al. (2010) suggested that those who work in professions that

require more in person interactions are at higher exposure risk for contracting infectious diseases in general. Coibion et al. (2020) reported that the rate of early retirement rose substantially during the first few months of COVID-19. This implies that older workers, teachers included, may opt for early retirement instead of risking exposure to COVID-19. Additionally, van Droogenbroeck et al. (2014) determined that teachers with more years of experience feel more pressure from increased responsibilities and workload and oftentimes choose early retirement as a result.

Factors Related to Teacher Attrition

Teacher attrition has been recognized globally as a significant concern in the realm of education for many years (Beaugez, 2012). While researchers have correlated many factors with increasing rates of teacher attrition, the year 2020 ushered in a new concern as COVID-19 evolved from a localized infection to a pandemic (Al-Samarrai et al., 2020; UNESCO, 2020; UNICEF, 2020). Educational institutions were forced to execute policies and procedures to reduce the spread of the disease including school lockdowns, social distancing policies, mask-wearing, and increased health and hygiene procedures (OECDa, 2020). By May 2020, these policies reportedly touched more than one billion students worldwide (UNESCO, 2020). Since the first wave of pandemic related school closures, teachers have dealt with educational policy and procedure changes that increased their workload resulting in increased stress (UNESCO, UNICEF and the World Bank, 2020). Research consistently holds that teacher attrition is directly related to student academic achievement (Allensworth et al., 2009, Rondfeldt et al., 2013). Weldon (2015) reported that close to 25% of teachers in Australia leave the profession during their first five years of teaching. In their meta analysis, Nguyen et al. (2019) revealed that the teacher turnover rate across all public schools in the United States hovers around 15%. In

addition, Noordzij and van de Grift (2020) found that teachers under the age of thirty demonstrated an attrition rate of more than 30% during the first five years of teaching service in the Netherlands. Across the board, factors researchers have determined impact teacher attrition are stress and burnout, salary, self-efficacy, teacher preparation programs, mentoring relationships, lack of autonomy, and lack of relevant professional development (Beaugez, 2012; Bettini et al., 2020; Farmer, 2020; Sneddon, 1989). Doherty (2020) identified workload, working conditions, workplace stress and burnout, and continued professional development opportunities to gain new skills as the factors that have the most impact on teacher attrition. Other indicators that point to teacher risk of attrition include factors such as teacher reported feelings of regret about becoming a teacher, fantasies about working in a profession other than teaching, feelings of decreased value, and feelings of dissatisfaction with the teaching profession. Hargreaves (2015) identified several factors that may serve as proxy measures for teacher risk of attrition, with attrition being defined as leaving the profession completely. One of these measures is the intent to remain in the profession. The TALIS 2018 questionnaire included multiple questions that may be used as proxies to measure teacher risk of attrition. Taking into account increased job demands, increased stress, and the rapidly changing educational paradigm resulting from issues surrounding COVID-19 on teachers, the question of how the pandemic will impact the rate of teacher attrition is paramount.

Gaps in the Literature

Many studies have addressed a variety of teacher-level factors and job-related factors as related to teacher attrition. However, with the dawn of the COVID-19 pandemic, the world of education was thrown into a flurry of changing policies and procedures with implications to all educational stakeholders. The most evident gap in the literature relates to the potential impact of

COVID-19 on various teacher-related factors and job-related factors on the risk of teacher attrition. Another gap in the literature involves the meager amount of data related to teacher attrition during the COVID-19 pandemic. Additionally, COVID-19 data regarding factors that have historically impacted teacher attrition such as teacher self-efficacy and gender is lacking. Therefore, other factors such as age, number of years in the profession, ICT preparedness, job satisfaction, and stress were analyzed. This study endeavored to fill a gap in the existing literature by analyzing the relationships between these factors through the lens of COVID-19. By examining recent data sets, this study aspired to connect prior work and establish a framework for educational policymakers to help assuage the difficulties associated with crises like the COVID-19 pandemic.

This study endeavored to fill a gap in existing literature by analyzing the relationships between teacher-level factors of age, years in the profession, job satisfaction, ICT preparedness, and dissatisfaction and regret with the profession; the job-level factor of stress; and the risk of teacher attrition through the lens of COVID-19. By examining recent data sets, analyzing factors that relate to teacher well-being, teacher job satisfaction, and risk of teacher attrition, this study aspired to connect prior work and establish a framework for educational policymakers to help assuage the difficulties associated with crises like the COVID-19 pandemic.

Research Questions and Hypotheses

This study proposed and tested a framework defining the potential relationships between teacher-related factors such as age, total years in the profession, job satisfaction, ICT preparedness, and regret and dissatisfaction; the job-level factor of stress; and the risk of teacher attrition in light of the COVID-19 pandemic. Three research questions were addressed:

RQ1: To what extent do teacher-related factors of teacher age, number of years in the profession, ICT preparedness, job satisfaction, and disappointment and regret with the profession predict teacher risk of attrition?

RQ2: To what extent do teacher-related factors of teacher age, number of years in the profession, ICT preparedness, job satisfaction, and disappointment and regret as well as job-related factor of stress predict teacher risk of attrition?

RQ3: To what extent does COVID-19 exacerbate the effects of teacher- and job-related factors on the risk of teacher attrition?

Chapter III

Methodology

The purpose of this study was to examine the implications of the COVID-19 pandemic on teacher attrition. The first part of the analysis was conducted using a hierarchical linear regression to determine if relationships between teacher-level factors and job-level factors impact the risk of teacher attrition. Next, the regression model was used to predict possible implications of the COVID-19 pandemic on the identified factors in the hierarchical linear regression. This chapter includes information detailing the research design of this current study, methodology employed for data analysis, a description of each data set, and the rationale behind selecting the predictor variables and the criterion variable. Finally, the specific research hypotheses that were tested, the model that was tested, and the step-by-step plan used to analyze the data are addressed.

Data regarding the impact of COVID-19 on factors related to teacher well-being, workload stress, and risk of attrition are limited but forthcoming (UNESCO et al., 2020). This study focused on the secondary analysis of two data sets, the TALIS 2018 and the CRS 2020. While the TALIS 2018 survey was conducted internationally, individual country data are available to the public through the TALIS 2018 website. CRS 2020 data are available to the public by permission through the RAND Corporation data portal. To help lay the foundation for a framework addressing these factors alongside global crises, such as a pandemic, it was necessary to use a data analysis technique that allowed for valid predictions extrapolated from a hierarchical linear regression model to guide teacher trend inferences (Bartley et al., 2019). Therefore, a hierarchical linear regression model was used to predict the extent to which teacher-level factors and job-level factors impact the risk of teacher attrition. Furthermore, this study

used extrapolation as a predictive technique to estimate the potential impact of the COVID-19 pandemic on teacher risk of attrition based on the model derived through the regression analysis. This study endeavored to expand upon prior research and provide a foundation upon which to conduct further research as more COVID-19 data are available.

Sources of the Data

TALIS 2018

The purpose of TALIS 2018 was to glean insights from teachers and school leaders by gathering data that are relevant to developing and implementing educational policies that impact student learning and achievement. Through this survey, teachers and school leaders have the ability to share their voice and participate in the analysis of educational policies and the development of new policies in target areas. Furthermore, this survey is an opportunity for participating countries of numerous different sizes, populations, and economies to collaborate with regard to practical policies that promote both the teaching profession and best practices to increase student learning and achievement.

TALIS goals were aligned to goals of educational policymakers, teachers and educational leaders, and educational researchers. The TALIS 2018 conceptual framework served as a guide for development of the survey instrument. Data analysis was governed by the TALIS Consortium and its analysis plan. The OECD directed the final reporting of the data. Specific details of the development, analysis, and reporting were discussed in the *OECD Education Working Papers,* No. 187 (Ainley & Carstens, 2018).

TALIS 2018 Data Collection

The TALIS 2018 was the third iteration of the TALIS survey. This survey included questions in 11 themes: teachers' instructional practices; school leadership; teachers'

professional practices; teacher education and initial preparation; teacher feedback and development; school climate job satisfaction (including motivation); teacher human resource measures and stakeholder relations; teacher self-efficacy; innovation; and equity and diversity. The survey was administered digitally but was available in a paper format for participants who preferred that method. Due to school schedule differences, schools in different hemispheres completed the survey at different times of the calendar year. Data collection and analysis standards were established by the consortium in order to guarantee the best practices regarding survey research were used for all stages of the survey research in order to maintain the highest level of validity, reliability, and analogousness of both the survey instrument and the data. Furthermore, the consortium was charged with developing extensive manuals and guidelines to guarantee successful execution of the survey.

Participants

The target population for the TALIS 2018 was an international group of teachers and educational leaders. The goal was to construct a sample group from 200 schools in each target country, with 20 teachers and one leader from each of the participating schools. The consortium set the response rate for teachers at 75% of the sampled schools in conjunction with 75% of the sampled teachers from each country; however, if 50% of sampled teachers in a school responded that school is considered to have responded. The survey cycle was conducted over one year due to differing school in session calendars among the participating countries. Out of the 48 participating countries, 45 of the countries collected a majority of their data online. TALIS 2018 used a canonical sampling design to randomly sample schools, and subsequently teachers, for participation in the survey. In the first stage, a random sample of 200 schools across 48 countries including the United States. Once the school sample was identified, a second random sample of

20 teachers from each of the sample schools was selected by OECD national teams in each participating country using sample-generating software provided by the OECD consortium (Henke et al., 2019). Survey results were reported both by total overall results and by country-level results. For this study, country-level results for the United States were examined. This study includes the United States data from TALIS 2018 comprised of 2,560 total participants across the country. In order to align the TALIS 2018 and CRS 2020 study, the target population of this study was limited to full-time teachers. Therefore, participants in the TALIS 2018 study who were not full-time teachers were deselected from the data set, resulting in 2,382 participants. Additionally, since the sample size was sufficiently large, respondents with missing data were removed for a total or 2,133 responses analyzed.

Survey Instrument Design

Two questionnaires were included in the survey, one for teachers and one for principals. Educational leaders in the participating countries were given the freedom to decide whether or not teachers and principals survey participation was mandatory. An online survey system was used for online delivery. The three countries who opted out of online administration completed a paper version of the survey. Additionally, due to the global nature of the survey, the TALIS consortium coordinated accurate translation and verification of all survey instruments that were administered in a language other than English. The IEA Amsterdam coordinated data quality verification using both national and international observers intensively trained in data quality inspection. TALIS 2018 was administered in three phases, each with a larger number of participants, including a pilot study, a field trial, and the main survey. Following the pilot study, participants were able to participate in focus groups to provide qualitative feedback about the survey. Both the field trial and the main survey were quantitative in nature. TALIS 2018 was

administered in order "to generate internationally comparable information relevant to teachers and teaching with an emphasis on aspects that affect student learning" (Henke et al., 2019, p. 35). Data are disaggregated by country.

CRS 2020

In May 2020, RAND Corporation researchers surveyed members of the American Teacher Panel (ATP) to gather data about how teachers were faring with the challenges of teaching during COVID-19 and to investigate potential incongruities in school supports to both teachers and students. This research was conducted by RAND Education and Labor, which is the division of the RAND Corporation that "conducts research on early childhood through post-secondary education programs, workforce development, and programs and policies affecting workers, entrepreneurship, and financial literacy and decision making" (Hamilton et al., 2020, p.1). Topics addressed in this survey included teacher characteristics, teacher job satisfaction, teacher working conditions, training for teachers, teachers' needs for additional training and supports, and multiple topics specifically related to student needs.

Participants and Survey Administration

The RAND Education and Labor researchers selected participants for this survey from members of the ATP. This panel was comprised of a nationally representative group of over 26,000 teachers who were recruited using probabilistic sampling. Participants for the survey sample were selected to be representative of the teacher population public and charter school teachers specifically aligning with national demographics of teachers. A comparison of demographic information for both the TALIS 2018 and the CRS 2020 is reported in Table 1. The group was designed to be representative of the population of teachers in the United States so that the results from the collected data could be generalized. An oversampling method was employed

so that the target number of at least 1,000 complete survey responses was achieved The CRS 2020 targeted current teachers who were serving as K-12 teachers, representing the age and gender demographics that reflected the age and gender demographics of the teacher population of the United States. ATP administrators identified potentially eligible teachers from their total organization membership pool. These potentially eligible teachers were invited to complete the online survey with the goal of receiving at least 1,000 valid, completed surveys. The first question in the survey, "This school year, what grade(s) do you teach?" filtered participants by closing the survey for participants who did not select one of the K-12 options. Out of 2,199 invitations sent to preliminarily eligible participants, 1,082 complete survey responses were submitted for a 49.2% completion rate. RAND Education and Labor inspected the data for completeness, conducted descriptive analyses, and packaged the data for public consumption.

Table 1

Demographic Characteristics of the Participants

		TALIS 2018		CRS	
Demographic		Frequency	Percentage	Frequency	Percentage
Gender	Male	837	32.7	259	23.9
	Female	1717	67.1	823	76.1
Average Age	Under 30	307	14.4	159	14.7
	30-49	1,259	59.0	620	57.3
	50 and over	568	26.6	303	28.0
Total Years Teaching	0-5 years	590	23.4	86	8.0
	6-10 years	449	17.8	216	2 .0
	11-15 years	469	18.6	271	25.0
	16-20 years	431	17.1	249	23.0
	21+ years	584	23.1	260	24.0
Years at Current School	0-5 years	1301	51.6	368	34.0
	6-10 years	453	18.0	303	28.0
	11-15 years	352	14.0	195	18.0
	16-20 years	238	9.4	119	11.0
	21+ years	179	7.1	97	9.0

Note. TALIS 2018: *N* = 2,133, CRS: *N*=1,082.

Survey Instrument Design

The CRS 2020 survey was sponsored by the Bill & Melinda Gates Foundation. The October, 2020 iteration was the second in a series of three planned surveys by RAND Education and Labor researchers. The goal of the survey was to gain insight into how teachers were responding to the COVID-19 pandemic. This survey was administered between October 6 and October 18, 2020. The survey was delivered online. Topics addressed by the CRS 2020 included: teachers' job satisfaction and working conditions, instructional models, contact with students and families, instruction and feedback provided to students, student engagement, supports available to students and their families, training for teachers, and teachers' need for additional supports.

Coordination of Data

The data set from the CRS 2020 consists of raw data from the survey. For this study, variables that were a good fit with the predictor variables from the TALIS 2018 study were isolated and recoded for labeling consistency and ease of understanding. Data were analyzed preliminarily to assess if there was a need for recoding of the data to ensure consistency in polarity between both data sets. Further preliminary analysis of the data was conducted to assess the accuracy and completeness of the data. Initial examination of the data revealed multiple survey items that were comparable to the predictor and criterion variables selected from the TALIS 2018 data set (see Table 2).

Table 2

Summary Matrix

	TALIS 2018 Variable	Variable Name in Study	CRS 2020 Variable
Teacher-related factors (Predictor Variables – Group 1)	T2G06H1– Preparation for Teaching – ICT Training	ICTPREP	Q28_03: ICT preparedness for instruction
	TT3G11B – Total Years in Profession	YEARS	Q25_01 – Total number years teaching
	TT3G53J – Satisfaction with job	SATIS	Q09_03 – I am generally satisfied with being a teacher
	TCHAGEGRP – Teacher age groups	AGE	AGE – Teacher age groups
	TT3G53D – I regret becoming a teacher	REGANDDIS	Q08_01 – The stress and disappointments involved in teaching at this school aren't really worth it.
Job-related factors (Predictor Variables – Group 2)	Composite Variable – TT3G51A – experience stress in job TT3G51B – job leaves time for personal life TT3G51C – job negatively affects mental health TT3G51D – job negatively affects physical health	STRESS	Composite Variable - Q04_04 – Personal Life Responsibilities Q04_05 – Feelings of burnout Q04_01 – Personal health
Teacher Risk of Attrition (Criterion Variable)	Composite Variable - TT3G53C - Feeling I would like to change to another school if that were possible		Correlating Variables: Q08_5 – I think about transferring to another school
	TT3G50 - For how many more years do you want to continue to work as a teacher?	RSKATTRIT	Q07 – What is the likelihood that you will leave your job by the end of the current school year compared to the likelihood you would have left your job before COVID-19?

Note. TALIS 2018: *N* = 2,133; CRS 2020: *N*=1,082

Operationalization of Variables

Predictor Variables - Group One, Teacher-Related Factors

ICT Preparedness. In the TALIS 2018 survey, the ICT preparedness variable was a dichotomous variable assessing whether or not using ICT for teaching was included in a teacher's preparation program. ICT preparedness in the CRS 2020 survey was a dichotomous variable assessing how much training and preparation teachers had received about how to use virtual learning management platforms and technology (ICT use) for teaching.

Table 3

Frequencies for ICT Preparedness

	TALIS 2018		CRS 2020	
	Frequency	Percent	Frequency	Percent
Yes	1,377	64.5	224	21.0
No	756	35.4	842	79.0

Note. TALIS 2018 – *N* =2,133; CRS 2020 – *N* =1,082. CRS 2020 frequencies total 1,066 due to 16 non-responses.

Total Years in Profession. For TALIS 2018, survey participants entered the total number of years they have spent in the teaching profession as a numeric response. For the purposes of consistency between the TALIS 2018 and CRS 2020, the numeric responses were aggregated into five categories as listed in Table 4.

Table 4

Frequencies for Total Years in the Profession

	TALIS 2018				CRS 2020				
	0-5 years	6-10 years	11-15 years	16-20 years	0-5 years	6-10 years	11-15 years	16-20 years	21+ years
Frequency	590	449	469	431	86	216	271	249	260
Percentage	23.4	17.8	18.6	17.1	8.0	2.0	25.0	23.0	24.0

Note. TALIS 2018, *N*=2,133; CRS 2020, *N* =1,082.

Teacher Age Groups. Teacher age groups were aggregated into three groups as indicated in Table 5.

Table 5

Frequencies for Teacher Age Groups

		TALIS 2018		CRS	
		Frequency	Percentage	Frequency	Percentage
Teacher Age Groups	Under 30	307	14.4	159	14.7
	30-49	1,259	59.0	620	57.3
	50 and over	568	26.6	303	28.0

Note. TALIS 2018, *n*=2,133; CRS 2020, *n* =1,082.

Job Satisfaction. Demirtas (2018) defined job satisfaction as "as positive or pleasant emotional state resulting from a person's appreciation of his/her own job experience" (p. 109). In this study, job satisfaction was measured by a Likert scale item in both the TALIS 2018 and CRS 2020. Both questions asked participants to rate how satisfied they were with their job. Answers ranged from 1 – Strongly disagree up to 4 – Strongly agree. Table 6 depicts a summary of job satisfaction frequencies and percentages.

Table 6

Frequencies for Job Satisfaction

	TALIS 2018		CRS 2020	
	Frequency	Percentage	Frequency	Percentage
Strongly Disagree	31	1.5	40	3.8
Disagree	215	10.1	148	13.9
Agree	1235	57.9	509	47.7
Strongly Agree	648	30.4	369	34.6
Missing	5	0.2	16	0.15

Note. TALIS 2018, *N*=2133; CRS 2020, *N* =1,082.

Regret and Disappointment. Zeelenberg et al. (1998) inferred that regret and disappointment are similar emotional concepts involving a fixation on how a situation could have been different if one's expectations had been fulfilled. The TALIS 2018 survey instrument asked participants to rate their answers to the statement: "I regret becoming a teacher." The CRS 2020 instrument asked participants to rate their answers to the statement: "The stress and disappointments involved in teaching at this school aren't really worth it." In this study, for both data sets this variable was measured by Likert scale items with responses ranging from 1 – Strongly disagree up to 4 – Strongly agree. Table 7 depicts a summary of regret and disappointment frequencies and percentages.

Table 7

Frequencies for Regret and Disappointment

	TALIS 2018		CRS 2020	
	Frequency	Percentage	Frequency	Percentage
Strongly Disagree	1086	50.9	316	29.6
Disagree	876	41.0	296	27.8
Agree	127	6.0	327	30.7
Strongly Agree	45	2.1	127	11.9

Note. TALIS 2018, *N*=2133; CRS 2020, *N* =1,082.

Predictor Variables – Group Two, Job-Related Factor

Stress. For the purposes of this study, stress is defined as feelings of satisfaction or dissatisfaction related to levels of workplace stress, time for personal life responsibilities, and personal physical and mental health concerns.

For the TALIS 2018 data set, the predictor variable of stress was a composite variable created as the mean of the values between four subsections of question 51 where participants evaluated stressors using a Likert scale with values ranging from 1-not at all up to 4-a lot. The subsection questions addressed feelings of stress in their job, job leaving time for personal life, job negatively affecting mental health, and job affecting mental health. For the CRS 2020 data set, the stress variable was a composite variable created as the mean of the values for three subsections of question four where participants evaluated stressors using a Likert scale with values ranging from 1– not a concern right now up to 4 – a major concern. Subsection questions addressed job leaving time for personal life responsibilities, job affecting mental health (feelings of burnout), and job affecting personal health. The means for the stress predictor for TALIS 2018 and CRS 2020 were 2.087 and 2.92 respectively.

Criterion Variable - Teacher Attrition

Teacher Intent to Leave the Profession. The criterion variable for the TALIS 2018 and CRS 2020 were composite variables. Song et al. (2013) defined a composite variable as one that is comprised of two or more variables that are conceptually or statistically related. These variables may have been measured in different ways such as scales, ratings, or categories. By using a composite variable, Type 1 error may be controlled by combining multiple variables that are highly correlated into more purposeful information. For this study, the criterion variable for both TALIS 2018 and CRS 2020 were comprised of variables that were closely related to teacher risk of attrition. Creating a composite variable is an acceptable research method when Likert items result in five or more categories; moreover, this technique provides for data that may be used as continuous data with no harm to the ensuing analysis. (Johnson & Creech, 1983; Norman, 2010; Sullivan & Artino, 2013; Zumbo & Zimmerman, 1993). Number of years

remaining in the profession was a continuous variable, desire to transfer to another school was an ordinal variable measured with a Likert scale. Likewise, the CRS 2020 composite variable was comprised of two variables: intent to leave the profession and desire to transfer to another school.

Table 8

Frequencies for Risk of Attrition – TALIS 2018

Estimated time remaining in profession	Frequency	Percent
0-10 years	1,394	65.4
11-20 years	602	28.2
21-30 years	137	6.4
30+ years	1	<.005

Note. TALIS 2018, *N*=2,133

Table 9

Frequencies for Risk of Attrition CRS 2020

	Frequency	Percent
Not likely	6	.6
Unlikely before COVID-19, but likely now	126	11.2
Likely to leave both before COVID-19 and now	693	64.0
Not likely to leave at all	241	22.3

Note: CRS 2020 – *N*=1,082; 16 missing values due to nonresponse for total *N*=1,066

Testing of Assumptions

Osborne and Waters (2002) emphasized that when assumptions are violated, the chance of increasing Type I and Type II errors is increased and may precipitate overestimation or

underestimation of measures such as correlation coefficients, regression coefficients, and effect sizes. Prior to conducting the omnibus test and associated measures, analysis of eight assumptions was completed.

Continuity

The method used to create the composite variables was to take the mean of the contributing variables to create a new variable that was approximately continuous. Although each Likert scale item only included four response categories, combining items containing more than five categories in total which resulted in ordinal variables that became approximations of continuous variables. Hierarchical multiple regression analysis requires that the criterion variable be continuous; therefore, the assumption of continuity was met for the criterion variable for both the TALIS 2018 and CRS 2020 data sets. Predictor variables may be either continuous or nominal. For the TALIS 2018 data set, predictor variables were ICT preparedness, total years of teaching experience, job satisfaction, regret and dissatisfaction with the profession, age, and the job-level factor of workplace stress. Teacher age groups were determined by an open-ended question, "What is your age?" and was initially reported as a continuous variable. To correlate with the reported data from CRS, teacher ages were grouped into three categories, resulting in a categorical variable. All other predictor variables were continuous. For the CRS 2020 data set, variables used in the extrapolation were ICT preparedness, total years of teaching experience, job satisfaction, regret and dissatisfaction with the profession, age, and the job-level factor of workplace stress. Each of these predictor variables were continuous except for teacher age groups, which was categorical. Therefore, the assumption of continuity was met for all predictor variables.

Independence

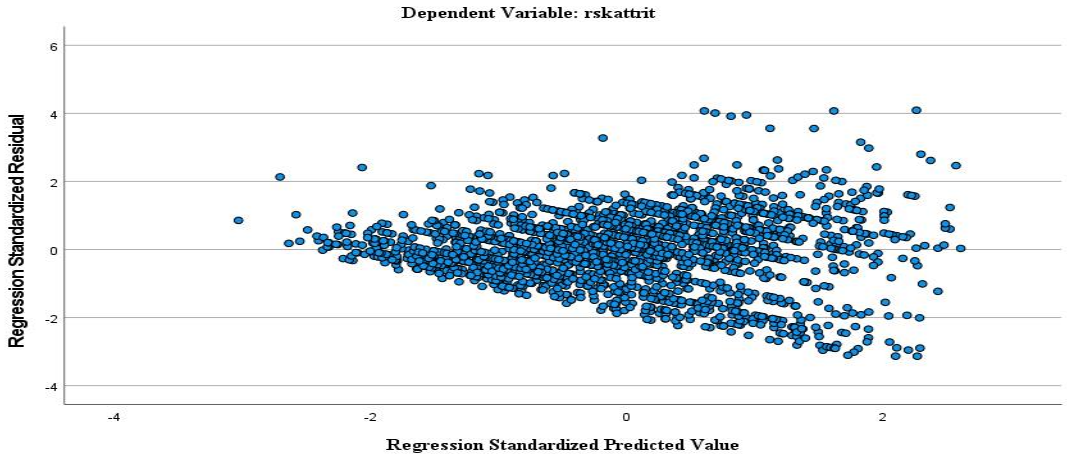
The Durbin-Watson statistic was used to test for the independence of observations. Durbin and Watson (1950) determined that a value of approximately two is indicative of no correlation between the residuals. In this study, for the TALIS 2018 data, the Durbin-Watson statistic was 1.738, which closely approximated two; thus indicating no correlation between the residuals. Furthermore, examination of the Pearson Product-Moment Correlation (r) values between each variable revealed a low correlation ($r < 0.3$) to moderate correlation ($0.3 > r < 0.7$) for all possible relationships which indicated the assumption of independence was met. For the CRS 2020 data, the Durbin-Watson statistic was 1.63, thus indicating no correlation between the residuals. Finally, inspection of the Pearson Product-Moment Correlation (r) values between each variable revealed a low correlation ($r < 0.3$) for all possible relationships, which indicated the assumption of independence was met.

Linearity

The assumption of linearity requires a linear relationship between the criterion variable and each predictor variable. After completing a visual inspection of the scatter plot of studentized residuals versus the unstandardized predicted values, the linear relationship between the criterion variable and the collective of predictor variables revealed that the assumption of linearity was met (see Figure 1).

Figure 1

Scatterplot TALIS 2018



Homoscedasticity

The assumption of homoscedasticity describes the condition in which variance is approximately the same across all values of the independent variables. If the size of the variance (the error term) differs over the values of the independent variables, heteroscedasticity, a violation of the assumption of homoscedasticity, exists. An even more serious impact of violating the assumption of homoscedasticity is that it indicates bias in the standard errors. Since standard error is pivotal in significance tests as well as constructing confidence interval, if it is biased a researcher may draw incorrect conclusions as to the significance of the regression model coefficients. The significance of this violation increases as heteroscedasticity increases. Homoscedasticity was assessed by visual inspection of a scatterplot of studentized residuals versus unstandardized predicted values. For both the TALIS 2018 data and the CRS 2020 data, inspection of the scatterplots revealed approximately equal variances across all values of the independent variables; therefore, the assumption of homoscedasticity was confirmed.

Multicollinearity

The collinearity statistics of tolerance and variance inflation factor (VIF) were calculated to assess multicollinearity. Tolerance and VIF are reciprocal functions whose parameters were suggested by Menard (1995) and Myers (1990) respectively. Menard (1995) determined that tolerance levels must be greater than .10 (p. 66). Moreover, Myers (1990) asserted that VIF values must be less than 10 (p. 127). Examination of both tolerance and VIF values for TALIS 2018 variables were within acceptable limits (see Table 10).

Table 10

Tolerance and VIF, TALIS 2018

Model		Tolerance	VIF
1	(Constant)		
	YEARS	.510	1.961
	ICTPREP	.973	1.027
	SATIS	.990	1.010
	AGE	.513	1.950
2	(Constant)		
	YEARS	.508	1.967
	ICTPREP	.971	1.030
	SATIS	.800	1.250
	AGE	.512	1.952
	STRESS	.951	1.052
	TREGANDDIS	.798	1.253

Absence of Outliers

Stevens (1984) stated that "because the results of a regression analysis may be seriously affected by just one or two errant data points, it is crucial for the researcher to isolate such points" (p. 334). Assessment of outliers was completed in three ways. First, visual inspection of the ordered values for studentized deleted residuals (SRE) was completed. The TALIS 2018 data

set contained 21 cases with SRE values greater than +/- 3 standard deviations above the observed; therefore, those cases were deselected from the dataset since sample size was sufficient without the outliers. No other values greater than +/- 3 standard deviations were observed; therefore, the assumption is partially met. Second, a visual assessment of ordered leverage values was completed. For TALIS 2018, no values above .20 were observed; therefore, the assumption of no outliers was further confirmed. For CRS 2020, two outliers were identified by leverage values higher than .20; therefore, these cases were deselected from the final data set since the data set was sufficiently large. The assumption of no outliers for CRS 2020 was further confirmed. Finally, evaluation of Cook's Distance results for both data sets revealed no values above one, thus confirming the assumption of no outliers. Since all three inspections were satisfied for both data sets, it was assumed that this assumption was met and there were no significant outliers in the data.

Normality

Visual inspection of a histogram with the normal curve superimposed as well as the P-P Plot was conducted to confirm normality of the data. Inspection of the histogram for TALIS 2018 data indicated a normal distribution of data (see Figure 2). Additionally, examination of the P-P Plot for TALIS 2018 data indicated normal distribution of data (see Figure 3). Inspection of the histogram with the normal curve superimposed for CRS 2020 data revealed a normal distribution of data (see Figure 4).

Figure 2

Histogram with Normal Curve Superimposed TALIS 2018

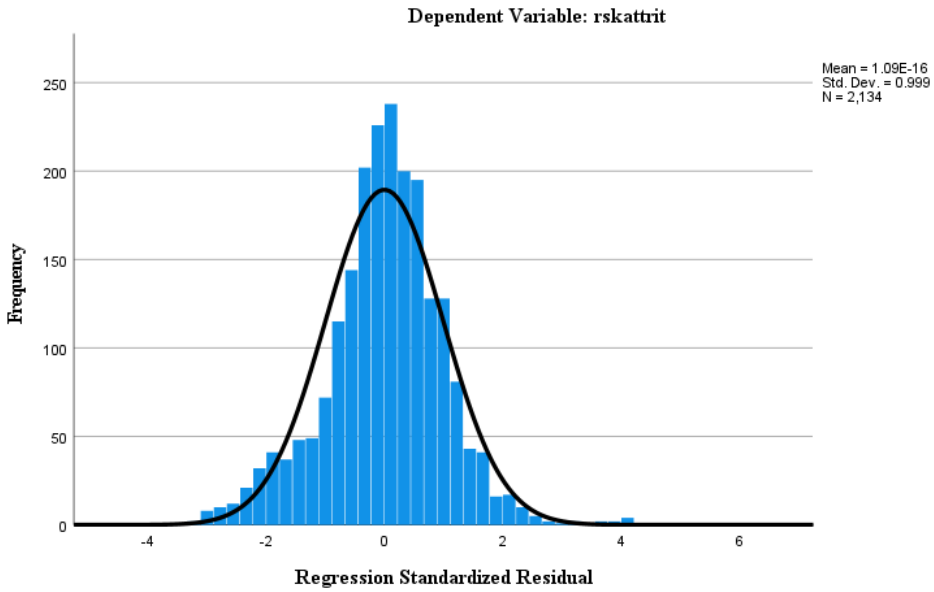


Figure 3

Normal P-P Plot TALIS 2018

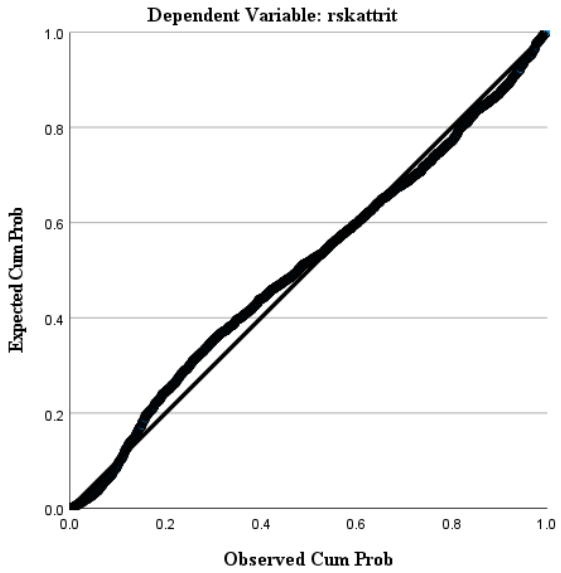
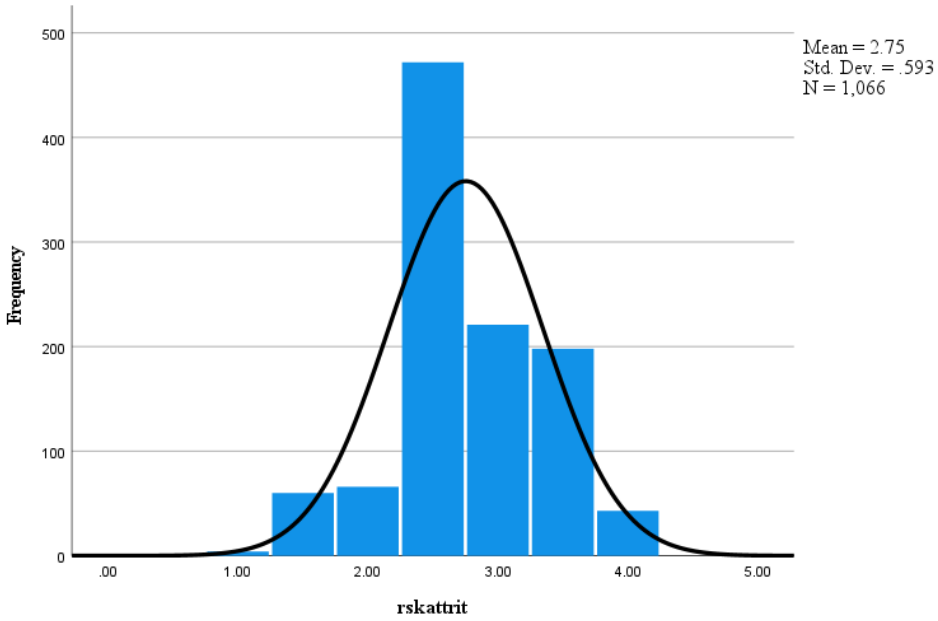


Figure 4

Histogram with Normal Curve Superimposed CRS 2020



Methodological Rationale

Testing assumptions prior to data analysis was critical to provide that the results of the analysis would provide for accurately drawn conclusions from the analysis. Once assumptions were analyzed, the main data analyses were conducted. The chosen method of analysis for this study was a hierarchical linear regression, followed by extrapolation using COVID-19 data.

Hierarchical Linear Regression

Hierarchical linear regression analysis determines if certain predictor variables influence the criterion variable. By using a hierarchical model, predictor variables were entered into the regression equation in steps, creating a new model as each variable group is input. This approach allowed for control of the effects of different covariates and to examine possible correlational effects of predictor variables on the criterion variable. This type of predictive model, critical for

translating quantitative information into quantitative predictions, can be paired with either interpolation or extrapolation as a means of extending predictions beyond the scope of the original data (Bartley et al., 2019). Conn et al. (2015) formulated a working definition of extrapolation as "making predictions that occur outside of a generalized independent variable hull (gIVH), defined by the estimated predictive variance of the mean at observed data points" (p. 2). This definition gives license to making predictions that may be interpolative (occurring inside the gIVH) or extrapolative (occurring outside the gIVH). Hierarchical linear regression (unstandardized) is represented by the equation:

$$\hat{Y} = a + b_1x_1 + b_2x_2 + ... + b_ix_i$$

In this equation, $\hat{Y}$ represents the predicted value of the criterion variable, a represents the regression constant, and b represents the regression coefficients as calculated through the least squares procedure. Analysis of the completed model will determine proportions of variance accounted for by each variable and their relative influence on the model.

Extrapolation with the Regression Model

Bartley et al. (2019) concluded that while there are inherent risks to making extrapolations beyond the scope of the available data, researchers frequently are called upon to use extrapolation to make predictions about potential impacts of policies or procedures. Hahn (1977) warned that assumed relationships must exist in the region of extrapolation so predictions are not biased; therefore, it is imperative to justify extrapolated relationships both statistically and by physical inspection. O'Reilly (1975) characterized extrapolation as an "unbiased estimation of the random behavior of the future observation" (p. 219). Highlighting the understanding that variance increases in regression as estimates lie further from the center of the model, O'Reilly (1975) further indicated that unbiased estimation is possible as long as the

examined relationships fall into the region of extrapolation. Likewise, Snee (1977) maintained that extrapolation by new data to test regression models is an accepted method of determining the validity of the model. The use of extrapolation in artificial intelligence frameworks has further validated the use of such techniques for predicting behaviors and responses (Saha et al., 2021). Therefore, a hierarchical linear regression was conducted to evaluate the predictability in the change of the criterion variable, teacher risk of attrition, which can be determined by the predictor variables: teacher-related factors and job-related factors. Then, extrapolation was used to estimate the impact of COVID-19 on the variables and make predictions about teacher risk of attrition during COVID-19.

Chapter IV

Results

The purpose of this quantitative study was to explore the potential impact of the COVID-19 pandemic on teacher attrition as related to teacher well-being and job satisfaction. A secondary analysis of data from the TALIS 2018 teacher survey was conducted using a hierarchical regression technique to increase the predictive power of the model. Then, data from the CRS 2020 teacher survey were tested in the model to extrapolate the impact of COVID-19 on teacher risk of attrition. The predictor variables included both teacher-level factors and job-related factors. The criterion variable was teacher risk of attrition as measured by teacher intent to leave the profession. A hierarchical multiple regression study was conducted to predict the potential impact of COVID-19 on the level of teacher attrition and to investigate the relationship between the criterion variable, teacher risk of attrition, and two groups of predictor variables, teacher-level factors and job-related factors. Prior to analyzing the relationships between variables from the two studies, selected demographics were examined to provide a comparison of the two participant groups. In addition to demographic analysis, descriptive statistics for both the TALIS 2018 and the CRS 2020 were evaluated. It was interesting to note that the gender composition of both participant groups was similar with both participant groups representing the female-heavy teacher population of the United States. Furthermore, the distribution of teachers across the different ranges of number of years at the current school, while initially appearing vastly different, overall indicated that a majority of teachers in the United States have served 10 years or less at their current school.

Table 11

Descriptive Statistics

	TALIS 2018		CRS 2020	
	M	*SD*	*M*	*SD*
RSKATTRIT	8.1361	4.93657	2.75	.907
ICTPREP	1.36	.506	.79	.506
YEARS	3.53	1.88	3.35	1.97
SATIS	3.19	.715	3.42	.624
AGE	3.53	1.194	3.84	1.242
STRESS	2.0865	.34127	2.25	1.009
REGANDDIS	1.59	.698	1.31	.703

Note. TALIS 2018: *N=2,133. p*<.005 1. CRS 2020: *N* = 1,067, *p*<.005.

Analysis of Findings

A hierarchical multiple regression analysis was conducted using Statistical Package for the Social Sciences (SPSS, *v. 27*). Additional testing included a Pearson Product-Moment Correlation (*r),* which was conducted to investigate any potential correlations between the criterion variable and the predictor variables. Furthermore, an ANOVA was conducted to analyze the differences between the variance accounted for by the regression model(s) and the error. Effect size was calculated as the Coefficient of Determination (r^2). Additionally, Cohen's f^2 method was used as another measure of effect size. This method is particularly effective for statistical procedures such as ANOVA and multiple regression. The formula used for calculating Cohen's f^2 was: $f^2=R^2/1-R^2$ where R^2 represented the squared multiple correlation. Predictor variables were entered using a stepwise method. Model one analyzed the teacher-level factor predictor variables of teacher age, years in the profession, ICT preparedness, job satisfaction, and dissatisfaction and regret with the profession with respect to the criterion variable of teacher risk of attrition. Model two analyzed the same variables of model one with the addition of an additional predictor variable, the job-level factor of stress.

Testing of Hypotheses

For the TALIS data set, a one-way ANOVA was conducted to determine whether the variance the regression model accounted for was significantly greater than the error in the regression model. To reduce the chance of making a Type I error, an ANOVA was performed instead of multiple t-tests. The ANOVA values revealed that both models tested were statistically significant, Model One - $F(4, 2114)$, $p<.005$ 1 and Model Two - $F(6, 2112)$, $p<.005$. Results of the ANOVA indicated that the two models were statistically significantly different from each other, which means that there is greater than a 99.5% chance that there is a significant relationship between the criterion and predictor variables.

Table 12

One-Way Analyses of Variance

Model		Sum of Squares	*df*	Mean Square	*F*	*p*
1	Regression	18716.422	5	3743.284	239.467	<.005[b]
	Error	33264.282	2128	15.632		
	Total	51980.704	2133			
2	Regression	18867.063	6	3144.510	201.982	<.005[c]
	Error	33113.642	2127	15.568		
	Total	51980.704	2133			

Notes. N = 2,133, α = .05

a. Dependent Variable: RSKATTRITION

b. Model 1 Predictors: (Constant), ICTPREP, AGE, YEARS

c. Model 2 Predictors: (Constant), ICTPREP, AGE, YEARS, SATIS, STRESS, REGANDDIS

Pearson Product-Moment Correlations

A Pearson Product-Moment Correlation between the criterion variable and the predictor variables was conducted to examine any interrelationships that existed between the criterion variable and the predictor variable. Results of the Pearson Product-Moment Correlation for the

criterion variable and the predictor variables indicated levels of correlation ranging from low to moderate according to the values Cohen (1988) proffered. All of the predictor variables that were examined were statistically significant with respect to teacher risk of attrition as measured by the criterion variable, teacher risk of attrition (RSKATTRIT). The *r*-values corresponding to the two models were both significant at the α= .05 level. Out of the predictor variables, age and number of years in the profession were highly correlated, which is logical since number of years in the profession will increase with increase in age. All other variables demonstrated low correlations between variables and low to moderate correlations to the criterion variable.

Table 13

Correlation Matrix TALIS 2018

Variable	RSKATTRIT	YEARS	ICT PREP	SATIS	AGE	STRESS	REGANDDIS
RSKATTRIT	1.00						
YEARS	-.493	1.00					
ICTPREP	-.130	.156	1.00				
SATIS	.127	.067	-.036	1.00			
AGE	-.549	.698	.130	.081	1.00		
STRESS	-.145	.093	.061	-.140	.079	1.00	
REGANDDIS	-.161	-.014	-.007	-.429	-.039	.182	1.00

Note. TALIS 2018: *N*=2,133. *p*<.005 1. CRS 2020: *N* = 1,067, *p*<.005

Analysis of Effect Size

When conducting a hierarchical multiple regression, the coefficient of determination (r^2) value reveals the proportion of variance in the criterion variable that was accounted for by the predictor variables. It is the effect size. Any unaccounted-for variance was considered error. Values for *R* indicated a moderate correlation between the criterion variable and the predictor variables in both models. The adjusted R^2 values for model one revealed that 34.9% of the variance in teacher risk of attrition was accounted for by the predictor variables of ICT

preparation, teacher age, and number of years in the profession. The predictors in Model Two provided for 36.6% of the variance in teacher risk of attrition with the addition of job-related factors of hours worked per week, reduced mental health, and reduced physical health. Therefore, model two accounted for 1.7% more variance in the dependent variable than model one alone. Further effect size testing was completed using Cohen's f_2. For Model One, the f^2 value was .536 and for Model Two, the f^2 value was .577. Cohen (1948) identified any value above 0.35 for f^2 a large effect size; therefore, the effect size for both models is large.

Table 14

Effect Size TALIS 2018

				Std. Error of the	Change Statistics				
Model	*R*	R^2	Adjusted R^2	Estimate	R^2 Change	*F* Change	df_1	df_2	*p*
1	.600[a]	.360	.359	3.95370	.360	238.467	5	2,128	<.005
2	.602[b]	.363	.361	3.94566	.003	9.676	1	2,127	.002

Notes. N = 2,133, α = .05

a. Dependent Variable: RSKATTRITION

b. Model 1 Predictors: (Constant), ICTPREP, AGE, YEARS

c. Model 2 Predictors: (Constant), ICTPREP, AGE, YEARS, SATIS, STRESS, REGANDDIS

The Regression Model (TALIS 2018)

A hierarchical multiple regression study was conducted to determine if job-related factors improved the prediction of teacher risk of attrition over and above teacher-related factors alone. Model one tested teacher-related factors while model two tested both teacher-related factors and job-related factors. Variables were entered using a stepwise approach to determine the best fitting model. Regression results are displayed in Table 15.

All predictor variables were significant at the $p<.05$ level in both models. Examination of the test statistic ($t = b_i/s_{bi}$) revealed that the test statistic for each predictor variable exceeded the

critical value for the test statistic at α=.05 level as the absolute value of each test statistic was beyond the 1.654 value for the 2,132 degrees of freedom. Thus, the predictor variables were significant contributors to the regression. The resulting models for the hierarchical regression were:

Model 1: $\hat{Y} = -.397x_1 - .211x_2 + .114x_3 - .133x_4 - .048x_5$

Model 2: $\hat{Y} = -.403x_1 - .208x_2 + ..098x_3 + .098x_4 - .046x_5 - .059x_6$

Table 15

TALIS 2018 Regression

		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for *B*	
Model		*B*	Std. Error	β	*t*	*p*	Lower Bound	Upper Bound
1	(Constant)	15.477	.658		23.518	<.0005	14.186	16.767
	YEARS	-.472	.171	-.048	-2.753	.006	-.808	-.136
	ICTPREP	-.111	.013	-.211	-8.643	<.0005	-.136	-.086
	SATIS	.788	.133	.114	5.921	<.0005	.527	1.049
	AGE	-1.643	.101	-.397	-16.328	<.0005	-1.840	-1.446
	REGAND DIS	-.941	.136	-.133	-6.926	<.0005	-1.208	-.675
2	(Constant)	16.983	.816		20.812	<.0005	15.383	18.583
	YEARS	-.447	.171	-.046	-2.608	<.0005	-.783	-.111
	ICTPREP	-.109	.013	-.208	-8.538	.047	-.135	-..084
	SATIS	.675	.138	.098	4.889	<.0005	.405	.945
	AGE	-1.665	.101	-.403	-16.539	<.0005	-1.862	-1.467
	REGAND DIS	-.857	.138	.098	-6.198	<.0005	-1.129	-.586
	STRESS	-.560	.180	-.059	-3.111	.002	-.913	-.207

Note. TALIS 2018: *N*=2,133. p<.005 1. CRS 2020: *N* = 1,067, p<.005.

Extrapolation Using CRS 2020 Data

Using the mean for the corresponding variables in the CRS 2020 data set, a predicted value for the criterion variable ($\hat{Y}$) to evaluate the impact of COVID-19 on teacher attrition. Data for CRS 2020 were collected during the 10^{th} month of the COVID-19 pandemic and reflected the impressions of teachers during the pandemic. Values were inserted into Model 2 as this model accounted for the greatest proportion of variance in the criterion variable. The mean value for the criterion variable in the TALIS 2018 data set was 8.137. Using the CRS 2020 data in the model 2 indicated a predicted mean increase of .82% in the risk of teacher attrition due to the impact of COVID-19. This results in a predicted rate of the risk of attrition of 8.201.

To further explore the predictive value of the regression model, selected values, representative of different age groupings, were used in the equation. Test one evaluated the predicted risk of attrition for a teacher under 30 years of age with one year of experience, exemplary ICT preparedness, a moderate level of job satisfaction, a low level of regret and dissatisfaction with the profession, and a low level of stress. This individual had a predicted 8.66% greater risk of attrition than a similar individual would have had before COVID-19. Test two evaluated the predicted risk of attrition for a teacher in the 30-49 year age bracket with seven years of experience, satisfactory ICT preparedness, a moderate level of job satisfaction, a high level of regret and dissatisfaction with the profession, and a moderate to high level of stress. This individual had a predicted 16.15% greater risk of attrition than a similar individual would have had before COVID-19. Finally, test three examined the predicted risk of attrition for a teacher with over 50 years of age with 15 years of experience, a low level of ICT preparedness, a high level of job satisfaction, a low level of regret and dissatisfaction with the profession, and a

moderately low level of stress. This individual had a predicted 19.89% greater risk of attrition than a similar individual would have had before COVID-19.

Chapter V

Conclusions

The choice of teaching as a career path is a multi-faceted decision with long-reaching effects. The problem of teacher attrition is one of the key issues facing schools. Losing qualified teachers contributes to insufficient numbers of teachers in relation to number of students in many schools (Doherty, 2020). Gallant and Riley (2017) determined that high-quality teachers significantly impact student achievement; moreover, schools that are suffering from teacher exodus typically see a marked decrease in student achievement. Teacher attrition is related to other school issues such as increased class size and disruption of quality instruction while replacement teachers are hired. Students with low socioeconomic backgrounds suffer disproportionately as compared to students that are not from low socioeconomic backgrounds when teachers leave the profession. In addition, schools must bear a large financial burden to replace teachers who leave (Doherty, 2020). Researchers estimate that this financial burden may be as high as $20,000 for every teacher who leaves (Sutcher et al., 2016). The challenge of teacher attrition has been recognized internationally and is escalating.

Carver-Thomas and Darling-Hammond (2017) reported that the total national rate of attrition for all U.S. teachers was 8% annually as of 2018. This percentage may appear to be miniscule, but it equates to approximately 304,000 teachers out of an estimated 3.8 million teachers leaving each year. In addition, approximately 8% of teachers transfer between schools each year, resulting in an overall teacher turnover rate of 16%. Sutcher et al. (2016) reiterated that the real issue underlying teacher attrition is not an issue with recruitment practices but with retention policies. While teacher attrition is a perplexing phenomenon, many factors consistently emerge as perpetual pieces to the puzzle. Among these factors, compensation, teacher

preparation and support, workplace conditions, school characteristics, teacher characteristics, and subject area taught emerge as some of the broad categories that influence a teachers' decision to leave the profession.

Efforts were made in this study to predict the potential impact of the COVID-19 pandemic on the risk of teacher attrition. Secondary data analysis of TALIS 2018 and CRS 2020 was conducted to evaluate teacher risk of attrition in light of teacher-level factors and job-related factors. Teacher-level factors examined included ICT preparedness, total years of teaching experience, job satisfaction, regret and disappointment with the profession, and age, while job-level factors added workplace stress as a dimension to the analysis. The criterion variable, teacher risk of attrition, was measured by proxy factors of years desiring to remain in the profession and desire to change to a different school. Hierarchical multiple regression was conducted to evaluate the predictability in the change of the criterion variable, teacher risk of attrition, which could be determined by predictor variables in two groups. A Pearson Product Moment Correlation was conducted to determine if a relationship existed between teacher risk of attrition, Group one (teacher-level factors), and Group two (teacher-level factors and job-related factors inclusive). The Coefficient of Determination (r^2) and Cohen's f_2 were calculated to assess what portion of the variance in teacher risk of attrition was due to the different models and how strong the correlation was between the two models. The standard error of the regression was inspected to assess the precision of the predictions. Cogitation of the elements this study identified as having significant relationships with teacher attrition could be instrumental in helping schools, school districts, and education agencies hone their efforts to reduce the rate of teacher attrition.

Limitations

A significant limitation to this study was the availability of data related to teacher level and school level factors during COVID-19. The CRS 2020 provided insight into these issues on a national level although the sample size was approximately one-half the United States sample size in the TALIS 2018. However, extrapolating the CRS 2020 data using the regression model from the TALIS 2018 data provided insight into further research possibilities in this area of study. A second limitation was the inability to collect longitudinal data. The COVID-19 pandemic surfaced in the United States during the early months of 2020; therefore, any collected datum were point in time specific. Another limitation to this study was the lack of data in either study about teachers' race and ethnicity. With social justice issues at the forefront of educational research, examining the impact of race and ethnicity as one of the teacher level predictor variables would be an interesting study; however, race and ethnicity data are not available in the TALIS 2018 data set, again opening the door for further research. An additional limitation was that both the TALIS 2018 and the CRS 2020 relied on self-reported data which can be inherently biased.

Significant Relationships

Three research questions were addressed:

RQ1: To what extent do teacher-related factors affect teacher risk of attrition?

RQ2: To what extent do teacher-related factors and job-related factors affect teacher risk of attrition?

RQ3: What are the implications of COVID-19 on teacher risk of attrition?

RQ1

With regards to what extent teacher-related factors affect teacher risk of attrition, the teacher-related factor of age was the predictor variable with the highest correlation to the criterion variable in model one (r = -.538). The standardized coefficient for age was -.447 which indicated that the lower the age group of a teacher, the higher the risk of attrition. For every negative change in teacher age group, the risk of teacher attrition increases by a factor of .404. Conversely, as teachers' age increases between age groups, the corresponding risk of teacher attrition decreases by a factor of .404. The relationship between age and risk of attrition indicated that teachers in younger age groups have a higher risk of attrition and that risk declines as age increases. It is interesting to note that the predictor variable, years of experience, also demonstrated a moderate correlation with the criterion variable (r = -.488) and was highly correlated with age group (r=.701). These predictor variables corresponded to each other logically because age increases as years of service increases; however, the variables did not exhibit multicollinearity. On the contrary, the predictor variables of age and years of service were complementary and added to the strength of the model; however, a lower years of service group was only associated with a higher risk of attrition by a factor of -.111 This indicated that as teachers move up in the years of service groups, teacher risk of attrition decreases by a factor of -.111.

Finally, the predictor variable of job satisfaction demonstrated a positive relationship on teacher risk of attrition which was an unexpected result. It appeared by this study that in conjunction with the other factors tested, higher job satisfaction was associated with an increase in risk of attrition. As correlation does not imply causation, further study is merited to explore this relationship especially in light of the nebulous circumstances surrounding the COVID-19 pandemic.

RQ2

With regards to what extent teacher-related factors and job-related factors affect teacher risk of attrition, the addition of the predictor variable of stress accounted for an R^2 change of .003. Stress demonstrated a low correlation with the criterion variable (r=-.099). Additionally, the inclusion of this variable in model two resulted in an increase in the correlation coefficients for the age and ICT Prep predictor variables and a decrease in the correlation coefficient for the years in the profession, regret and dissatisfaction, and job satisfaction predictors.

RQ3

With regards to the implications of COVID-19 on teacher risk of attrition, using model two as the predictive model since it accounted for the most variance in the criterion variable or teacher risk of attrition, mean values for the predictor variables from the CRS 2020 data set that corresponded to the predictor variables in the TALIS 2018 data set were inserted to predict the risk of teacher attrition due to the impact of COVID-19. Comparison of the mean value for teacher risk of attrition from the TALIS 2018 data set to the predicted value using CRS 2020 data estimated a 19.12% predicted increase in teacher attrition due to the impact of COVID-19. If the average rate of teacher attrition outside of COVID-19 is 8%, which equates to approximately 304,000 teachers each year based on the latest estimate of 3.5 million teachers in the United States (Carver-Thomas & Darling-Hammond, 2017), and that rate increases by 19.12%, this will equal approximately a 9.53% rate of attrition, which calculates to around 362,140 teachers leaving the profession. This is an increase of 58,140 teachers predicted to leave the profession due to COVID-19. Increased teacher attrition prior to COVID-19 caused substantial financial costs for school districts with expenses estimated to range between $9,000 and $20,000 depending on the district (Carver-Thomas & Darling-Hammond, 2017). Based upon the predicted increase in the risk of teacher attrition due to COVID-19, this could result in

increased expenditures totaling between $500,000 and over $1,000,000, which could substantially impact school budgets.

Conclusions

The results of this study confirmed that teacher attrition is a multi-faceted condition. Model one accounted for 35.8% of the variance, but model two accounted for 36.1% of the variance in the risk of teacher attrition. While the .3% difference between the two models is small, it was statistically significant; therefore, model two was used for extrapolation. One of the goals of a hierarchical regression is to account for as much variance in the criterion variable as possible. Model two, with the inclusion of the job-related factor of stress to model one which evaluated the teacher-level factors of teacher age, years in the profession, ICT preparation, job satisfaction, and regret and dissatisfaction with the profession, accounted for more variance than model one so it was the stronger model. However, since the model only accounted for 36.1% of the variance in teacher risk of attrition, more factors such as working conditions, teacher ethnicity, school climate, school leadership, salary, and self-efficacy should be investigated in conjunction with teacher risk of attrition to further identify correlating factors and more completely account for the variance in the risk of teacher attrition.

Teacher attrition is a serious dilemma in the United States and the COVID-19 pandemic is a confounding circumstance that has far-reaching effects on the potential for teachers to leave the profession. The most recent projections by the U.S. Department of Education (2020) estimated a teacher deficit of more than 150,000 by 2025; however, these projections were calculated and revised between 2004 and 2013, a time period well outside of the influence of COVID-19. Therefore, these projections may substantially underestimate the teacher deficit related to COVID-19 influences. This estimated teacher shortage may have dire consequences

for students, for the workforce, and for the economy. When schools lack sufficient numbers of qualified teachers, student achievement is threatened and educational inequities become more pronounced (Kini & Podolsky, 2016; Ronfeldt & Wyckoff, 2013). Teacher attrition is not an evenly dispersed phenomenon; on the contrary, it is a phenomenon that is unequally distributed across socioeconomic lines (Sutcher et al., 2013). Taking into account this disparity suggests that the problem of teacher attrition is direr than formerly thought as it may widen educational gaps and inequities, thus threatening academic achievement even more stolidly.

Furthermore, as the teacher workforce destabilizes further by increased attrition, teacher quality will be diminished due to schools being forced to hire teachers who are not qualified for positions, teachers who are pursuing alternative pathways to licensure, and teachers who are inexperienced in order to fill vacancies. The Office of Postsecondary Education (2016) reported that the number of students enrolled in teacher preparation programs has been in a state of decline since 2010 by over 300,000 students. Paired with the increasing rate of teacher attrition, this insinuates a potential teacher deficit in the coming years of cataclysmic proportions. Furthermore, as tests of the model using cases of individuals in the first year of teaching indicated, those individuals were predicted to have a 25.77% greater risk of attrition than that group had prior to COVID-19. Educational agencies must focus on the delicate first five years of service in order to stop beginning teacher attrition. If these novice teachers leave the profession, the impact of attrition due to retirement will become more pronounced as there will be fewer experienced teachers available to fill gaps. The only way to reverse this deficit is to focus on radically changing policies and procedures so that teacher retention rates will outweigh teacher attrition rates and the educational system can recover. The correction will take time, but it will be time well spent that will benefit all stakeholders positively.

Policy Implications

Teaching is governed by a multitude of different entities from local school administrators up to federal education officials. The implications for policy changes affect each level of school governance. From a federal standpoint, policies such as the Every Student Succeeds Act (ESSA, 2015) appear to give states more flexibility in areas such as educational standards and testing while encouraging state and local education agencies to set and monitor accountability measures. With the shift to personal protection policies due to COVID-19, it is recommended that the U.S. Department of Education review the current iteration of the ESSA and make revisions to provide for accountability while adjusting practices such as yearly standardized testing. If the goal of education is for students to learn, and the onus lies on teachers to foster learning, then small adjustments to policy that would lessen stressors on teachers could begin to help reduce the rate of teacher attrition.

From a state and local perspective, education agencies need to make concerted efforts to investigate underlying causes of teacher attrition. This could be accomplished by requiring teachers who are leaving a position to complete an exit survey, an exit interview, or both. Data collected from these instruments would provide insight into the reasons for teacher attrition at the school, district, and state levels. As data are collected, state and local agencies will be able to revise existing policies to better serve teachers so that the rate of attrition might decrease. In addition to this, coordinating the interpretation and enforcement of federal, state, and local policies needs to reflect uniformity and consistency. It is difficult to make policy changes when schools are under the control of the local district; however, the teachers are in the schools and that is where they need to get the highest level of support. As COVID-19 manifested, teachers were required to do more things that required more time such as: transitioning from traditional

teaching to remote teaching; monitoring students remotely for signs of anxiety and fear about the pandemic; and close learning gaps created by COVID-19 closures that occurred at the end of the 2019-2020 school year, yet teachers did not receive more compensation or more benefits or more respect (Burnette & Will, 2020). On the contrary, since a majority of a teacher's salary comes from tax revenue and that revenue has been paralyzed by COVID-19, teacher salary increases are in jeopardy (Burnette & Will, 2020). Many states have not even been able to provide step increases or cost of living increases which in effect has devalued teachers. Therefore, the primary responsibility of local education entities is to create salary structures that will accurately reflect the education level of teachers and the number of hours they work.

From the school-level perspective, administrators must endeavor to give the same measure of grace to teachers that they are expecting teachers to extend to students during the pandemic, or any critical situation. Even small changes like protecting teacher planning periods and lunchtimes, reducing the number of faculty meetings, simplifying procedures for lesson plan submission, and reducing before and after school duties will go a long way to making teachers feel valued, reduce teacher stress, and potentially reduce teacher attrition (Sutcher et al., 2013). By the same token, encouraging administrators to forego micromanaging and foster autonomy in their staff will increase teacher self-efficacy, reduce stress, and reduce attrition (Hughes et al., 2015). Additionally, implementing programs to increase teachers' ICT proficiency would help reduce attrition by giving teachers the tools they need to perform expected duties. Such training and support could improve teacher job satisfaction and reduce the levels of regret and dissatisfaction in the profession by enabling teachers to perform tasks more efficiently.

. It is recommended that stakeholders including school board members, administrators, and parents focus on learning practical ways to support both faculty and students so they may be

better prepared in the event of any future crises. Such training and support could improve teacher job satisfaction and reduce the levels of regret and dissatisfaction in the profession by enabling teachers to perform tasks more efficiently. Herman et al. (2020) determined that teacher stressors manifest through three integrated paths related to teachers' coping skills, their classroom competence, and their operational context including district policies, support from administrators, and other practices that extend outside of this context. Additional stressors that have manifested from the COVID-19 crisis include lack of resources for teachers to use to emotionally support student reactions to the crisis, lack of technology resources and training, anxious and overwhelmed parents attempting to navigate online learning, and lack of strategies to help teachers manage relationships students, parents, colleagues, administrators, and family while trying to provide exceptional learning opportunities and socialization for students (MacIntyre et al., 2020). It would behoove school districts and administrators to implement a proactive program to help teachers be better equipped to respond to crisis situations. Furthermore, by being proactive rather than reactive, school districts may be able to effectively reduce the rate of teacher attrition.

Recommendations for Further Research

Due to the scant amount of existing research regarding COVID-19 and teacher attrition, using this study as a springboard for further research is recommended. Examination of additional cofactors to teacher attrition such as compensation, subject area taught, school climate, working conditions, and leadership practices would provide more actionable evidence that could be used to help retain teachers who may have otherwise left the professions. Investigating specific stressors related to crises such as COVID-19 would be appropriate. It would help educational stakeholders be better prepared to care for teachers in the event of a crisis. Expanding this study

to examine data disaggregated by state with a focus on teacher ethnicity, socioeconomic status (SES) for the state and teacher population, and teacher-student ratios could shed light on teacher attrition trends as related to state parameters. Teacher attrition on a global scale would be an interesting future study incorporating multiple ways to examine the problem of teacher attrition in different cultural settings.

It is also recommended to expand this study by utilizing a longitudinal mixed-methods approach. This study could be accomplished over several school years by collecting longitudinal data and incorporating focus groups. Personal interviews to discern experienced teacher attitudes and feelings toward the profession may provide insightful and beneficial data. Teasing out information as to the personal reasons teachers leave the profession goes deeper than responses to survey items. Additionally, following a group of teachers for several years will give insight into how teacher attitudes and feelings towards the profession change over time, which may give educational leaders keener acumen when attempting to reduce teacher attrition.

Final Thoughts

This study examined the impact of teacher-related factors that explained a significant proportion of variance in teacher risk of attrition. Stress as a job-related factor accounted for a significantly greater proportion of variance in teacher risk of attrition than the teacher-related factors alone. Finally, teacher- and job-related factors were investigated in light of COVID-19 to predict potential teacher risk of attrition due to COVID-19. The secondary data set analysis estimated the risk of teacher attrition will increase dramatically due to the impact of COVID-19. Knowing that crises are inevitable and can impact the United States' education system, it is paramount that communities, districts, and local governments prepare a step-by-step plan to strengthen, equip, and motivate the teaching workforce. Maxwell (2005) said, "If you're

proactive, you focus on preparing. If you're reactive, you end up focusing on repairing" (p. 19). Combating teacher attrition must be shifted from reacting to the problem and trying to repair it to anticipating the problem and focusing on preparing for every aspect of it in advance.

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Appendix: Institutional Review Board Approvals

Austin Peay State University
INSTITUTIONAL REVIEW BOARD

Date: 1/18/2021

Re 21-003: **Implications of COVID-19 on Teacher Well-Being and Workload Stress as Related to Teacher Risk of Attrition**

Dear Dr. McConnell and Ms. Duggard,

We appreciate your cooperation with the human research review process. This letter is to inform you that study 20-003 has been reviewed on an expedited level. It is my pleasure to tell you that your revised application is approved.

This approval is subject to APSU Policies and Procedures governing human subject research. The IRB reserves the right to withdraw approval if unresolved issues are raised during the review period. Any changes or deviations from the approved protocol must be submitted in writing to the IRB for further review and approval before continuing.

This approval is for one calendar year and a closed study report or request for continuing review is required on or before the expiration date, 1/18/2022. If you have any questions or require further information, you can contact me by phone (931-221-7059) or email (youngh@apsu.edu).

Sincerely,

Harold A. Young, Ph. D. Chair, APIRB

AUSTIN PEAY STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD

Date: 3 /4/2021

IRB 20-003 "Implications of COVID-19 on Teacher Well-Being and Workload Stress as Related to Teacher Risk of Attrition."

Dear Dr. McConnell and Ms. Duggar,

We appreciate your cooperation with the human research review process. This letter is to inform you that the study **20-003** was reviewed on an expedited level. It is my pleasure to inform you that your application to amend has been approved.

This approval is subject to APSU Policies and Procedures governing human subject research. The IRB reserves the right to withdraw approval if unresolved issues are raised during the review period. Any changes or deviations from the approved protocol must be submitted in writing to the IRB for further review and approval before continuing.

The approval remains for one calendar year and a closed study report or request for continuing review is required on or before the original expiration date of 1/18/2022. If you have any questions or require further information, you can contact me by phone (931-221-7059) or email (youngh@apsu.edu).

Sincerely,

H.A. Young
Harold 'Harry' Young

Chair, APIRB