

EXAMINING EXPLANATORY STYLE'S RELATIONSHIP TO EFFICACY
AND BURNOUT IN TEACHERS

by

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ABSTRACT

Explanatory style, the ways in which people explain both good and bad events (Seligman, 1998), shares theoretical components with teachers' sense of efficacy (Tshannon-Moran & Woolfolk-Hoy, 2001), which is how capable teachers feel about teaching. According to Bandura (1994), efficacy informs explanatory style, but this assertion does not explain how hard-fought classroom mastery experiences are overcome with little or no efficacy. The three studies presented here suggest that explanatory style mediates teachers' sense of efficacy in predicting burnout in teachers, providing a way to develop efficacy using positive and negative events.

Study one provides a conceptual overview of teacher self-efficacy, explanatory style and teacher burnout research and examines the theoretical relationships among these constructs. This study provides the theoretical foundation for studies two and three.

In study two, the Educator Attributional Style Questionnaire (EdASQ), based on the more general Attributional Style Questionnaire (ASQ), was developed to measure teachers' explanatory style. Study two surveyed 350 teachers from three school districts, two of which were used as a cross-validation group for comparison with the other district. The items of EdASQ have high internal reliability and convergent validity, for it correlates with the Rosenberg Self-Esteem Scale (RSES) in a similar fashion as the ASQ. Confirmatory factor analysis supports two distinct measurement models for the EdASQ, one for positive event items and one for negative event items.

Study three tests the relationships among explanatory style, teachers' sense of efficacy and teacher burnout. The responses from all the teachers from study two were used for this study.

Structural models where explanatory style is a mediator for teachers' sense of efficacy in predicting burnout, as measured by the Oldenburg Burnout Inventory (OLBI) and the number of upcoming professional development hours teachers expect to participate in, were superior to the alternative models. The models suggest that pessimists' explanations of good events mediate their efficacy in predicting burnout while optimists' explanations of bad events mediate their efficacy in predicting burnout. Future research is discussed, including the development of teacher training that capitalizes on explanatory style's role in building efficacy to avoid burnout in teachers.

DEDICATION

This dissertation is dedicated to my family, who loved and supported me throughout this process. I am a better person for their being in my life. Thanks to them for letting me in theirs.

LIST OF ABBREVIATIONS AND SYMBOLS

a	Cronbach's index of internal consistency
χ^2	Chi-square: a goodness-of-fit statistic that shows the difference between the observed covariance matrix and the model covariance matrix.
CFI	Comparative Fit Index: also known as the Bentler Comparative Fit Index, which compares the existing model with an independent model.
CI	Confidence interval: the range of numbers which is likely to contain the true parameter value.
df	Degrees of freedom: number of values free to vary after certain restrictions have been placed on the data
e.g.	<i>exempli gratia</i> (meaning "for example")
et al	<i>et alia</i> (meaning "and others")
F	Fisher's F ratio: A ratio of two variances
i.e.	<i>id est</i> (meaning "that is")
M	Mean: the sum of a set of measurements divided by the number of measurements in the set
p	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
r	Pearson product-moment correlation

RMSEA	Root Mean Square Error of Approximation: discrepancy per degree of freedom
t	Computed value of t test
>	Less than
=	Equal to
%	percent

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I was inspired to pursue this research after reading *Learned Optimism* by Martin E.P. Seligman. Reading how an optimistic explanatory style helped people facing challenges in multiple venues made me wonder whether this type of style influences the lives of teachers and students. I appreciate the extensive research literature in explanatory style that continues to reinforce my belief that a teacher with an optimistic explanatory style is a good thing indeed.

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CHAPTER 1

INTRODUCTION

Education is a service industry, much like medicine. The patients in education are the children who must attend school each day and the parents who trust the system to prepare their children for the world beyond school. The providers and practitioners in education are the teachers, administrators, counselors, and paraprofessionals who try to figure out each day what to do with the children with whom they are entrusted. Just as in medicine, there are aspects of science and art to teaching. The science of teaching involves buzzwords like “best practices” and tried-and-true strictures like standardized tests. The art of teaching involves the interaction of personalities, the nuance of charisma, and the intuition of appropriateness. Just as in medicine, researchers spend countless hours exploring these scientific and artistic domains of teaching, mainly to conclude that it’s all complicated at best. Teaching is the interaction of science and art, creating a nifty Venn diagram whose lines are fuzzy at best. To isolate any one variable as the cause of another is difficult and rare in medicine, and it’s almost impossible for education. However, such a quixotic goal must not deter the adventure. To improve the service provided by education, we must investigate the variables involved.

This dissertation was born with the desire to uncover the science behind how an art variable – the way teachers think about classroom events – affects teachers’ levels of burnout. The science of how people think and explain events that occur to them – known variously as attribution theory or explanatory style – is well researched in other domains such as clinical psychology, sports, and motivation (Seligman, Nolen-Hoeksema, Thornton & Thornton, 1990;

Seligman, Reivich, Jaycox, & Gillham, 1995; Seligman & Schulman, 1986). Some subsets of these theories have been examined in education – namely Elliott and Dweck’s (1988) performance orientation literature or Tschannen-Moran and Woolfolk-Hoy’s (2001) teacher’s sense of efficacy research. However, in all this literature, little research has explored how teachers explain good and bad events within the framework of explanatory styles. Intuitively, it seems as though the way a teacher thinks about good and bad events in the classroom would affect the aspects of the school day, but the certainty of this assertion is unexamined. This research hopes to shed a light on this intuition to see if it can stand the scrutiny.

Positive Psychology and Explanatory Style

In preparation for creating curricular materials for positive psychology, I did extensive reading of seminal works in the field and discovered that many of the questions I had about the science of teaching could be addressed by areas already vibrant in positive psychology. I was especially drawn to explanatory style, which is defined as the ways in which people explain good and bad events that occur in their lives (see Seligman, 1998, for a review). Simply put, explanatory style research demonstrates that the types of explanations people give for good and bad events predict whether a person will feel helpless or will persist in the face of failure. Patterns of explanatory style are based on the learned helplessness model of depression, reformulated by Abramson, Seligman, and Teasdale (1978), which proposes that people will attribute their helplessness in the face of uncontrollable circumstances to a particular cause. People then determine whether the cause will have a chronic, broad, and detrimental impact to future self-esteem and agency. The explanatory style patterns of people in studies of learned helplessness fell along three dimensions – global/specific (projection of cause across different

situations), stable/temporary (projection of cause across time), and internal/external (projection of cause to internal traits versus external factors) (Seligman, 1998).

Researchers eventually categorized optimists and pessimists as having diametrically opposed explanatory styles of good and bad events (Table 1.1; Peterson & Vaidya, 2001; Seligman, 1998). Pessimistic explanatory style seems to have an impact on the incidence of depression, and by extension, lower academic achievement (e.g., Fazio & Palm, 1998; Hilsman & Garber, 1995; Nolen-Hoeksema, Girgus, & Seligman, 1986; Peterson & Barrett, 1987; Ritchie, 2000; Tiggeman & Crowley, 1993; Yates & Yates, 1995). Seligman (1998) proposes that the explanatory style theory of optimism provides pessimistic people with an avenue to alter their pessimistic thinking patterns to be more optimistic, thus fostering mastery and resilience. For example, studies with middle school children show that retraining pessimistic thinking into optimistic thinking can significantly reduce the incidence of depression (Seligman, Reivich, Jaycox, & Gillham, 1995). In reading Martin E.P. Seligman's book, *Learned Optimism* (1998), I heard my students in his descriptions of depressed patients and Olympic swimmers. I heard pessimism in my students as they got test scores back. They'd say, "I'm so stupid!" or "I never do well in this class!" I began to dispute these proclamations students were making, and they seemed taken aback at my attempts. I would ask them, "Why do you say such things to yourself? Would you allow someone else to say that to you?" I began to think about how a teacher's explanatory style could influence students. Could a pessimistic teacher incite pessimism in her students? Could an optimistic teacher inspire optimism? I realized these were empirical questions that needed to be answered.

Table 1.1

Optimistic vs. Pessimistic Explanatory Style

Type of Explanatory Style	Good Events	Example	Bad Events	Example
Optimistic	Internal	<i>I am a good worker.</i>	External	<i>I had a bad day.</i>
	Stable	<i>I should keep doing well.</i>	Temporary	<i>Next time, I'll do better.</i>
	Global	<i>More good things should happen today.</i>	Specific	<i>This, too, shall pass.</i>
Pessimistic	External	<i>I was just lucky.</i>	Internal	<i>I'm not good at this.</i>
	Temporary	<i>This will not last long.</i>	Stable	<i>This will never get better.</i>
	Specific	<i>Something bad will happen sooner or later.</i>	Global	<i>I'm not good at anything.</i>

As I researched the literature examining explanatory style and teaching, I quickly discovered that little research has been done to examine the explanatory style of teachers. Two studies have explored explanatory style in currently serving teachers, both showing that teachers were generally optimistic (Smith, Hall, & Woolcock-Henry, 2000; Hall & Smith, 1999). I realized that more research needed to be done to establish a baseline of explanatory style in teachers. Explanatory style is related to goal setting, emotional reactions to success and failure, better job performance, and better sports performance (Seligman & Schulman, 1986; Seligman, Nolen-Hoeksema, Thornton & Thornton, 1990). If explanatory style could predict these types of variables for teachers, measures of teacher explanatory style would be useful for implementing programs to keep teachers in the classroom.

A Practical Use for Explanatory Style: Teacher Burnout

One important way explanatory style could affect teaching is through teacher burnout. Burnout has generally been studied as a phenomenon found in human service professions, like teaching. The most widely researched definition of burnout was developed by Maslach (1982), which defines burnout as including feelings of exhaustion, depersonalization, and lack of personal accomplishment. Other researchers suggest the burnout encompasses two overall components – exhaustion and disengagement – which more appropriately reflects a job-demands/job-resources model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). This alternative definition of burnout addresses criticism of the original Maslach (1982) conceptualization by measuring burnout using only negatively worded items and disregarding the weakly correlated personal accomplishment component (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001).

Teacher burnout is one factor contributing to teachers leaving their jobs. The problem of teacher attrition is pressing and troubling. The teaching profession faces attrition rates that vary from 5% to 9% annually (Zumwalt & Craig, 2005), with an overall attrition rate of 40 to 50 percent within 5 years (Ingersoll, 2003). Teacher job dissatisfaction is the second most cited reason for teacher attrition (Zumwalt & Craig, 2005). Teachers feel increasingly powerless to effect change in their classrooms or schools. Teachers regularly report that lack of administrative support as a main reason for feeling dissatisfied and leaving teaching (Baker & Smith, 1997; Boe, Bobbit, Cook, Barkanic, & Maislin, 1998; Ingersoll, 1999). Other similar reasons for attrition include problems with discipline and student motivation, low salary, and limited input from faculty in school decision making. Ingersoll (1999) concluded that retirement was a relatively minor reason for leaving teaching – dissatisfaction accounted for a greater proportion

of teachers either leaving the field or transferring positions. Ingersoll proposed the revolving door is more detrimental to teaching than retirement levels, and adjusting organizational conditions to give teachers more say in decision making would help fill teaching vacancies more than recruitment efforts. If teachers explained the disempowering events that occurred in the classroom and school at-large in more optimistic ways, more teachers may feel satisfied with their jobs and stay in the field longer.

Attrition and Professionalism

Research indicates that attending professional development seminars, workshops, conferences, and courses helps keep teachers in the field longer (Erickson, 2008). Some of the most successful professional development programs involve training new teachers to be prepared for the coming school year (Brill & McCartney, 2008). Often, these intensive new-teacher mentoring programs involve numerous hours of professional development opportunities involving interactions with veteran teachers, and these programs boast high rates of teacher retention (Kapadia, Coca, & Easton, 2007; Serpell & Bozeman, 1999). Beyond new-teacher mentoring, teachers must participate in a specified number of required professional development hours in order to remain certified to teach. Many school districts offer the minimum required number of hours, but many teachers participate in professional development above and beyond the required minimum. These teachers seem to be more engaged in teaching than those who do not seek extra professional development. Therefore, if schools can invest in high quality, relational professional development opportunities for teachers, they should see a decrease in the number of teachers who leave the field early.

The problem of teacher attrition perplexes those in education who make policy decisions and who hire teachers for their schools. Teachers who are transient may cost more in the long run

than those who need intensive supervision and mentoring during their careers. Aside from loosening the qualifications required to become a teacher, solutions to addressing the teacher attrition problem are scattershot at best. Some programs in some districts seem to work, but a comprehensive understanding of why teachers leave the field and what can be done to keep them remains elusive. Little has been done to explore how teachers think about good and bad classroom events to see if perhaps a revolution needs to take place in the efforts to retain good teachers.

But Wait – What About Efficacy?

While the role of explanatory style in teaching has been largely unexamined, efficacy has a rich connection with positive outcomes in academic settings. Efficacy deals with the beliefs people have about their own capabilities. Bandura (1986) defines self-efficacy as the belief about how well one can organize and carry out actions required for a goal. Bandura's social cognitive theory suggests that people maintain two types of expectations in any given situation. Efficacy expectations are future-oriented and relate the confidence felt about one's "capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). Efficacy expectations affect the thoughts and emotions needed to make people take the steps necessary to expend effort toward a goal. Outcome expectations refer to the likelihood that a particular consequence will occur in a given situation given one's level of ability (Bandura, 1986). Bandura believed that while outcome expectations would provide the incentive or disincentive to work toward a goal, these expectations do little to influence efficacy. Bandura (1994) suggested four main ways that efficacy is fostered: mastery experiences, vicarious experiences, social persuasion, and emotional and physical reactions. Most researchers agree

with Bandura that mastery experiences provide the most successful way to build efficacy in that success breeds success while failure breeds failure.

A teachers' sense of efficacy, a domain-specific conceptualization of efficacy, has been linked to numerous positive outcomes and predicts teacher practices and student achievement (Graham, Harris, Fink, & MacArthur, 2001; Tschannen-Moran & Woolfolk Hoy, 2001).

Teachers' sense of efficacy seems to be a powerful force in determining teacher behavior and student success, but the construct has met with challenges in measurement and interpretation. In 1984, Ashton claimed that teachers' sense of efficacy was the most promising construct to emerge from teacher research, but in 2005, Wheatley argues that despite years of research into the construct, it holds little practical significance for teachers or administrators seeking ways to improve student performance since developing teachers' sense of efficacy relies heavily on the experience of mastery. Henson (2001) argued that teachers' sense of efficacy was experiencing a troubled adolescence of sorts in its development as a viable construct to affect teacher education and practice. Henson suggests that researchers often do not examine the sources of efficacy beliefs to determine how powerful they are in predicting efficacy or outcome behaviors. Specifically, Henson wonders how much a teacher's analysis of tasks they engage in affects the sources of efficacy. This issue is largely unanswered in the literature.

Mastery experiences are the most powerful factor in developing teachers' sense of efficacy (Woolfolk-Hoy & Spero, 2005). Thus, if teachers experience success, then efficacy increases. The more authentic the successful experience, it is more likely efficacy will be increased. While these types of successful mastery experiences would be important for developing teachers' sense of efficacy, teachers in difficult school environments might not have enough successful experiences to promote meaningful gains in efficacy. They may be able to

imagine what mastery would look like in their own context, but without authentic mastery experiences, they may never reach a healthy level of efficacy sufficient to get them through a challenging school year. However, if the explanations teachers give for both positive and negative classroom experiences were important to developing efficacy, teacher training and professional development programs could focus on developing optimistic explanations of both success and failure to cultivate efficacy and, by extension, teacher behaviors that affect attrition. In addition, understanding how explanations of events can develop efficacy may also tap into the other ways Bandura suggests efficacy is cultivated. By analyzing how teachers explain good and bad events in the classroom, administrators and teacher trainers can use vicarious experiences of both mastery and non-mastery events more to cultivate efficacy. Explanatory style can also be used to strengthen the emotional and physical reactions to success and failure needed to build efficacy.

Teachers' sense of efficacy has been measured differently by researchers who conceptualize it according to different theoretical perspectives (Skaalvik & Skaalvik, 2007). Because of competing conceptual ideas about teacher efficacy, claims of its value to educators and students are suspect at best (Denzine, Cooney & McKenzie, 2005). Wheatley (2005) suggests that research on teachers' sense of efficacy should focus on teachers' interpretations of teaching experiences instead of on just their beliefs and goals about student learning. This research seeks to address these concerns by investigating how one type of teachers' interpretations – teachers' explanatory style of school-related events – relates to teachers' sense of efficacy.

Purpose

This dissertation investigates the role of explanatory style in teaching. This dissertation includes three studies that address teachers' explanatory style and how explanatory style and efficacy are related. Chapter 2 explores the conceptual basis for how explanatory style could be related to a teacher's sense of efficacy and burnout. If explanatory style can show the same types of benefits for teachers that it shows for insurance sales, collegiate swimmers, and middle school students, intervention programs that hone an optimistic explanatory style can be used for teachers during their careers as they deal with the challenges of teaching. Using the conceptual analysis of Chapter 2, Chapter 3 develops and validates an educator-specific Attributional Style Questionnaire (EdASQ). Recent research suggests that using domain-specific measures could account for better model fit and more variance than using the generic attributional style measure (Higgins, Zumbo, & Hay, 1999). Research by Peterson and Barrett (1987) suggests that explanatory style can be measured effectively by modifying the ASQ to fit particular situations or domains. Therefore, an educator-specific attributional style measure would provide a way to measure teachers' specific ways of explaining good and bad events in the classroom. Chapter 4 fully investigates the relationship between explanatory style and a teacher's sense of efficacy using the conceptual framework from Chapter 2, and the EdASQ and structural measurement model from Chapter 3. Chapter 4 points to explanatory style as a mediator of efficacy and burnout. In addition, Chapter 4 examines how differently optimists and pessimists think about positive and negative classroom events and recommends teachers aspire to a slightly, as opposed to overly, optimistic explanatory style in order to be most resistant to burnout. Chapter 5 summarizes the findings of the three studies, discussing the strengths and limitations of each and proposing future directions for research.

CHAPTER 2

How Explanatory Style and Teachers' Sense of Efficacy Work Together to Reduce Burnout in Teachers

A typical day in the life of a teacher is a study in contrasts. Teachers can be at one moment respected and then in another reviled. Teachers are praised for their positive influence on the next generation and chastised for sucking the fun out of learning. Teachers feel empowered within their own classrooms to make instructional and management decisions, but once the door is opened into the school at large, feelings of disillusionment can be overpowering as administrators impose regulations that cut into instructional time. One group of students can be electrified by the day's lesson while another can sit back apathetically waiting for the bell to ring. It is not difficult to imagine that teaching is a profession that is both rewarding and frustrating. When frustration outweighs reward, burnout can occur. Previous research highlights multiple sources of burnout in teachers, including lack of administrative support, discipline issues, low student motivation, low salary, and limited input from faculty in school decision making. (see Baker & Smith, 1997; Boe, Bobbit, Cook, Barkanic, & Maislin, 1998; Ingersoll, 1999). Little research explores cognitive reasons why teachers burn out.

The purpose of this paper is to present a cognitive framework that may buffer teachers against burnout. Specifically, I explore how teachers' beliefs about their capabilities as teachers (also known as teachers' sense of efficacy) and their explanations of good and bad events (also known as explanatory style) forms a cognitive system that capitalizes on successes and maintains healthy beliefs about failures that buffer against burnout. Teachers' sense of efficacy and

explanatory style overlap conceptually, but they have not often been studied together. High teachers' sense of efficacy buffers against failure, but developing high efficacy requires the experience of success. For teachers who do not consistently experience success (for instance, those in struggling, high-failure and low-resource schools), a high teachers' sense of efficacy may never develop properly. The question becomes, how do teachers with low teachers' sense of efficacy develop high efficacy in the face of failure? Explanatory style may offer a means to developing high teachers' sense of efficacy in low-success circumstances. The positive effects of optimistic explanatory style are not contingent on success or failure, as teachers' sense of efficacy is, but how teachers explain successes or failures allow teachers to persevere while they are experiencing failure. Having a healthy explanatory style may allow teachers to persevere through failure until success occurs, and thus develop a high teachers' sense of efficacy.

Explanatory Style and Efficacy: Conceptual Overlap

Research examining explanatory style, the characteristic ways in which people explain good and bad events (Seligman, 1998), shows that those with more pessimistic types of explanatory style are more at risk for depression (Peterson & Vaidya, 2001) and are more likely to give up in the face of challenge (Seligman, Nolen-Hoeksema, Thornton, & Thornton, 1992). Helping teachers maximize the positive and de-emphasize the negative may help them feel more satisfied with teaching and stay in the field longer. They may believe they are more capable as teachers, which is referred to as a teacher's sense of efficacy (Tschannen-Moran & Woolfolk-Hoy, 2001). Teachers with a high sense of efficacy about teaching tend to use a larger variety of teaching strategies and more proactive disciplinary procedures (Graham, Harris, Fink, & MacArthur, 2001; Tschannen-Moran & Woolfolk Hoy, 2001). These two concepts independently provide positive outcomes. Yet, discovering how these two constructs work

together may provide a mechanism for using how teachers think about success and failure to promote higher efficacy. While there are many variables that influence whether teachers will stay in the field longer, the ways teachers think about classroom experiences may be important to mediating how capable teachers feel to enact change in their own classrooms.

The relationship between explanatory style and efficacy in general is dealt with tangentially in the literature. Both theories are based on experiences of success and failure. For efficacy, mastery (i.e., successful) experiences develop high efficacy, so experiencing success and avoiding failure are keys to having a healthy sense of efficacy. For explanatory style, how people interpret successes *and failures* defines their type of explanatory style (optimist or pessimist), and interventions exist that help pessimists become more optimistic (Seligman, Reivich, Jaycox, & Gillham, 1995). Thus, while efficacy is a good predictor of many positive teaching outcomes, one must first experience success to achieve more success later. This is problematic in high-failure situations like teaching and sales. If optimistic explanatory style helps develop high self-efficacy, then considering explanatory style and self-efficacy in high-failure situations may explain why people persevere through failure and create opportunities for interventions that go beyond mastery experiences.

Hard-Fought Mastery Experiences: Explaining Setbacks to Gain Efficacy

The problem is that research has not examined whether efficacy precedes causal explanations of mastery experiences or vice versa. Bandura (1994) argues that efficacy precedes causal explanations and proposes that causal attributions are affected by efficacy beliefs. He theorizes that those with high efficacy attribute failure to low effort while those with low efficacy attribute failure to low ability (Figure 2.1).

Figure 2.1

The Relationship Between Efficacy and Causal Attributions (Based on Bandura, 1994)

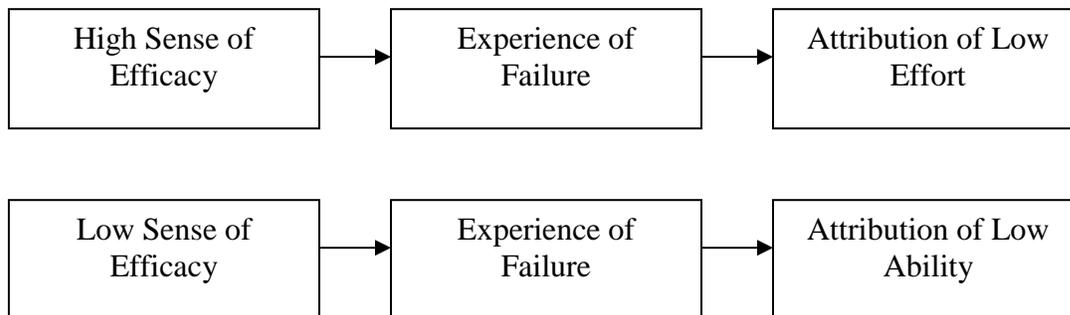


Figure 1: According to Bandura's (1994) theory, efficacy determines how people explain events they experience.

Even though Bandura states that mastery experiences are one of the best ways to develop efficacy, he acknowledges that not all mastery experiences are created equal. Easy successes are not as valuable as those that are won via perseverance through setbacks and adversity. Bandura does not explain, however, how those with little or no efficacy at the outset get through setbacks. If experiencing success breeds efficacy, then only in the end after success is gained would experiences fraught with setbacks and adversity contribute to a higher sense of efficacy. Bandura's theory does not explain how one works through the setbacks and adversity except to say that if one has higher efficacy, perseverance is more likely. If people do not have high efficacy in the first place, it is unclear how they would get through to the end of a hard-fought mastery experience without it. It would seem, then, that a variable between setbacks and success exists that would be important to determining whether efficacy is developed through hard-fought mastery experiences. Yet, Bandura is clear that this variable is not causal attributions, since efficacy precedes causal attributions, not the other way around.

So schools are now faced with a problem – what to do with current teachers who have low efficacy. A better understanding of how efficacy is developed should help schools create ways to foster teachers’ sense of efficacy outside of mastery experiences. The types of causal explanations teachers make about success and failure may provide the perseverance they need to weather difficult teaching situations. If so, explanations of success and failure may contribute to an increased sense of efficacy. An optimistic teacher would view successful teaching as internal, global and stable but would view unsuccessful teaching as external, isolated, and unstable. Thus, not only would successful experiences lead to increased efficacy, but experiences of failure could also develop high efficacy. These types of explanations about the causes of events, both successful and unsuccessful, could lead to the teacher having a higher sense of efficacy, which could, in turn, lead to more resilience and less burnout.

To address this problem, I propose a different theoretical model (Figure 2.2). This model proposes that explanatory style is a mediator of efficacy and incorporates experiences of both success and failure. Previous research suggests that teachers’ sense of efficacy research examine how efficacy beliefs are developed to determine what role causal attributions play in the efficacy-development process (Henson, 2001). This model considers this suggestion and promotes the idea that explanatory style is important to developing teachers’ sense of efficacy by enabling teachers to persevere through setbacks and achieve efficacy through hard-fought mastery experiences by tapping into the emotional sources of efficacy.

One practical way this model can influence teaching today is by alleviating the problem of teacher burnout and attrition. Teachers experience burnout at high rates, and this burnout is often the result of negative experiences in the classroom and as part of the school climate. If teachers can explain those negative experiences in optimistic ways, they can develop a high

sense of efficacy and work toward mastery more effectively. This model highlights why examining the ways teachers think about daily events is important.

Figure 2.2

New Theoretical Model for the Relationship Between Efficacy and Causal Attributions

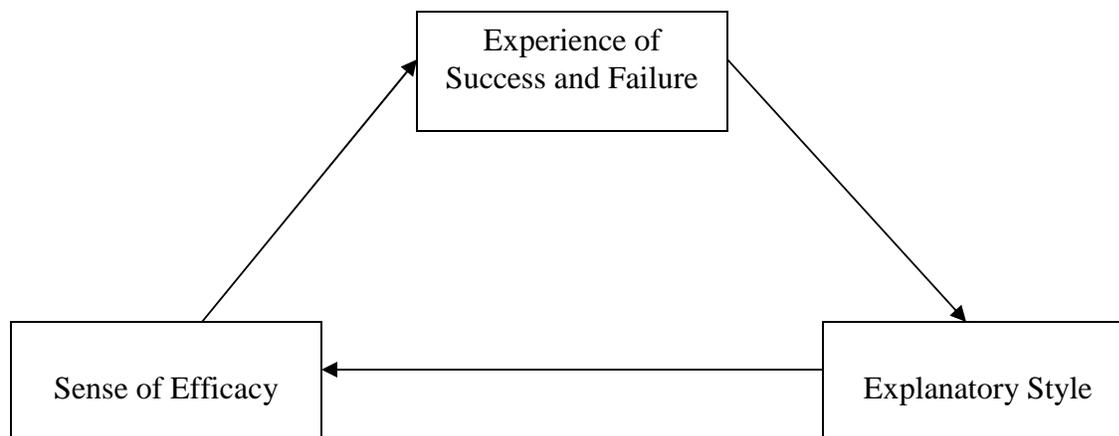


Figure 2.2: A new model showing that explanatory style influences a sense of efficacy when experiencing both success and failure.

Teacher Burnout and Attrition

Understanding why teachers leave the field and what factors increase their likelihood of staying is important. Burnout has generally been studied as a phenomenon found in human service professions, like teaching. The most widely researched definition of burnout was developed by Maslach (1982), which defines burnout as including feelings of exhaustion, depersonalization, and lack of personal accomplishment. Other researchers suggest the burnout encompasses two overall components – exhaustion and disengagement – which more appropriately reflects a job-demands/job-resources model (Demerouti, Bakker, Nachreiner, &

Schaufeli, 2001). This alternative definition of burnout addresses criticism of the original Maslach (1982) conceptualization by measuring burnout using only negatively worded items and disregarding the weakly correlated personal accomplishment component (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001).

The teaching profession faces attrition rates that vary from 5% to 9% annually (Zumwalt & Craig, 2005), with an overall attrition rate of 40 to 50 percent within 5 years (Ingersoll, 2003). Teacher job dissatisfaction is the second most cited reason for teacher attrition (Zumwalt & Craig, 2005). Teachers regularly report that lack of administrative support as a main reason for leaving teaching (Baker & Smith, 1997; Boe, Bobbit, Cook, Barkanic, & Maislin, 1998; Ingersoll, 1999). The other main reasons for attrition include problems with discipline and student motivation, low salary, and limited input from faculty in school decision making, all of which could lead to teachers feeling burned out. Teachers feel increasingly powerless to effect change in their classrooms or schools. Ingersoll (1999) concluded that retirement was a relatively minor reason for leaving teaching – dissatisfaction accounted for a greater proportion of teachers either leaving the field or transferring positions. Ingersoll proposed that adjusting organizational conditions to give teachers more say in decision making would help fill teaching vacancies more than recruitment efforts. If teachers explained the disempowering events that occurred in the classroom and school at-large in more optimistic ways, more teachers may feel satisfied with their jobs, less exhausted, and stay in the field longer.

Attrition and Professional Development

Research indicates that attending professional development seminars, workshops, conferences, and courses helps keep teachers in the field longer (Erickson, 2008). Most states require teachers to participate in a prescribed number of professional development hours in order

to remain certified. Most school districts, as a result, offer programs adding up to at least the minimum number of hours through faculty meetings and other in-house opportunities. Yet, many teachers participate in hours beyond those required. They may take college courses to earn advanced degrees or certification or attend conferences in their teaching field. Teachers who go above and beyond in their professional development activities may be seen as more engaged in teaching than their “only-the-required” colleagues. Some of the most successful professional development programs involve training new teachers to be prepared for the coming school year (Brill & McCartney, 2008). Often, these intensive new-teacher mentoring programs involve interactions with veteran teachers (Kapadia, Coca, & Easton, 2007; Serpell & Bozeman, 1999). If schools can invest in high quality professional development opportunities for teachers, they should see a decrease in the number of teachers who leave the field early because if teachers believe they can effect change, they are more likely to engage in teaching and remain in the field.

Attrition: A Costly Problem

The problem of teacher attrition perplexes those in education who make policy decisions and who hire teachers for their schools. Teachers who are transient may cost more in the long run than those who need intensive supervision and mentoring during their careers (Villar & Strong, 2007). The National Commission on Teaching and America’s Future (NCTAF) projects that teacher turnover could cost the nation’s public schools over \$7.3 billion (NCTAF, 2007). Solutions to addressing the teacher attrition problem are scattershot at best. Some states have loosened teacher qualifications to attract people outside of education into teaching. Some teacher-mentoring programs in some districts seem to help keep teachers longer, but they have rarely been tested rigorously with teachers in other districts.

Understanding the cognitive contributors to burnout may lead to the development of programs that might help stem the outflow of talented people from the teaching workforce. But simply providing these programs is usually not enough. Schools would need to provide programs that teachers would find helpful and that would address their main reasons for dissatisfaction. Almost no research has examined how teachers think about classroom events and whether those thoughts are a factor in predicting job burnout.

A Teacher's Sense of Efficacy

Efficacy deals with the beliefs people have about their own capabilities. Bandura (1986) defines self-efficacy as the belief about how well one can organize and carry out actions required for a goal. Bandura's social cognitive theory suggests that people maintain two types of expectations in any given situation. Efficacy expectations are future-oriented and relate the confidence felt about one's "capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). Efficacy expectations affect the thoughts and emotions needed to make people take the steps necessary to expend effort toward a goal. Outcome expectations refer to the likelihood that a particular consequence will occur in a given situation given one's level of ability (Bandura, 1986). Bandura believed that while outcome expectations would provide the incentive or disincentive to work toward a goal, these expectations do little to influence efficacy.

Bandura (1994) suggested four main ways that efficacy is fostered: mastery experiences, vicarious experiences, social persuasion, and emotional and physical reactions. Teaching presents interesting challenges to each of these ways of developing efficacy. Mastery experiences can be elusive, especially in schools where administrative support, student motivation, and access to resources are low. Teachers typically work in isolation, working in a

classroom of students by themselves with little interaction with other teachers or administrators. Rarely are teachers given the opportunity to collaborate with other teachers to discuss teaching and management practices or to observe master teachers in action, providing little opportunity for developing efficacy through vicarious experiences. Media reporting and policy initiatives in public education are often negative, focusing on low test scores, low performing schools, or teacher misbehavior, leaving little opportunity for social persuasion to provide sources of efficacy. Teachers also experience a wide range of emotional and physical reactions while teaching, from elation that lessons go well to disappointment when they don't. Most researchers agree with Bandura that mastery experiences provide the most successful way to build efficacy in that success breeds success while failure breeds failure. Since teachers rarely experience vicarious experiences and receive little efficacy-building social persuasion, whether they experience mastery and how they handle the emotional and physical reactions during teaching provide the most promising ways to develop efficacy in teachers.

A teachers' sense of efficacy has been linked to numerous positive outcomes and predicts teacher practices and student achievement (Graham, Harris, Fink, & MacArthur, 2001; Tschannen-Moran & Woolfolk Hoy, 2001). Teachers' sense of efficacy seems to be a powerful force in determining teacher behavior and student success, and some claim that teachers' sense of efficacy is the most promising construct to emerge from teacher research (Ashton, 1984). However, others have argued that despite years of research, it holds little practical significance for teachers or administrators seeking ways to improve student performance since developing teachers' sense of efficacy relies heavily on the experience of mastery (Wheatley, 2005), which may be difficult to experience easily.

Henson (2001) argued that teachers' sense of efficacy lacks practicality and viability due to a lack of understanding of how efficacy is developed. Researchers often do not examine the sources of efficacy beliefs to determine how powerful they are in predicting efficacy or outcome behaviors. Since the sources of teachers' sense of efficacy are limited for teachers in the age of accountability, ways to mediate mastery experiences and emotional and physical reactions are important to developing teachers' sense of efficacy successfully.

Mastery Experiences and Developing Efficacy

Bandura believes that mastery experiences are the most powerful factor in developing teachers' sense of efficacy; that is, if teachers experience success, then efficacy increases (Woolfolk-Hoy & Spero, 2005). Further, the more authentic and hard-fought the successful experience, the more likely that efficacy will be increased. Those with high efficacy can weather these setbacks well, achieving mastery and building higher efficacy. However, in order to experience the final success of mastery experiences, especially through hard-fought experiences, people need to persevere through the setbacks to accomplish success. Those with low efficacy have difficulty weathering these setbacks and may not achieve mastery. Those with low efficacy in difficult teaching environments may face the greatest challenge to staying in the field and might not have enough authentic successful experiences to promote meaningful gains in efficacy. Teachers may be able to imagine what mastery looks like, but without authentic mastery experiences, they may never reach a healthy level of efficacy to get them through a challenging school year without developing a feeling of burnout. How teachers with low efficacy – specifically, those who are new to teaching or those who experience significant setbacks early in their careers – have no clear way to develop efficacy in the midst of hard-fought, authentic

mastery experiences. The literature is unclear about how these teachers can gain the efficacy they need to persevere.

I argue that one way forward is to consider the emotional and physical reactions together with mastery experiences. How teachers explain good and bad events in the classroom may decrease emotional reactions to failure like disengagement and physical reactions to failure like exhaustion. If the explanations teachers give for both positive and negative classroom experiences were important to developing efficacy, teacher training and professional development programs could focus on developing optimistic explanations of both success and failure to cultivate efficacy and, by extension, teacher behaviors that affect burnout. Teachers would not have to wait on authentic mastery experiences, vicarious experiences, or social persuasion to gain efficacy. They could use any kind of experience in the classroom, good or bad, and use those explanations to build efficacy. This type of efficacy-building program would be more efficient by using experiences from each day rather than waiting through to the end of a mastery experience to build efficacy.

Explanatory Style: A Deeper Look

Explanatory style has its roots in Martin E.P. Seligman's studies of learned helplessness (Seligman & Maier, 1967). As this research evolved, patterns of explanatory style became evident in humans based on the learned helplessness model of depression, which proposes that people will attribute their helplessness in the face of uncontrollable circumstances to a particular cause (Abramson, Seligman & Teasdale, 1978). People then determine whether the cause will have a chronic, broad, and detrimental impact to future self-esteem and agency. The explanatory style patterns of people in studies of learned helplessness fall along three dimensions – global/specific (projection of cause across different situations), stable/temporary (projection of

cause across time), and internal/external (projection of cause to internal traits versus external factors) (Seligman, 1998).

Researchers eventually categorized optimists and pessimists as having diametrically opposed explanatory styles of good and bad events (Table 2.1; Peterson & Vaidya, 2001; Seligman, 1998). Pessimistic explanatory style impacts the incidence of depression (Fazio & Palm, 1998; Hilsman & Garber, 1995; Nolen-Hoeksema, Girgus, & Seligman, 1986; Peterson & Barrett, 1987; Ritchie, 2000; Tiggeman & Crowley, 1993; Yates & Yates, 1995) and negative health effects (Brennan & Charnetski, 2000; Love, 1988). Pessimistic explanatory style leads to depression because viewing bad events as personally caused, stable, and global do not see alternatives for those bad events. This type of thinking leaves people feeling hopeless to enact change. In theory, people who are pessimistic should also experience low sense of efficacy since their hopeless feelings leave them feeling incapable of action. Seligman (1998) proposes that the explanatory style theory of optimism provides pessimistic people with an avenue to alter their pessimistic thinking patterns to be more optimistic, thus fostering mastery and resilience. For example, middle school children can be taught to retrain pessimistic thinking into optimistic thinking and significantly reduce the incidence of depression (Seligman, Reivich, Jaycox, & Gillham, 1995).

Explanatory Style and Failure

One of the primary reasons for considering explanatory style as a mediator of teachers' sense of efficacy is that explanatory style addresses how teachers can build efficacy and persevere through setbacks and failures. Several studies show the impact of pessimistic explanatory style when people are presented with failure. Seligman and Schulman (1986) found that insurance

Table 2.1

Optimistic vs. Pessimistic Explanatory Style

Explanatory Style	Good Events	Example	Bad Events	Example
Optimistic	Internal	<i>I am a good worker.</i>	External	<i>I had a bad day.</i>
	Stable	<i>I should always do well at this task.</i>	Temporary	<i>Next time, I'll do better.</i>
	Global	<i>More good things should happen today.</i>	Specific	<i>This, too, shall pass.</i>
Pessimistic	External	<i>I was just lucky.</i>	Internal	<i>I'm not good at this.</i>
	Temporary	<i>This will not last long.</i>	Stable	<i>This will never get better.</i>
	Specific	<i>Something bad will happen sooner or later.</i>	Global	<i>I'm not good at anything.</i>

salespeople who exhibited a pessimistic explanatory style sold less insurance and left the field earlier than their more optimistic counterparts. Insurance sales is a business fraught with the possibility of failure. Sales personnel must weather several “no” cold calls for every “yes” call. By choosing sales personnel who are more optimistic than pessimistic, insurance companies could be more successful and retain employees longer. In another venue, varsity collegiate swimmers were given false failure feedback regarding their performance in practice races. Optimistic swimmers subsequently performed better (by swimming faster than expected) whereas pessimistic swimmers demonstrated decreased performance (by swimming slower than expected) (Seligman, Nolen-Hoeksema, Thornton, & Thornton, 1990). Another study provided false failure feedback to middle school students during a basketball dribbling activity. Optimistic students were less anxious, more confident, and performed better than their pessimistic

counterparts (Martin-Krumm, Sarrazin, & Peterson, 2003). From these studies, those with an optimistic explanatory style weathered failure better than those with pessimistic styles.

Explanatory Style and Teaching

Overall, optimists tend to regard failure as a challenge to overcome rather than an obstacle to crumble before. Such findings may have important implications for teachers because teaching is a profession fraught with opportunities for both failure and success. As shown in the teacher attrition literature, teachers often complain of difficulties in teaching with limited supplies or resources, scant support from administrators and parents, and lack of cooperation from students. A lesson that may work for one group of students might fail miserably with another. Directives from administrators or government officials might overburden even the most efficient teachers with paperwork or content to incorporate into already crowded lessons. If teachers could weather these difficulties, they may not feel burned out and thus stay in the field longer.

Perhaps teachers with an optimistic explanatory style could weather these potential failures more fluidly than their pessimistic counterparts. For instance, when lesson plans do not win over students, the optimistic teacher may chalk up the failure to fluid, temporary distractions (“It’s a pep rally day” or “Second semester seniors are difficult to reach”) instead of to uncontrollable personal teaching failure (“I am a bad teacher”) or to unchangeable student ability (“My students are just not as smart as other teachers.”). The optimistic teacher would then devise new lesson plans or adjust expectations to increase chances for success. An optimistic teacher would handle hostile parent conferences more effectively as well. Instead of thinking the hostile parent has a personal hatred toward him or her, the optimistic teacher might devise several external, unstable, and specific reasons for the parent’s outbursts. Perhaps the parent had a hard

day at work or is worried about their child's performance and is taking out this frustration or worry on the school. An optimistic teacher would also handle administrative demands more effectively. When given high standards and few resources, optimistic teachers would seek options they can personally control and devise ways to meet those controllable challenges (i.e. grant writing or fundraising in the community). This resiliency may inoculate optimistic teachers from many of the frustrations that drive teachers from the profession.

If teachers have a more optimistic explanatory style in the face of these failure experiences, they might view each failure as an opportunity to try a new method or seek alternative explanations for the events that unfold. Optimistic teachers may also avoid burnout and avoid ill physical effects such as exhaustion and remain engaged when bad teaching experiences occur. Teachers with a more pessimistic style may give up in the face of these failures and not try alternative strategies or fail to appreciate alternative evidence of their success in other areas and ultimately quit teaching. Such pessimism may lead to burnout and depression, leading more teachers to leave the profession since pessimistic teachers explain failure as their fault, always present, and influential on other areas of their teaching and lives. Understanding explanatory style in teachers could provide insight into the underlying reasons why teachers leave the profession and the means to keep talented teachers in the field longer.

Explanatory Style and Conceptual Issues with Teachers' Sense of Efficacy

Teachers' sense of efficacy has been measured differently by researchers who conceptualize it according to different theoretical perspectives (Skaalvik & Skaalvik, 2007). Teacher efficacy has its roots in Rotter's (1966) social learning theory and Bandura's (1986, 1997) theory of self-efficacy. Through the years, some research into teacher efficacy has focused on Rotter's locus of control model (i.e., Guskey, 1981; Rose & Medway, 1981) while more

research has focused Bandura's social-cognitive theory (i.e., Ashton, Buhr, & Crocker, 1984; Gibson & Dembo, 1984; Tschannen-Moran & Woolfolk Hoy, 2001). Because of competing conceptual ideas about teacher efficacy, claims of its value to educators and students are suspect at best (Denzine, Cooney, & McKenzie, 2005). Regardless of the theoretical perspective, researchers often do not examine the sources of efficacy beliefs to determine how powerful they are in predicting efficacy or outcome behaviors.

Examining how explanatory style relates to teachers' sense of efficacy may shed light on how efficacy develops within the mastery experience. Explanatory style may be a vehicle teachers can use to build efficacy while they are working toward mastery, providing resilience in the face of difficult circumstances. Current teacher efficacy scales (see Tschannen-Moran & Woolfolk Hoy, 2001) alone are not enough to obtain precise and valid information about teacher efficacy beliefs since those measures do not account for locus of control, which is an aspect of explanatory style (Denzine, Cooney, & McKenzie, 2005). Wheatley (2005) suggests that research on teachers' sense of efficacy should focus on teachers' interpretations of teaching experiences instead of on just their beliefs and goals about student learning. A model that integrates explanatory style into teachers' sense of efficacy may provide insight into how people with low initial efficacy persevere through hard-fought circumstances to achieve mastery, and by extension, efficacy.

Future Directions

The theoretical foundations for both explanatory style and efficacy are robust and hint at the possible relationship between explanatory style and efficacy. First and foremost, reliable and valid measures of explanatory style and efficacy need to be developed. Currently, measures of teachers' sense of efficacy exist that accomplish this, regardless of what theoretical perspective

one follows. The measure that holds the most promise for efficacy seems to be the Ohio State Teachers' Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk-Hoy, 2001). This measure has better factor loadings than the Gibson and Dembo (1984) measure and possesses better construct validity. The three factors for this scale – student engagement, instructional strategies, and classroom management – relate more directly to different domains of teaching that are encountered in classrooms daily.

For explanatory style, no domain-specific measure currently exists for teachers. Domain-specific measures of explanatory style are currently vogue due to the belief that the diathesis-stress model invokes explanatory style more effectively. A general measure of explanatory style may not uncover more domain-specific – and stress-induced – types of explanatory style. Domain-specific measures have been developed for children, teens, financial-services workers, and university undergraduates. All of these measures ask respondents to provide responses to situations specific to their own context, thus invoking stressors specific to those situations. People may have a certain type of explanatory style in general, but a different type in more specific contexts. Developing an educator-specific measure of explanatory style could provide the link needed to understand whether teachers' explanations of good and bad teaching events mediates the emotional and physical reactions necessary to build efficacy.

A second need for this line of research is to test the theoretical model proposed in this paper, which suggests a way in which explanatory style and efficacy are related. In order to persevere in the face of failure, explanatory style and efficacy each matter, but it is unclear how these two factors are related. Although each concept overlaps conceptually, they stem from different areas of psychology. Teachers' sense of efficacy has been extensively examined in academic settings, whereas explanatory style has its roots as a clinical explanation for

depression. People with high efficacy believe themselves capable of overcoming obstacles (Bandura, 1994). People with less pessimistic explanatory styles view obstacles as challenges to be overcome (Seligman, 1998). Yet, it is unclear whether one needs efficacy in order to have less pessimistic explanatory style or whether a less pessimistic explanatory style helps one build efficacy. Bandura (1994) suggests that efficacy contributes to the development of certain types of causal attributions. Yet, Pajares (2002) acknowledges that outcomes interpreted as successful raise efficacy while those interpreted as failure lower it. In essence, this research attempts to present a teaching-specific model for explanatory style and efficacy that clarifies the relationship between these two concepts in predicting burnout.

It seems that the current state of the understanding of the relationship between explanatory style and efficacy is circular at best. Research needs to clarify whether explanatory style mediates efficacy or vice versa. If efficacy mediates explanatory style, then experiencing success would be of utmost importance. Authentic mastery experiences would be necessary and sufficient for cultivating efficacy. However, if explanatory style mediates efficacy, then any experience one has during teaching could be used to build efficacy. Understanding what type of explanatory style maximizes a teacher's sense of efficacy would help researchers develop training programs that maximize job satisfaction and professionalism. Training teachers to think more optimistically about both success and failure could be the key to building a high sense of efficacy and helping teachers be more effective. Understanding this relationship would help administrators create professional development and mentoring programs that would build efficacy and retain good teachers.

A third need for this line of research is to examine the other sources of teachers' sense of efficacy, such as vicarious experiences, within the context of the proposed model where

explanatory style mediates efficacy. A popular trend in education today involves the use of professional learning communities (PLCs; DuFour, 2007). Professional learning communities engage teachers in collaborative teams to discuss lesson planning, classroom management techniques, and school-wide goals. These types of communities within schools provide sources of vicarious learning as both master and novice teachers share ideas and learn from each other. It would be interesting to see if teachers in schools that use a PLC-centric approach have different explanatory styles and levels of teachers' sense of efficacy than teachers in schools that do not subscribe to the PLC approach.

A fourth need for this research is to test whether other, non-burnout-related, measures of physical and emotional health are seen in teachers who have moderately optimistic explanatory styles and high levels of efficacy. This research did not collect any health-related data, such as immunological reactions, incidence of sick leave, depression, or hope. It would be interesting to see if this model of explanatory style mediating teachers' sense of efficacy also predicts increased immunological response to stress, less time off for sickness, less depression and greater hope.

Conclusions

I propose a theoretical model that shows how explanatory style mediates efficacy to persevere through hard-fought mastery experiences. Further, the model highlights the ways in which explanatory style mediates efficacy by providing the emotional responses necessary to build efficacy. This new model addresses some theoretical issues associated with efficacy building, specifically Bandura's assertion that efficacy always precedes causal attributions of events, suggesting that efficacy determines whether people have optimistic or pessimistic explanatory styles. In addition, Bandura proposes that only successful, or mastery, experiences

build efficacy. He goes further to suggest that mastery experiences that include setbacks and minor failures build the highest levels of efficacy once success is achieved. However, his efficacy-before-explanatory-style model provides no means for those with low efficacy to persevere through setbacks and failures to achieve ultimate mastery. However, I propose that explanatory style mediates efficacy, providing ways to build efficacy regardless of circumstances.

The subsequent chapters of this dissertation will examine the role of explanatory style in predicting commonly cited reasons for teacher burnout. In order to do this, an educator-specific explanatory style measure will be created and validated in Chapter 3. In Chapter 4, I will examine how explanatory style and teacher efficacy are related to each other and to burnout. This research will shed light on whether explanatory style mediates efficacy or vice versa. In addition, I will examine how optimists and pessimists differ in their explanatory style, efficacy, and burnout. Understanding how optimists and pessimists differ can help determine a more precise role of explanatory style in mediating efficacy and predicting burnout. Successful interventions already exist for promoting more optimistic explanatory style in children and adults. This research will help determine whether similar programs should be developed in teacher preparation and inservice programs to improve the likelihood that quality teachers avoid burnout and stay in teaching longer.

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CHAPTER 3

Development and Validation of an Educator-Specific Attributional Style Questionnaire (EdASQ)

The ways in which people explain good and bad events is predictive of many positive outcomes in clinical, business, sport, and academic settings (i.e., Nolen-Hoeksema, Girgus, & Seligman, 1986; Peterson & Barrett, 1987; Proudfoot, Corr, Guest, & Gray, 2001; Seligman & Schulman, 1986; Seligman, Nolen-Hoeksema, Thornton, & Thornton, 1990). Little research has been done to determine whether explanatory style predicts the same types of positive outcomes in teachers. The purpose of this study is to address this gap by developing and validating an educator-specific attributional style questionnaire, which will be referred to as the EdASQ, and will enable future research to examine this relationship with diverse populations of teachers. A literature review reveals only two studies (see Hall & Smith, 1999; Smith, Hall, & Woolcock-Henry, 2000) that have explored the optimism levels of teachers in secondary school settings using the Attributional Style Questionnaire (ASQ; Peterson et al, 1982), the most widely used measure of explanatory style. Research indicates that modifying the general ASQ to a specific domain is important (Peterson & Barnett, 1987). Therefore, the purpose of this study is to develop and validate the instrument.

Explanatory Style

Explanatory style describes ways in which people explain good and bad events that occur. The types of explanations people give for these events predict whether the person will feel helpless or not in the face of failure. Patterns of explanatory style are evident based on the learned helplessness model of depression, reformulated by Abramson, Seligman, and Teasdale

(1978), which proposes that people will attribute their helplessness in the face of uncontrollable circumstances to a particular cause. People then determine whether the cause will have a chronic, broad, detrimental impact to future self-esteem and agency. The explanatory style patterns of people in studies of learned helplessness fell along three dimensions – global/specific (projection of cause across different situations), stable/temporary (projection of cause across time), and internal/external (projection of cause to internal traits versus external factors) (Seligman, 1998). Researchers eventually categorized optimists and pessimists as having diametrically opposed explanatory styles of good and bad events (Peterson & Vaidya, 2001; Seligman, 1998). Pessimistic explanatory has an impact on the incidence of depression, and by extension, lower academic achievement (i.e., Fazio & Palm, 1998; Hilsman & Garber, 1995; Nolen-Hoeksema, Girgus, & Seligman, 1986; Peterson & Barrett, 1987; Ritchie, 2000; Tiggeman & Crowley, 1993; Yates & Yates, 1995). Seligman (1998) proposes that the explanatory style theory of optimism provides pessimistic people with an avenue to alter their pessimistic thinking patterns to be more optimistic, thus fostering mastery and resilience. Studies with middle school children show that retraining pessimistic thinking into optimistic thinking can significantly reduce incidence of depression (Seligman, Reivich, Jaycox, & Gillham, 1995).

Explanatory style is measured primarily by the Attributional Style Questionnaire (ASQ; Peterson et al, 1982). The ASQ consists of 12 situations, 6 good and 6 bad, that respondents must imagine they are experiencing. Respondents provide a written explanation for the event and then choose on a Likert scale of 1 to 7 whether the explanation is global or specific, temporary or permanent, and internal or external. The ASQ is moderately reliable, with estimated Cronbach (1951) alpha internal reliability coefficients of .66 for internality, .85 for stability, and .88 for globality (Peterson & Villanova, 1988). The ASQ significantly predicts depression as measured

by the Beck Depression Inventory ($r = .18, p < .05$ for internality; $r = .19, p < .05$ for stability; and $r = .40, p < .01$ for globality; Peterson & Villanova, 1988). The ASQ also significantly predicts self-esteem as measured by the Rosenberg Self-Esteem Scale ($r = .34, p < .01$ for internality; $r = .28, p < .01$ for stability; $r = .21, ns$ for globality, and $r = .40, p < .001$ for the ASQ composite; Cheng & Furnham, 2003).

Little research has been done to assess the levels of optimism in teachers to see if these qualities are related to teaching. Several studies show that explanatory style is related to success in particular domains outside of clinical psychology. Seligman and Schulman (1986) found that insurance salespeople who exhibited a pessimistic explanatory style sold less insurance and left the field earlier than their more optimistic counterparts. By choosing sales personnel who are more optimistic than pessimistic, insurance companies could be more successful and retain employees longer. Seligman, Nolen-Hoeksema, Thornton, and Thornton (1990) gave varsity collegiate swimmers false failure feedback regarding their performance in practice races. Optimistic swimmers subsequently performed better (by swimming faster than expected) whereas pessimistic swimmers demonstrated decreased performance (by swimming slower than expected). If explanatory style could predict success and achievement for teachers, measures of teacher explanatory style would be useful to those hiring teachers and for implementing programs to keep teachers in the classroom.

Measurement Issues with the ASQ

Two measurement issues have arisen since the ASQ was developed in the early 1980s. The first issue focuses on the factor analytic structure of the ASQ. Theoretically, the ASQ should load on three factors – internality, stability, and globality. These domains are usually then combined into two overarching composite scores for positive and negative events. This practice

suggests that the ASQ should also load well on the two main positive and negative factors. The actual factor structure of the ASQ has not been clear in the literature, however. Cutrona, Russell, and Jones (1985) conducted confirmatory factor analysis on the negative items of the ASQ only and did not find the three-factor structure. Based on these results, they questioned whether attributional style existed since the measure did not yield the theoretically based components. In a critique of the ASQ factor structure, Arntz, Gerlisma, and Albersnagel (1985) also found overall good and bad subscales that had three factors each, but the variance accounted for by the model was only between 3.7% and 7.4%. They further found that stability and globality correlated almost perfectly, leading them to conclude that stability and globality were not distinct from each other. Other studies found non-theoretical four-factor structures. The four-factor structure found by Corr and Gray (1996) showed bad events loading on two factors – stability/globality and internality – and positive events loading on two factors – achievement and affiliation. Asner-Self and Schreiber (2004) found a four-factor structure in a sample of Central American immigrants – stability, globality, internal achievement, and internal affiliation. These studies called into question whether the ASQ measured what the reformulated learning helplessness model proposed.

All of the studies cited here used traditional factor analysis procedures, typically using principal components analysis with varimax rotation, which assumes that the factors within a measure are distinct and uncomplicated. Higgins, Zumbo, and Hay (1999) suggest that exploratory factor analysis does not take into the account the complex interrelationships of items within measures like the ASQ. The ASQ presents 12 hypothetical situations, 6 positive and 6 negative, for which respondents must propose a cause. Then, respondents must rate their proposed cause as internal, stable, or global. Because the internal, stable, and global items refer

to the same situation, they are inextricably linked. Higgins, Zumbo, and Hay, in a critique of Cutrona, Russell, and Jones (1985), tested structural equation models in which error variances among items referring to the same situation were correlated. They argued that this type of analysis took into account the more complex, interrelated nature of the items on the ASQ. The two models that yielded good fit showed a three-factor structure for good events and bad events separately (see Figure 3.1). The models that tested overall composite structures or overall good/bad structures without the internal, stable, and global factors did not fit the data. Hewitt, Foxcroft, and MacDonald (2004), using multimethod, multi-trait modeling, also showed the three-factor structure, but for negative events only. Using structural equation modeling and analyzing positive and negative item sets separately seems to yield the theoretical structure of internal, stable, and global dimensions. This study will test this positive/negative three-factor structure for the EdASQ.

The other issue centers on the low reliability coefficients, especially for the internal dimension. The problem arose with the first study on the development of the ASQ by Peterson and others in which they reported reliability coefficients of .46 for internality as compared with .59 for stability and .69 for globality. Further studies examining the reliability of the ASQ show coefficients ranging from the mid .30s to the mid .60s, none of which are considered robust (see Cutrona, Russell, & Jones, 1985; Furnham, Sadka, & Brewin, 1992; Hanrahan & Grove, 1990). Researchers do not have definitive answers for why the internal domain is so internally unreliable. Some speculate that the internal domain is poorly conceptualized and perhaps should be broken down into affiliation and achievement dimensions (Asner-Self & Schreiber, 2004). Others feel the very structure of the ASQ is questionable (Cutrona, Russell, and Jones, 1985).

Figure 3.1

Three-Factor Measurement Model for the Attributional Style Questionnaires

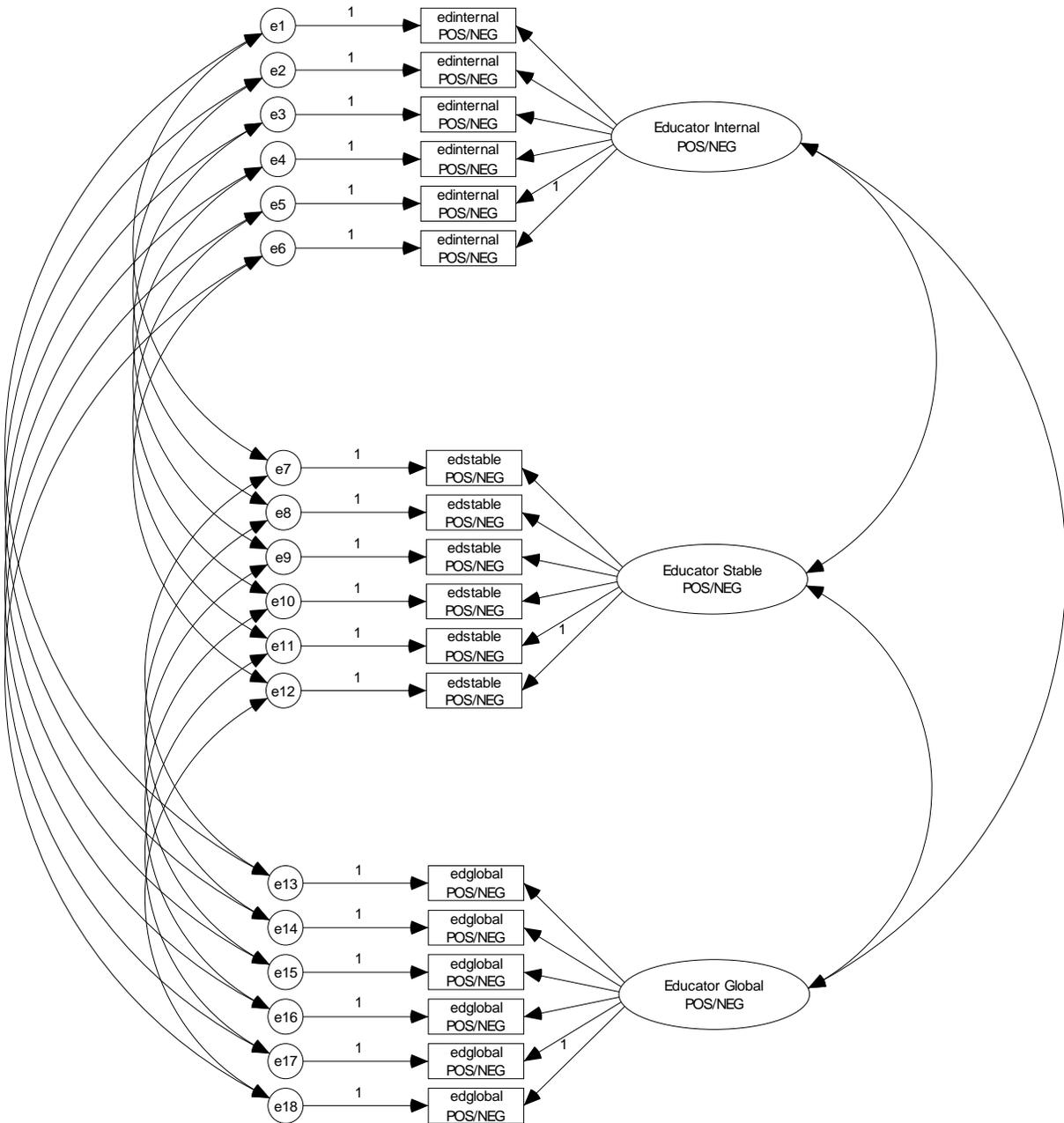


Figure 3.1: Measurement model for positive and negative item sets for the Educator Attributional Style Questionnaire.

NOTE: edinternal = Educator Attributional Style Questionnaire items for the Internal subscale; edstable = Educator Attributional Style Questionnaire items for the Stable subscale; edglobal = Educator Attributional Style Questionnaire items for the Global subscale; POS = Positive; NEG = Negative

The Importance of Domain Specificity

One way to address the internal reliability problem with the general ASQ is to set the situations posed by the ASQ into specific contexts or domains that tap more directly into explanations of specific events. Research by Peterson and Barrett (1987) suggests that explanatory style can be measured effectively by modifying the ASQ to fit particular situations or domains. Higgins, Zumbo, and Hay (1999) propose that there is no such thing as a non-situational attributional style. Their research showed that the use of context-dependent item sets (CDIS) increases model fit and accounts for more variance than non-CDIS items. Additionally, the diathesis-stress model of depression suggests that explanatory style may not be evident without the presence of a stressor. Research in context-dependent attributional style suggests that depressionogenic (pessimistic) attributional style is more apparent when faced with negative life events in the same context and not as apparent outside of the context (Proudfoot, Corr, Guest, & Gray, 2001). Thus, domain-specific explanatory style measures would allow respondents to imagine situations that are actually within the realm of possibility and present an imaginary stressor to reveal explanatory style for a specific context. The use of domain-specific measures of explanatory style has precedence in the literature. Peterson and Barrett (1987) developed the Academic ASQ, and explanatory style measures for children (CASQ, Seligman, et al, 1984), teens (TASQ, Lieber, 1997), and financial-service sector workers (Proudfoot, Corr, Guest, & Gray, 2001) exist that tap into situations often faced by these populations. The use of an educator-specific Attributional Style Questionnaire that uses teaching-specific situations would be consistent with domain-specific adaptations of the original ASQ to fit diverse populations.

The domain-specific measures of attributional style each used slightly different approaches to validate the measure and to demonstrate divergent validity. Since explanatory

style is grounded in clinical psychology, many studies use depression measures – specifically the Beck Depression Inventory (BDI; Beck, 1967) – to determine validity. Peterson and Barrett (1987) used the BDI to demonstrate convergent validity of the AASQ with the ASQ. They also used GPA and the Scholastic Aptitude Test (SAT) scores to determine divergent validity with academic variables. The developers of the Children’s Attributional Style Questionnaire (CASQ: Seligman, et al, 1984) used the Children’s Depression Inventory (CDI: Kovacs & Beck, 1977) to determine validity with their child-specific measure. Lieber (1997) used inventories for depression, anxiety, self-esteem, and academic achievement to determine validity. Finally, Proudfoot, Corr, Guest, and Gray (2001) used several measures of intrinsic motivation, self-control, intention to leave a job, and a general health scale in addition to the ASQ to determine validity of their financial services sector measure. For this study, we are using a measure of self-esteem to validate the EdASQ.

Purpose

The purpose of this research study is to develop and validate an educator-specific attributional style questionnaire (EdASQ), which will provide a useful tool for measuring the explanatory style in teaching-specific circumstances. Two studies comprise this research.

Study 1

Method

Participants

Participants were K-12 public school teachers (N = 169) from a suburban public school district in the southeastern United States. Approximately 850 teachers were asked to participate. Their participation was voluntary. Teachers received printable documentation upon completion

of the survey for one hour of professional development credit as an incentive for participation. The survey was administered using an online platform and sent to teachers via email. Permission to survey teachers was provided by the superintendent of the district.

Demographic information for Study 1 is provided in Table 3.1. For Study 1, 279 teachers were solicited via email for the survey, but only 172 completed the entire set of measures, resulting in a 20% response rate and a 60.5% completion rate. The majority of teachers were female. The number of elementary and secondary teachers was the same, yet slightly fewer middle school teachers responded. Teachers in this sample had a wide range of experience, with the largest group of teachers having 16+ years of teaching experience. Most of the teachers had earned a master's degree or a bachelor's degree. Very few had earned an Education Specialist (EdS) degree or a doctorate. Only one teacher from this sample had earned certification through the National Board for Professional Teaching Standards (NBPTS, also known as National Board Certification or NBC), but many teachers expressed a desire to pursue this certification within 2-5 years if it were available in their area.

Measures

For this development and validation study, the EdASQ was administered along with the Attributional Style Questionnaire (ASQ) and the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). Half of the participants took the EdASQ, the ASQ, and the RSES, while the other half took the EdASQ and the RSES only. The ASQ and RSES are valid and reliable, easily administered and scored, pose no risk to the participants, and robust across adult populations.

Table 3.1

Demographics for Study 1 and Study 2

Demographics	Study 1	Study 2
<i>N</i>	169	181
Male	34	25
Female	135	145
Teaching Level		
Elementary (K-5)	54	69
Middle School (6-8)	32	31
High School (9-12)	54	70
Years of Teaching Experience		
1-3 years	28	26
4-7 years	29	31
8-10 years	16	20
11-15 years	28	26
16+ years	39	67
Highest Degree Earned		
BA/BS	37	75
MA/MS	88	89
EdS	11	3
Doctorate (PhD/EdD)	4	3
National Board Certification		
Plans to pursue certification in 2-5 years	59	50
Would pursue if available for subject area	14	30
Would NOT pursue even if available	58	87
Is currently pursuing	9	3

Attributional Style Questionnaire (ASQ). The ASQ consists of 12 situations, 6 good and 6 bad, that respondents must imagine they are experiencing. Respondents provided a written explanation for the event and then choose on a Likert scale of 1 to 7 whether the explanation is global or specific, temporary or permanent, and internal or external. The ASQ is moderately reliable, with estimated Cronbach's (1951) alpha internal reliability coefficients of .66 for internality, .85 for stability, and .88 for globality (Peterson & Villanova, 1988). The ASQ significantly predicts depression as measured by the Beck Depression Inventory ($r = .18, p < .05$ for internality; $r = .19, p < .05$ for stability; and $r = .40, p < .01$ for globality; Peterson & Villanova, 1988). The ASQ also significantly predicts self-esteem as measured by the Rosenberg Self-Esteem Scale ($r = .34, p < .01$ for internality; $r = .28, p < .01$ for stability; $r = .21, ns$ for globality, and $r = .40, p < .001$ for the ASQ composite; Cheng & Furnham, 2003).

The scoring of the ASQ has differed since its creation. Schulman and Seligman (1986) summed the internal, global, and stable elements from the positive and negative items to obtain the respective composite positive (CP) and composite negative (CN) scores for insurance agents. Then, they subtracted the CN from the CP to obtain the overall score. Corr and Gray (1996) obtained the CP and CN scores by taking an average of the internal, stable, and global elements for each item. Smith, Hall, and Woolcock-Henry (2000) used a complicated scoring method in which the positive or negative items were added, multiplied by three, then by six, and finally divided by six.

Ultimately, they obtained the composite score (CPCN) by subtracting the CP from the CN, but only after subtracting the lowest three items. For this study, the CP and CN scores are obtained by taking the average of the items for positive and negative items. The composite scores for the EdASQ and the ASQ were calculated by subtracting the composite positive score from

the composite negative score for each measure. Scores for these composites range from -7 to +7. Scores for the subscales range from 0 to +7. This method is similar to one employed by Proudfoot, Corr, Guest, and Gray (2000) when they created the FSASQ. Teachers in each of these phases of this study have neither a strong optimistic or strong pessimistic explanatory style as shown by the composite score, with a mean of .549 on the ASQ and a mean of .984 on the EdASQ. For financial service sector workers, CPCN scores had a mean of 1.4, which is similar to the scores shown in this study.

Educator Attributional Style Questionnaire (EdASQ). The EdASQ is modeled after the original ASQ, presenting 12 teaching-specific situations, 6 good and 6 bad. Teachers provided a short written explanation of the cause of the event, and then rate their stated cause on a 7-point Likert-scale for the 3 dimensions of explanatory style: global/specific, permanent/temporary, and internal/external. The EdASQ was developed by modifying the situations to reflect teacher-specific situations. For instance, an ASQ item reads, “You have been looking for a job unsuccessfully,” but an EdASQ item reads, “You have been looking for a teaching job unsuccessfully.” One item – “You can’t get all the work done others expect of you” – was unchanged due to the applicability of the item to both teaching and non-teaching situations.

Development of the EdASQ occurred in phases. Phase 1 involved altering items on the ASQ to reflect teaching-specific situations. All but one item was modified. Phase 2 involved examining items by content experts to determine if they fit the theoretical principles of explanatory style. One expert recommended changing items to remove any references to specific time frames (i.e., I have been looking unsuccessfully for a teaching job *for some time*) to eliminate leading participants toward permanent attributions. Phase 3 involved giving the survey

to a small pilot group of teachers to determine if any wording problems existed. These teachers reported no issues with the face validity of the measure. Phase 4 is this study.

Rosenberg Self-Esteem Scale (RSES). This measure is a 10-item scale using a 4-point Likert scale to assess general self-esteem, with higher scores reflecting higher levels of self-esteem. Scores range from 4 to 40, with higher scores signifying higher self-esteem. The scale has good internal consistency with $\alpha = .89$ (Sullivan, Tripp, & Catano, 1997). The scale items load on one factor. Cheng and Furnham (2003) found that the RSES correlated with attributional style in positive situations ($r = .25, p < .05$), negative situations ($r = -.36, p < .001$), and in a composite of positive and negative situations ($r = .40, p < .001$).

Procedure

Half of the teachers completed the EdASQ, the ASQ, and the RSES. The other half took the other measures but did not take the ASQ. The first group establishes baseline data of explanatory style in both teaching-specific and non-domain-specific contexts. The second group serves as a cross-validation group.

Results

Descriptive summative analysis for Study 1 is provided in Table 3.2. In general, teachers in this sample have a neutral explanatory style on both the EdASQ and ASQ and a healthy self-esteem.

Reliability. Reliability analysis for all measures was conducted using Cronbach's (1951) alpha. The coefficients for all composite measures are shown in Table 3.2. All of these alpha coefficients for the overall composite scores for all scales are within the acceptable range. The composite EdASQ yielded a higher reliability index than the ASQ. Each composite subscale of the EdASQ also yielded a higher reliability index than its respective subscale in the ASQ, with

the exception of the composite negative subscale and the global composite subscale. Within the global composite subscale, only the EdASQ global negative subscale yielded a lower reliability coefficient than its counterpart in the ASQ.

Table 3.2

Descriptive and reliability statistics for Educator Attributional Style Questionnaire, Attributional Style Questionnaire, and Rosenberg Self-Esteem Scale for Study 1

Measures	EdASQ				ASQ			
	<i>N</i>	Mean	<i>SD</i>	α	<i>N</i>	Mean	<i>SD</i>	α
Composite	169	.984	.891	.800	64	.549	.970	.783
Composite Positive		5.06	.700	.840		4.68	.675	.726
Composite Negative		4.08	.680	.724		4.13	.774	.818
Internal		4.43	.646	.599		4.22	.560	.334
Internal Positive		4.14	.879	.721		4.23	.883	.491
Internal Negative		4.72	.870	.504		.420	.772	.375
Stable		4.70	.671	.717		4.41	.668	.659
Stable Positive		5.28	.831	.758		4.81	.852	.584
Stable Negative		4.12	.880	.639		4.01	.849	.644
Global		4.58	.791	.715		4.58	.884	.763
Global Positive		5.18	.930	.706		4.99	1.00	.655
Global Negative		3.97	1.02	.623		4.17	1.12	.740
Rosenberg Self-Esteem (RSES)	172	34.52	4.11	.850				

Note. EdASQ = Educator Attributional Style Questionnaire; ASQ = Attributional Style Questionnaire

The composite score for internality was the only subscale that did not achieve the most acceptable level of reliability. Typically, the ASQ has only moderate reliability for internality (c.f. Peterson & Villanova, 1988; Peterson & Barnett, 1987), making these findings consistent

with previous research with the ASQ. However, in examining the EdASQ internal positive and internal negative subscales, acceptable reliability was achieved with the internal positive and not with the internal negative. This finding suggests that teachers show a distinction between their internal-external explanations for positive and negative events.

Validity. The correlational analysis to establish validity is presented in Table 3.3a and Table 3.3b for Study 1. I conducted correlational analysis between the EdASQ, ASQ, and RSES. The composite scores for the EdASQ and the ASQ were significantly correlated to each other. To establish convergent validity, I examined the correlations between the RSES and the attributional measures. The RSES was significantly correlated to the composite scores for both the EdASQ and the ASQ, although the ASQ correlates better with the RSES than the EdASQ. The RSES-ASQ composite correlation is similar to the correlation found by Cheng and Furnham (2003; $r = .40, p < .001$). Neither the composite positive or composite negative subscales for the EdASQ correlated significantly to the RSES. For the ASQ, the composite negative subscale was negatively and significantly correlated to the RSES, but the composite positive subscale did not correlate significantly. For the EdASQ, the internal subscale showed a significant, positive correlation, but the stable and global subscales did not correlate. For the EdASQ, the internal-positive, stable-positive, stable-negative, and global-negative subscales yielded significant correlations in the expected directions. For the ASQ, the internal-positive, stable-negative, and global-negative subscales yielded significantly correlations in the expected directions.

Table 3.3a

Correlational analysis (Pearson's r) of RSES and EdASQ for Study 1

Measures	CPCN	CP	CN	Internal	EdASQ						RSES		
					Internal POS	Internal NEG	Stable	Stable POS	Stable NEG	Global		Global POS	Global NEG
EdASQ CPCN	1.00												
CP	.440**	1.00											
CN	-.376**	-.052	1.00										
Internal	.116	.576**	.439**	1.00									
Internal-POS	-.427**	.126	.687**	.741**	1.00								
Internal-NEG	.606**	.727**	-.046	.732**	.084	1.00							
Stable	.044	.603**	.560**	.262**	.123	.264**	1.00						
Stable-POS	.519**	.854**	.199**	.349**	.072	.444**	.767**	1.00					
Stable-NEG	-.420**	.112	.664**	.070	.119	-.017	.797**	.224**	1.00				
Global	-.080	.565**	.684**	.295**	.348**	.085	.463**	.455**	.274**	1.00			
Global-POS	.452**	.816**	.247**	.305**	.142	.309**	.429**	.619**	.069	.789**	1.00		
Global-NEG	-.534**	.132	.833**	.179*	.409**	-.149	.326**	.142	.361**	.830**	.311**	1.00	
RSES	.326**	.184	-.202	.171*	.307*	-.004	.011	.069	-.288*	-.076	.031	-.124	1.00

* significant to .05 level

** significant to .01 level

NOTE: EdASQ CPCN = Educator Attributional Style Questionnaire Composite Positive/Composite Negative; CP = Composite Positive; CN = Composite Negative; RSES = Rosenberg Self-Esteem Scale; POS = Positive; NEG = Negative

Table 3.3b

Correlational analysis (Pearson's r) of RSES and EdASQ for Study 1

Measures	ASQ												RSES	
	CPCN	CP	CN	Internal	Internal POS	Internal NEG	Stable	Stable POS	Stable NEG	Global	Global POS	Global NEG		
ASQ CPCN	1.00													
CP	.609**	1.00												
CN	-.722**	.109	1.00											
Internal	.153	.631**	.358**	1.00										
Internal POS	.669**	.692**	-.234	.727**	1.00									
Internal NEG	-.542**	.124	.788**	.619**	-.088	1.00								
Stable	-.128	.540**	.631**	.376**	.127	.400**	1.00							
Stable POS	.431**	.792**	.151	.388**	.403**	.103	.786**	1.00						
Stable NEG	-.633**	.056	.842**	.202	-.204	.526**	.785**	.235	1.00					
Global	-.252*	.481**	.735**	.276*	-.027	.482**	.454**	.264*	.449**	1.00				
Global POS	.275*	.737**	.299**	.304*	.175	.241	.311*	.394**	.093	.811**	1.00			
Global NEG	-.643**	.099	.892**	.163	-.270*	.546**	.438**	.063	.626**	.852**	.384**	1.00		
RSES	.483**	.224	-.405**	.133	.382**	-.257	-.168	.088	-.363**	.241	.026	-.409**	1.00	

* significant to .05 level

** significant to .01 level

ASQ CPCN = Attributional Style Questionnaire Composite Positive/Composite Negative (overall score); CP = Composite Positive; CN = Composite Negative; RSES = Rosenberg Self-Esteem Scale; POS = Positive; NEG = Negative

Confirmatory factor analysis. To test the factor structure of the EdASQ, we tested six models: (1) one composite score; (2) three overall factors – internal, stable, global; (3) two overall factors – composite positive and composite negative; (4) two overall composite factors – positive and negative – with three factors each – internal, stable, and global; (5) three factors for positive events; and (6) three factors for negative events. We predict the last two models that differentiate between positive and negative events while yielding the three theoretical dimensions will have the best fit.

Using AMOS 17.0 (Arbuckle, 2009), we tested each of the models. The correlation table used for testing these models is shown in Table 3.3a. The fit statistics for each model are shown in Table 3.4. The model with the best fit to the data was Model 6, the composite negative model with three factors. The composite positive three-factor model (Model 5) also yielded good model fit. The sample size for this data may have contributed to the significant chi-square statistic for this model, but the RMSEA and CFI fit statistics show good fit to the data. This finding for this teacher sample replicates models tested by Higgins, Zumbo, and Hay (1999), confirming the three-factor models for the positive items and negative items on ASQ-based instruments.

Table 3.4

Confirmatory factor analysis using structural equation modeling for Educator Attributional Style Questionnaire for Study 1

Model	Factors	χ^2	<i>df</i>	χ^2/df	<i>p</i>	RMSEA (90% CI)	CFI
1	1 Composite CPCN	1260.054	558	2.25	.000	.067 (.062, .072)	.617
2	3 (Internal, Stable, Global)	985.769	555	1.77	.000	.053 (.047, .058)	.765
3	2 Composites (1 POS; 1 NEG)	1189.472	557	2.13	.000	.064 (.059, .069)	.655
4	2 Composites (1 POS; 1 NEG) with 3 each (Internal, Stable, Global)	836.209	551	1.51	.000	.043 (.037, .049)	.844
5	3 (Positive items only)	154.287	114	1.35	.007	.036 (.019, .049)	.963
6	3 (Negative items only)	133.698	114	1.17	.100	.025 (.000, .041)	.961

NOTE: CPCN = Composite Positive/Composite Negative; POS = Positive; NEG = Negative; RMSEA = Root Mean Square Error of Approximation; CI = Confidence Interval; CFI = Comparative Fit Index

Figure 3.2

Structural Equation Model for Educator Attributional Style Questionnaire Positive Item Sets

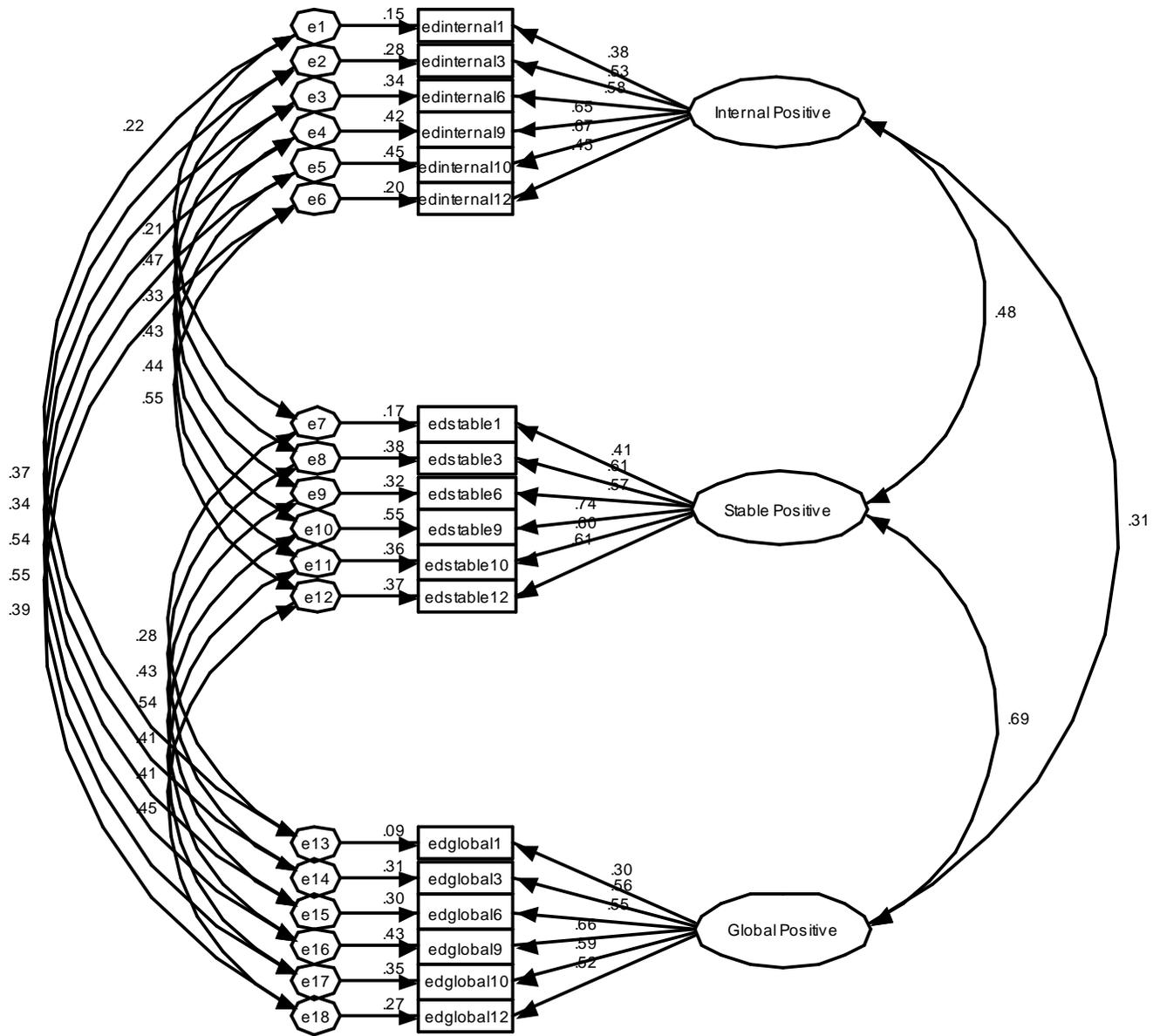


Figure 3.2: Structural model for the positive item sets from the Educator Attributional Style Questionnaire. The standardized coefficients for this model are for the best fitting model (Model 5 from Table 3.4).

Figure 3.3

Structural Equation Model for EdASQ Negative Item Sets

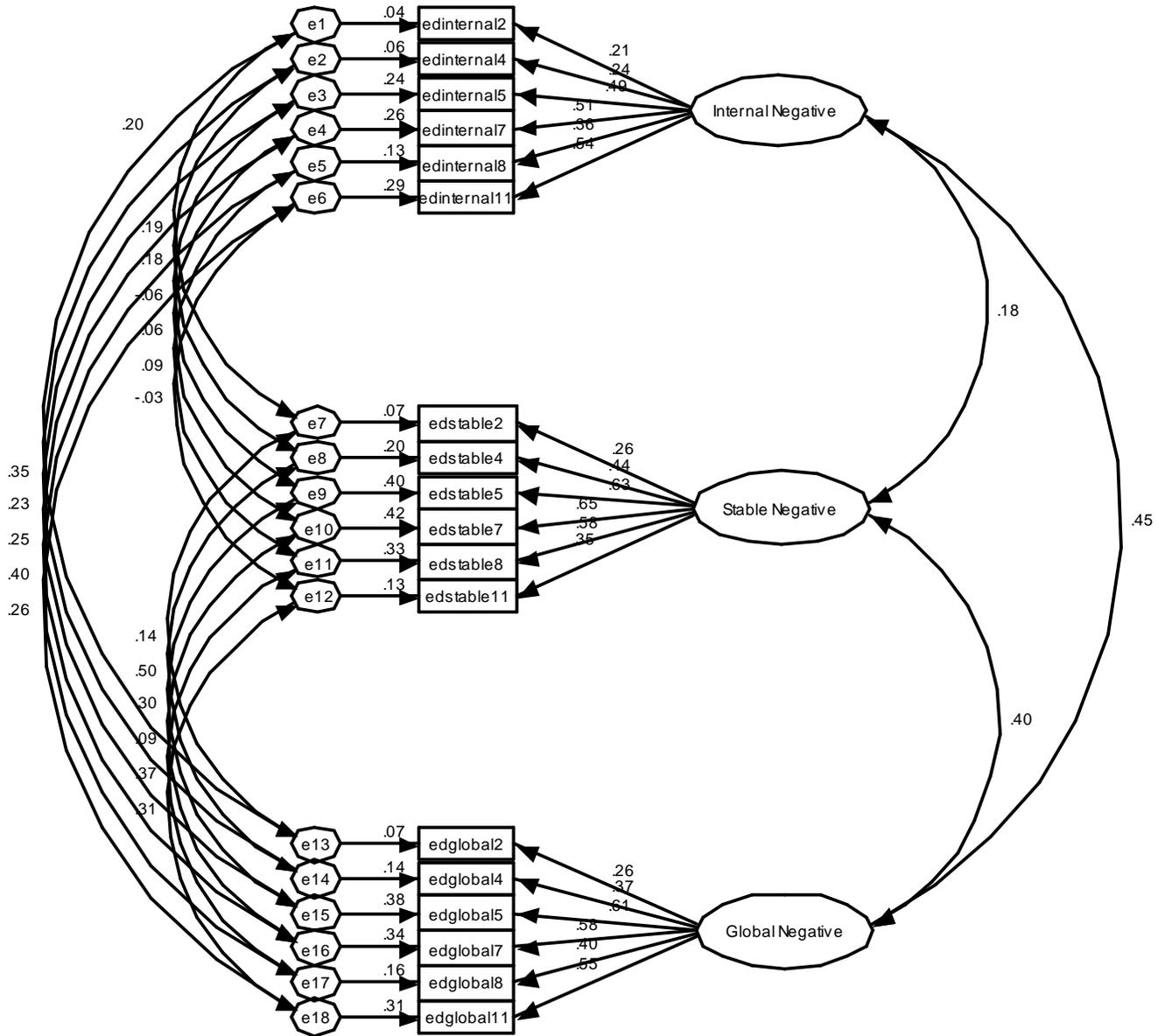


Figure 3.3: Structural model for the negative item sets from the Educator Attributional Style Questionnaire. The standardized coefficients for this model are for the best fitting model (Model 6 from Table 3.4).

Discussion

Study 1 establishes the Educator Attributional Style Questionnaire (EdASQ) as an internally reliable and valid measure of explanatory style. The EdASQ compares favorably with the general ASQ in terms of internal reliability and external validity when compared with a measure of self esteem. In addition, this study provides further validation for two measurement models found within ASQ-based measures, one for positive items sets and one for negative item sets (Higgins, Zumbo & Hay, 1999). Because the item sets within ASQ-based measures require correlated error variances, measurement models that consider the positive and negative item sets independent of each other are necessary. This research suggests that teachers in this sample may possess independent explanatory styles for positive and negative events.

Study 2

In order to validate further the EdASQ, I cross-validated the results from Study 1 with a sample of teachers from two other school districts. Study 1 focused on a mainly suburban school district in the southeastern United States. Study 2 broadens the focus of Study 1 by using one sample of teachers from a rural school district from the same southeastern state and another sample of teachers from a mixed demographic district in the Midwest.

Method

Participants

Study 2 involved teachers from two public school districts, one a large city school district comprised of rural, urban, and suburban populations from the Midwestern United States and the other a mostly rural district from the southeastern United States. For Study 2, 298 teachers were solicited for the survey, and 181 completed the set of measures, resulting in a 5.8% response rate

and a 60.7% completion rate. All teachers took the EdASQ and the RSES. These responses were analyzed and compared to Study 1.

The demographic data for Study 2, shown in Table 3.5, parallels Study 1. The majority of teachers in this sample were female. The number of elementary and secondary teachers was almost the same. Again as in Study 1, the number of middle school teachers was less than the other levels. Study 2 had more teachers who had 16+ years of teaching than Study 1, but the other groups of teachers' years of experience were similar to Study 1. Unlike Study 1, the number of teachers with bachelor's and master's degrees was more even. Only three teachers each had earned either an EdS or a doctorate. No teachers in Study 2 had earned National Board Certification, and 87 would not pursue such certification if it were available. Many teachers in this sample plan to pursue it within 2-5 years if it were available in their subject area.

Measures and Procedure

For Study 2, all participating teachers took the EdASQ and the RSES. These measures are valid and reliable, easily administered and scored, pose no risk to the participants, and robust across adult populations. Descriptions of these measures and their respective reliability history are given in full in Study 1. For this study, the CP and CN scores are obtained by taking the average of the items for positive and negative items. The composite scores for the EdASQ and the ASQ were calculated by subtracting the composite positive score from the composite negative score for each measure. Scores for these composites range from -7 to +7. Scores for the subscales range from 0 to +7. Teachers in this study have a slightly optimistic explanatory style as shown by the composite score, with a mean of 1.16 on the EdASQ. Scores for the RSES range from 4 to 40, with higher scores signifying higher self-esteem.

Table 3.5

Descriptive statistics for Educator Attributional Style Questionnaire and Rosenberg Self-Esteem Scale for Study 2

Measures	<i>N</i>	Mean	<i>SD</i>	α
EdASQ Composite	182	1.16	.949	.808
Composite Positive		5.01	.776	.876
Composite Negative		3.93	.653	.771
Internal		4.34	.639	.603
Internal Positive		4.72	.894	.747
Internal Negative		3.95	.879	.535
Stable		4.65	.656	.704
Stable Positive		5.35	.878	.786
Stable Negative		3.96	.838	.610
Global		4.56	.796	.734
Global Positive		5.23	.964	.756
Global Negative		3.88	1.03	.654
Rosenberg Self-Esteem	181	30.68	3.86	.889

Note. EdASQ = Educator Attributional Style Questionnaire

Results

Descriptive summative analysis for Study 2 is provided in Table 3.5. Teachers in this study also demonstrated a slightly neutral explanatory style and healthy self esteem. The teachers in this sample show similar results for the EdASQ and RSES as those in Study 1.

Reliability. Reliability analysis for all measures was conducted using Cronbach's (1951) alpha. The coefficients for all composite measures are shown in Table 3.5. For Study 2, the

reliability coefficients for the EdASQ were slightly higher for the composite score and each subscale than for Study 1. Peterson and Villanova (1988) found internal reliability coefficients of .66 for internality, .85 for stability, and .88 for globality for the ASQ. The only subscale yielding a reliability coefficient lower than .60 was internal-negative. The main EdASQ subscales (internal, stable, and global) have higher reliability coefficients than the ASQ subscales in Study 1, demonstrating that the domain-specific EdASQ is a more reliable measure of educator explanatory style than the more general ASQ.

Validity. The correlations between the composite EdASQ and the RSES remained stable, as shown in Table 3.6. The composite positive subscale achieved a higher correlation with the RSES in Study 2 than was achieved by the ASQ in Study 1. The internal subscale remained significantly correlated with the RSES in Study 2.

Table 3.6

Correlational Analysis (Pearson's r) for Educator Attributional Style Questionnaire and Rosenberg Self-Esteem Scale for Study 2

Scales	EdASQ CPCN	EdASQ CP	EdASQ CN	Internal POS	Stable POS	Global POS	Internal NEG	Stable NEG	Global NEG	RSES
EdASQ CPCN	1.000									
EdASQ CP	.731**	1.000								
EdASQ CN	-.594**	.114	1.000							
Internal POS	.687**	.814**	-.040	1.000						
Stable POS	.613**	.848**	.107	.536**	1.000					
Global POS	.548**	.858**	.213**	.525**	.615**	1.000				
Internal NEG	-.381**	.062	.628**	.042	.033	.079	1.000			
Stable NEG	-.410**	.070	.679**	-.056	.167*	.066	.095	1.000		
Global NEG	-.470**	.108	.812**	-.067	.038	.285**	.265**	.392**	1.000	
RSES	.327**	.308**	-.113	.260**	.279**	.240**	.024	-.112	-.143	1.000

*significant to the .05 level; ** significant to the .01 level

NOTE: EdASQ CPCN = Educator Attributional Style Questionnaire Composite; EdASQ CP = Educator Attributional Style Questionnaire Composite Positive; EdASQ CN = Educator Attributional Style Questionnaire Composite Negative; POS = Positive; NEG = Negative; RSES = Rosenberg Self-Esteem Scale

Confirmatory factor analysis. To test the factor structure of the EdASQ for the sample from Study 2, we tested the same six models from Study 1. We predict the last two models that differentiate between positive and negative events while yielding the three theoretical dimensions will have the best fit for Study 2 as it did for Study 1. A table showing the factor loadings, t-values, p-values, means, standard deviations, and variances for each item from the EdASQ and ASQ are found in Appendix B.

Using AMOS 17.0 (Arbuckle, 2009), we tested each of the models. The correlation table used for testing these models is shown in Table 3.6. The fit statistics for each model are shown in Table 3.7. The model with the best fit to the data for this study was Model 5, the composite positive model with three factors. The composite negative three-factor model (Model 6) also yielded good model fit. The sample size for this data may have contributed to the significant chi-square statistics for these models, but the RMSEA and CFI fit statistics show good fit to the data. This finding for this teacher sample replicates models tested by Higgins, Zumbo, and Hay (1999) and models from Study 1, confirming the three-factor models for the positive items and negative items on ASQ-based instruments.

Table 3.7

Confirmatory factor analysis using structural equation modeling for Educator Attributional Style Questionnaire for Study 2

Model	Factors	χ^2	<i>df</i>	χ^2/df	<i>p</i>	RMSEA (90% CI)	CFI
Model 1	1 Composite	1493.062	558	2.67	.000	.075 (.070, .080)	.603
Model 2	3 (Internal, Stable, Global)	1153.644	555	2.07	.000	.060 (.055, .065)	.746
Model 3	2 Composites	1363.178	557	2.44	.000	.070 (.065, .074)	.658
Model 4	2 Composites with 3 each (Internal, Stable, Global)	951.209	551	1.72	.000	.049 (.044, .055)	.830
Model 5	3 (Positive items only)	176.702	114	1.55	.000	.043 (.030, .055)	.958
Model 6	3 (Negative items only)	205.920	114	1.80	.000	.052 (.040, .063)	.852

NOTE: RMSEA = Root Mean Square Error of Approximation; CI = Confidence Interval; CFI = Comparative Fit Index

Discussion

Study 2 further validates the findings from Study 1. The EdASQ is a reliable and valid measure of explanatory style in two samples of teachers. In addition, the measurement models for positive and negative item sets continue to show good fit to the data. This study demonstrates that the EdASQ can be used with teacher populations to measure domain-specific explanatory style, and researchers using ASQ-based measures should consider using independent measurement models for positive and negative item sets. This approach will help researchers understand how explanatory style affects outcome variables in more nuanced ways.

General Discussion

Both Study 1 and Study 2 indicate that the EdASQ is a reliable and valid measure of explanatory style in teachers. The EdASQ has shown to have similar internal reliability to the original ASQ and correlates in similar ways to self-esteem as the ASQ. In addition, the EdASQ has a similar factor structure as the ASQ when the positive items are analyzed independently from the negative items. These studies confirm that measures based on the original 12-situation ASQ should be analyzed using positive items and negative items separately rather than together. In addition, error variances for the internal, stable, and global items for each situation should be correlated to provide the best fit for the data. These studies help support the idea that explanatory style is context dependent in two ways. First, internal, stable, and global explanations for positive and negative events are interdependent on each other within each situation. Second, explanatory style for teaching specific situations differs from general explanatory style.

These studies are limited in that the results may be indicative of teacher samples rather than a general trend. The teacher samples were relatively small for these studies when compared to the population of teachers in the respective districts, so the results may be influenced by the

type of teacher who would persist in completing the survey. The ASQ and its sister measures do tend to be quite lengthy. The greatest attrition for these administrations of the measures occurred as teachers were filling out the ASQ and/or EdASQ. Over half of the teachers who began the survey quit as they were taking the ASQ and/or EdASQ. Once these measures were completed, only 1 teacher per administration quit taking the rest of the measures included in the survey. This suggests that ASQ-based measures of explanatory style may need further tweaking to reduce apparent survey fatigue.

This data helps establish a baseline for explanatory style in teachers that will be useful for future research into teacher attributions about school. Teachers in this sample tend to be neutral in their explanatory styles, showing neither a strong optimistic or pessimistic tendency. However, the scores on the positive items did tend to be higher than the scores on the negative items, indicating that optimistic explanatory style is more prevalent in teachers. Future research could explore whether a teacher's explanatory style has any influence on student explanatory style, which has been linked to academic achievement (see Reivich, 1995, for a review). Future research could also examine whether teacher explanatory style is related to teacher burnout. If explanatory style is related to reduced burnout, programs to cultivate a particular explanatory style in teachers could be developed for preservice and currently serving teachers.

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CHAPTER 4

Examining the Relationship Between Explanatory Style and Efficacy: A Model for Teacher Burnout

Teaching is a challenging profession. The challenge of teaching lies not only in the poor state of school funding or the lack of administrative support. Rather, teaching challenges even the strongest of spirit with its roller coaster of successes and failures ridden every day. Each day brings its own highs and lows. A teacher can see the spark of understanding in one student's eye only to turn around and see another student sleeping soundly. She may receive an email praising her dedication for helping a struggling student one minute and face a hostile parent complaining she is not giving enough the next. A teacher may be told to pay for her own professional development opportunities only to find out that the athletic teams all got brand new shoes. A lesson may work seamlessly with one class and bomb miserably with the next. Those teachers that can ride these waves without getting sick or feeling dizzy will be more likely to keep riding the roller coaster of teaching for many years.

If a teacher can ride the coaster, she may stay in the field longer. School administrators often find it difficult to keep good teachers in the classroom. Teacher attrition is a continual problem for schools across the United States (see Zumwalt & Craig, 2005; Leukens, Lyter, & Fox, 2004; Whitener & Gruber, 1997), and much thought and effort has been invested in exploring cultural, social, and professional explanations for teacher attrition. Teacher attrition research has examined why teachers leave the field (see Baker & Smith, 1997; Boe, Bobbitt, Cook, Barkanic, & Maislin, 1998) and how teacher credentials (see Andrew & Schwab, 1995), school environment and resource access (Baker & Smith, 1997; Boe, Bobbit, Cook, Barkanic, &

Maislin, 1998; Ingersoll, 1999) can lead to higher rates of attrition. None of this research, though, examines how teachers think about teaching and whether their thinking contributes to attrition. Research has not examined how teachers' thinking may affect how well they are able to ride the high and low waves that teaching brings. This research examines teachers' explanations of their successes and failures and beliefs about their teaching effectiveness, and tests whether these explanations and beliefs account for their ability to weather the storms of teaching by creating a buffer against feeling burned out with teaching.

Specifically, this research examines the relationship between explanatory style—the way in which people explain good and bad events (Seligman, 1998) and teachers' sense of efficacy—beliefs teachers hold about whether they are capable as a teacher (Tschannen-Moran & Woolfolk Hoy, 2001) to explain teacher burnout. In order to persevere in the face of failure, explanatory style and efficacy each matter, but it is unclear how these two factors are related. Although each concept overlaps conceptually, they stem from different areas of psychology. Teacher efficacy has been extensively examined in academic settings, whereas explanatory style has its roots as a clinical explanation for depression. People with high efficacy believe themselves capable of overcoming obstacles (Bandura, 1994). People with less pessimistic explanatory styles view obstacles as challenges to be overcome (Seligman, 1998). Yet, it is unclear whether one needs efficacy in order to have less pessimistic explanatory style or whether a less pessimistic explanatory style helps one build efficacy. Bandura (1994) suggests that efficacy contributes to the development of certain types of causal attributions. Yet, Pajares (2002) acknowledges that outcomes interpreted as successful raise efficacy while those interpreted as failure lower it. In essence, this research attempts to present a teaching-specific model for explanatory style and efficacy that clarifies the relationship between these two concepts in predicting burnout.

This research is important because it can inform practice and elaborate on the theoretical relationship between efficacy thoughts about ability and attributions about success and failure. While successful interventions exist that promote optimistic explanatory style, few successful interventions exist that promote high sense of efficacy in teachers. Understanding how explanatory style and efficacy relate may shed light on how to develop interventions that promote optimistic explanatory style and high efficacy. Teachers with both may end up being more resilient when teaching become challenging. From a practice standpoint, if teachers' explanations of good and bad events help them build efficacy as teachers, then teacher training and development programs can be used to help teachers have more resilient ways of explaining success and failure by building from established interventions (Seligman, Reivich, Jaycox, & Gillham, 1995). From a theoretical standpoint, this research helps to clarify whether efficacy leads to optimistic explanations or whether explanations of events lead to increases or decreases in efficacy.

This research addresses two questions:

- What is the relationship between explanatory style and teachers' sense of efficacy in predicting burnout?
- How are optimists and pessimists, who have different explanatory styles, different in regards to teachers' sense of efficacy and burnout?

To understand how explanatory style and efficacy relate to each other and to attrition, I discuss teacher efficacy and explanatory style; the ways in which teacher efficacy and explanatory style overlap conceptually; and how previous efficacy research point to models for how these two concepts work together to predict attrition.

Burnout

Burnout has generally been studied as a phenomenon found in human service professions, like teaching. The most widely researched definition of burnout was developed by Maslach (1982), which defines burnout as including feelings of exhaustion, depersonalization, and lack of personal accomplishment. Using the Maslach definition for teaching, burnout has been linked to environmental factors such as lack of support from families, society, the government, and administration, in addition to personal factors such as low efficacy, internal attributions for failure, and neuroticism (Luk, Chan, Cheong, & Ko, 2010). Other researchers suggest the burnout encompasses two overall components – exhaustion and disengagement – which more appropriately reflect a job-demands/job-resources model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). This alternative definition of burnout addresses criticism of the original Maslach (1982) conceptualization by measuring burnout using only negatively worded items and disregarding the weakly correlated personal accomplishment component (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Regardless of the definition, burnout is a likely result when teachers feel exhausted, depersonalized, disengaged, and out of options for changing teaching and learning outcomes (Skaalvik & Skaalvik, 2009).

Teachers' Sense of Efficacy

Efficacy deals with the beliefs people have about their own capabilities. Bandura (1986) defines self-efficacy as the belief about how well one can organize and carry out actions required for a goal. Bandura's social cognitive theory suggests that people maintain two types of expectations in any given situation. Efficacy expectations are future-oriented and relate the confidence felt about one's "capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). Efficacy expectations affect the thoughts and

emotions needed to make people take the steps necessary to expend effort toward a goal.

Outcome expectations refer to the likelihood that a particular consequence will occur in a given situation given one's level of ability (Bandura, 1986). Bandura believed that while outcome expectations would provide the incentive or disincentive to work toward a goal, these expectations do little to influence efficacy. Bandura (1994) suggested four main ways that efficacy is fostered: mastery experiences, vicarious experiences, social persuasion, and emotional and physical reactions. Most researchers agree with Bandura that mastery experiences provide the most successful way to build efficacy in that success breeds success while failure breeds failure.

A teachers' sense of efficacy, a domain-specific conceptualization of efficacy, has been linked to numerous positive outcomes and predicts teacher practices and student achievement (Graham, Harris, Fink, & MacArthur, 2001; Tschannen-Moran & Woolfolk Hoy, 2001). Teachers' sense of efficacy seems to be a powerful force in determining teacher behavior and student success, and have led some to claim that teachers' sense of efficacy was the most promising construct to emerge from teacher research (Ashton, 1984). However, others have argued that despite years of research into the construct, it holds little practical significance for teachers or administrators seeking ways to improve student performance since developing teachers' sense of efficacy relies heavily on the experience of mastery (Wheatley, 2005), which may be difficult to experience easily.

Teachers' sense of efficacy has been measured differently by researchers who conceptualize it according to different theoretical perspectives (Skaalvik & Skaalvik, 2007). Because of competing conceptual ideas about teacher efficacy, claims of its value to educators and students are suspect at best (Denzine, Cooney, & McKenzie, 2005). Researchers often do not

examine the sources of efficacy beliefs to determine how powerful they are in predicting efficacy or outcome behaviors. Examining how explanatory style relates to teachers' sense of efficacy may shed light on how efficacy develops within the mastery experience. Explanatory style may be a vehicle teachers can use to build efficacy while they are working toward mastery, providing resilience in the face of difficult circumstances. Current teacher efficacy scales alone are not enough to obtain precise and valid information about teacher efficacy beliefs since those measures do not account for locus of control, which is an aspect of explanatory style (Denzine, Cooney, & McKenzie, 2005). Wheatley (2005) suggests that research on teachers' sense of efficacy should focus on teachers' interpretations of teaching experiences instead of on just their beliefs and goals about student learning. This research builds on Denzine et al. and Wheatley's suggestions by investigating how teachers' explanatory style, or causal attributions, of school-related events relate to teachers' sense of efficacy.

Developing Teachers' Sense of Efficacy

Bandura believes that mastery experiences are the most powerful factor in developing teachers' sense of efficacy; that is, if teachers experience success, then efficacy increases (Woolfolk-Hoy & Spero, 2005). Further, the more authentic and hard-fought the successful experience, the more likely that efficacy will be increased. These types of successful mastery experiences are important for developing teachers' sense of efficacy. However, teachers in difficult school environments might not have enough authentic successful experiences to promote meaningful gains in efficacy. Teachers may be able to imagine what mastery looks like, but without authentic mastery experiences, may never reach a healthy level of efficacy sufficient to get them through a challenging school year without developing a feeling of burnout.

If the explanations teachers give for both positive and negative classroom experiences were important to developing efficacy, teacher training and professional development programs could focus on developing optimistic explanations of both success and failure to cultivate efficacy and, by extension, teacher behaviors that affect attrition. Teachers would not have to wait on an authentic mastery experience to gain efficacy. They could explain each experience in the classroom, good or bad, and use those explanations to build efficacy. This type of efficacy-building program would be more efficient by using experiences from each day rather than waiting through to the end of a mastery experience to build efficacy.

Explanatory Style

A prominent research thread in positive psychology involves explanatory style, which has its roots in Martin E.P. Seligman's studies of learned helplessness (Seligman & Maier, 1967). As this research evolved, patterns of explanatory style became evident in humans based on the learned helplessness model of depression, which proposes that people will attribute their helplessness in the face of uncontrollable circumstances to a particular cause (Abramson, Seligman & Teasdale, 1978). People then determine whether the cause will have a chronic, broad, and detrimental impact to future self-esteem and agency. The explanatory style patterns of people in studies of learned helplessness fall along three dimensions – global/specific (projection of cause across different situations), stable/temporary (projection of cause across time), and internal/external (projection of cause to internal traits versus external factors) (see Table 4.1; Seligman, 1998).

Researchers eventually categorized optimists and pessimists as having diametrically opposed explanatory styles of good and bad events (Peterson & Vaidya, 2001; Seligman, 1998). Pessimistic explanatory style impacts the incidence of depression, and by extension, lower

Table 4.1

Optimistic vs. Pessimistic Explanatory Style

Explanatory Style	Good Events	Example	Bad Events	Example
Optimistic	Internal	<i>I am a good worker.</i>	External	<i>I had a bad day.</i>
	Stable	<i>I should always do well at this task..</i>	Temporary	<i>Next time, I'll do better.</i>
	Global	<i>More good things should happen today.</i>	Specific	<i>This, too, shall pass.</i>
Pessimistic	External	<i>I was just lucky.</i>	Internal	<i>I'm not good at this.</i>
	Temporary	<i>This will not last long.</i>	Stable	<i>This will never get better.</i>
	Specific	<i>Something bad will happen sooner or later.</i>	Global	<i>I'm not good at anything.</i>

academic achievement (Fazio & Palm, 1998; Hilsman & Garber, 1995; Nolen-Hoeksema, Girgus, & Seligman, 1986; Peterson & Barrett, 1987; Ritchie, 2000; Tiggeman & Crowley, 1993; Yates & Yates, 1995). In business, insurance salespeople with more optimistic explanatory styles remained in the field longer and sold more insurance than their more pessimistic counterparts (Seligman & Schulman, 1986). Seligman (1998) proposes that the explanatory style theory of optimism provides pessimistic people with an avenue to alter their pessimistic thinking patterns to be more optimistic, thus fostering mastery and resilience. For example, middle school children can be taught to retrain pessimistic thinking into optimistic thinking and significantly reduce the incidence of depression (Seligman, Reivich, Jaycox, & Gillham, 1995).

Explanatory Style and Efficacy

The relationship between explanatory style and efficacy is dealt with tangentially in the literature. Both theories are based on experiences of success and failure. For efficacy, mastery (i.e., successful) experiences develop high efficacy, so experiencing success and avoiding failure

are keys to having a healthy sense of efficacy. For explanatory style, how people interpret successes *and failures* defines their type of explanatory style (optimist or pessimist), and interventions exist that help pessimists become more optimistic. Thus, while efficacy is a good predictor of many positive teaching outcomes, one must first experience success to achieve more success later. This is problematic in high-failure situations like teaching and sales. If optimistic explanatory style helps develop high self-efficacy, then considering explanatory style and self-efficacy in high-failure situations may create opportunities for interventions that go beyond mastery experiences.

Hard-Fought Mastery Experiences: Explaining Setbacks to Gain Efficacy

The problem is that research has not examined whether efficacy precedes causal explanations of mastery experiences or vice versa. Bandura (1994) argues that efficacy precedes causal explanations and proposes that causal attributions are affected by efficacy beliefs. He theorizes that those with high efficacy attribute failure to low effort while those with low efficacy attribute failure to low ability (Figure 4.1).

Even though Bandura states that mastery experiences are one of the best ways to develop efficacy, he acknowledges that not all mastery experiences are created equal. Easy successes are not as valuable as those that are won via perseverance through setbacks and adversity. Bandura does not explain, however, how those with little or no efficacy at the outset get through setbacks. If experiencing success breeds efficacy, then only in the end after success is gained would experiences fraught with setbacks and adversity contribute to a higher sense of efficacy. Bandura's theory does not explain how one works through the setbacks and adversity except to say that if one has higher efficacy, perseverance is more likely. If people do not have high efficacy in the first place, it is unclear how they would get through to the end of a hard-fought

Figure 4.1

The Relationship Between Efficacy and Causal Attributions (Based on Bandura, 1994)

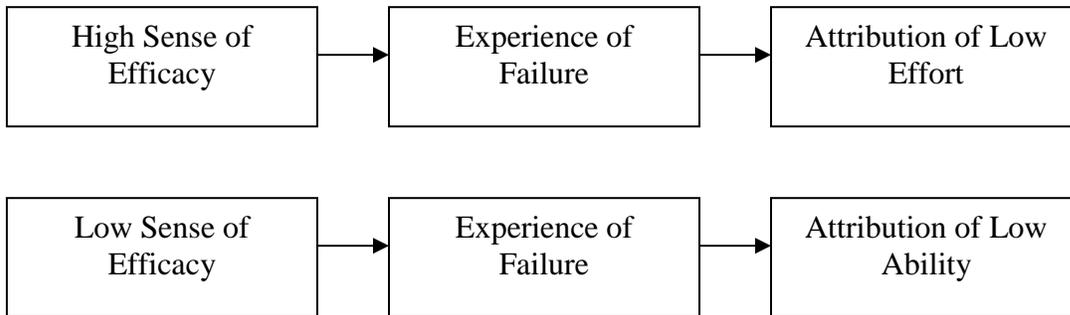


Figure 1: According to Bandura's (1994) theory, efficacy determines how people explain events they experience.

mastery experience without it. It would seem, then, that a variable between setbacks and success exists that would be important to determining whether efficacy is developed through hard-fought mastery experiences. Yet, Bandura is clear that this variable is not causal attributions, since efficacy precedes causal attributions, not the other way around.

The types of causal explanations teachers make about success and failure may provide the perseverance they need to weather difficult teaching situations. If so, explanations of success and failure may contribute to an increased sense of efficacy. An optimistic teacher would view successful teaching as internal, global and stable but would view unsuccessful teaching as external, isolated, and unstable. Thus, not only would successful experiences lead to increased efficacy, but experiences of failure could also develop high efficacy. These types of explanations about the causes of events, both successful and unsuccessful, could lead to the teacher having a higher sense of efficacy, which could, in turn, lead to more resiliency and less burnout.

Purpose

The purpose of this study is to develop a structural model to demonstrate the relationship between explanatory style and a teacher's sense of efficacy and how that relationship predicts burnout. Educator explanatory style should predict teacher efficacy which, in turn, should predict burnout. This model suggests that educator explanatory style mediates teacher efficacy, providing a more nuanced portrait of how teachers develop efficacy. If this model is accurate, then the relationship between explanatory style and teacher efficacy will provide insight into practical strategies educators and administrators can take to improve teacher explanatory style and, thus, teacher efficacy.

METHOD

Participants

K-12 teachers from three United States school districts: one rural district in the Southeast, one mixed socioeconomic district in the Midwest, and one suburban district in the Southeast participated in this study. Approximately 5500 teachers were asked to participate. Their participation was voluntary, and teachers received printable documentation upon completion of the survey for one hour of professional development credit as an incentive for participation. Of the 5500 possible respondents, 577 began the survey, and 350 completed the entire battery, resulting in a 6% response rate and a 60.6% completion rate among those who began the surveys.

Demographic data for this study is found in Table 4.2. The participants were mostly female. More high school teachers responded than elementary teachers and middle school teachers. A little over 30% of teachers had been teaching 16 years or more, with the fewest number of teachers responding who had been teaching 8-10 years. The number of years the participating teachers had been teaching was roughly equivalent. A slight majority of teachers

held a master's degree, followed by a large group of teachers who held a bachelor's degree. A very small number of teachers held either an EdS (Education Specialist) degree or a doctorate.

Table 4.2

Demographics of Participants (N = 350)

Demographic	n	% of Total
Male	59	16.8
Female	280	80.0
<i>Teaching Level</i>		
Elementary (K-5)	74	21.1
Middle School (6-8)	63	18.0
High School (9-12)	124	35.4
<i>Years of Teaching Experience</i>		
1-3 years	54	15.4
4-7 years	60	17.1
8-10 years	36	10.2
11-15 years	54	15.4
16+ years	106	30.2
<i>Highest Degree Earned</i>		
BA/BS	112	32.0
MA/MS	177	50.5
EdS	14	4.0
Doctorate (PhD/EdD)	7	2.0

Measures

The models for this research are built on the theoretical assumption that both explanatory style and efficacy are best measured using context-specific items rather than with broad, general ones (Shaughnessy, 2004). For this study, the Educator Attributional Style Questionnaire (EdASQ; see Chapter 3) was administered along with the Teacher's Sense of Efficacy Scale-Long Form (TSES-LF; Tschannen-Moran & Woolfolk-Hoy, 2001) and the Oldenburg Burnout Inventory (OLBI; Demerouti, Bakker, Vardakou, & Kantas, 2003). Teachers were also asked to provide the estimated number of professional development hours they planned to participate in during the upcoming school year. These measures are valid and reliable, easily administered and scored, pose no risk to the participants, and are robust across adult populations.

Educator Attributional Style Questionnaire (EdASQ; see Chapter 3). The EdASQ is modeled after the original ASQ, presenting 24 teaching-specific situations, 12 good and 12 bad. Teachers provide a short written explanation of the cause of the event, and then rate their stated cause on a 7-point Likert-scale for the 3 dimensions of explanatory style: global/specific, permanent/temporary, and internal/external. The EdASQ was developed by modifying the items to reflect teaching-specific situations. EdASQ Subscale scores were calculated for internality, stability, and globality and for each of the three measures separately for positive and negative events, by adding the appropriate responses together and finding the average. Composite positive and negative scores were calculated by averaging the internal, stable, and global items for positive and negative events respectively. The overall composite scores for the EdASQ were calculated by subtracting the composite positive score from the composite negative score for each measure. Scores for these composites range from -7 to +7. Scores for the subscales range from 0 to +7. To determine which teachers were optimists and which were pessimists, teachers

were divided into three groups based on overall composite scores. Teachers in the upper third were labeled “optimistic.” Teachers in the middle third were labeled “neutral,” and teachers in the bottom third were labeled “pessimistic.”

Reliability analysis shows that the EdASQ has good internal reliability using Cronbach’s (1951) alpha coefficients. Cronbach’s alpha coefficients are all acceptable for internality, stability, and globality. The EdASQ composite score is also significantly correlated with self esteem as measured by the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965).

Teachers’ Sense of Efficacy Scale – Long Form (TSES-LF; Tschannen-Moran & Woolfolk-Hoy, 2001). The Teachers’ Sense of Efficacy Scale – Long Form contains 24 items with a 9-point Likert-type scale. The 24 items factor into three categories: student engagement, instructional practices, and classroom management. Student engagement taps into a teacher’s sense of efficacy to engage students in learning (e.g., How much can you do to get through the most difficult students? How much can you do to improve the understanding of a student who is failing?). Instructional strategies taps into a teacher’s sense of efficacy about using different instructional strategies (e.g., To what extent do you craft good questions for your students? How much can you adjust your lessons to the proper level for individual students?). Classroom management explores the teacher’s sense of efficacy regarding classroom management (e.g., To what extent can you make your expectations clear about student behavior? How much can you do to get children to follow classroom rules?). Scores for each subscale range from 8 to 72, with higher scores signifying higher efficacy in each subscale.

The internal reliability score for the TSES-Long Form is $\alpha = .94$. Subscale reliability scores are $\alpha = .87$ for engagement; $\alpha = .91$ for instruction; and $\alpha = .90$ for management. The TSES-Long Form was chosen over the TSES-Short Form because it is more desirable to use with

teachers who currently teach as opposed to preservice teachers (Tschannon-Moran & Woolfolk-Hoy, 2001).

Oldenburg Burnout Inventory (OLBI; Demerouti, Bakker, Vardakou, & Kantas, 2003). The Oldenburg Burnout Inventory measures two components of burnout – exhaustion and disengagement. The 14-item scale combines both positively and negatively worded items which participants rank on a four-point Likert scale (1 = Strongly Agree; 4 = Strongly Disagree). Positive items are reversed and then all items for each subscale are added together. The resulting scores are inversely proportional to the concepts they measure, meaning the higher the score, the lower disengagement or exhaustion. Scores for each subscale (exhaustion and disengagement) range from 7 to 28, with higher scores signifying more exhaustion and disengagement, respectively.

The OLBI has good internal reliability, with Cronbach's alpha scores of .74 for exhaustion and .76 for disengagement (Demerouti, Bakker, Vardakou, & Kantas, 2003). The OLBI has been demonstrated as a good alternative to the more popularly used Maslach Burnout Inventory-General Scale (MBI-GS; Maslach, Jackson, & Leiter, 1996). Criticisms of the MBI-GS include the exclusion of positively worded items on the exhaustion and disengagement factors and exclusivity of positively worded items on the personal accomplishment factor. The personal accomplishment factor of the MBI-GS is also criticized for not being as consistent with job-related outcomes such as job satisfaction and organizational commitment (Lee & Ashforth, 1996). In addition, the MBI-GS is only available for research at a significant cost whereas the OLBI is freely available for research purposes. Thus, due to the OLBI offering positively and negatively worded items, a more robust two-factor model, and cost efficiency, the OLBI was used for this study.

Professional Development Hours. The number of professional development hours teachers believe they will complete in the current academic year is a second measure of engagement in teaching. Typically, professional development hours are calculated by the number of clock hours the experience takes. For instance, a one-hour session at a conference is calculated as one hour while a college course is calculated by multiplying the course credits by the weeks in the semester (i.e., three credit hours times 14 weeks). Teachers were asked to provide the number of hours they anticipate completing during the current academic year. The average number of hours teachers provided was 49.93, with the range spanning from zero to 540. Teachers must complete a certain number of professional development hours in a year to maintain their certification. While most school districts provide enough hours for teachers to earn at least the minimum number of hours required, teachers can participate voluntarily in conferences and workshops or take college courses to earn additional hours. Teachers who attend more than the required number of professional development hours are seen as more engaged in teaching.

Procedure

The survey was administered using an online commercial platform, and teachers were recruited via email correspondence through their respective districts. Teachers received one hour of professional development credit for their participation.

Analysis

Since the theoretical framework for how these concepts relate is unclear, developing the structural equation models for this research involved testing several combinations of variables. The goal of this research is to show how explanatory style and efficacy predict burnout, so the two subscales from the OLBI and the number of professional development hours were consistently used as the outcomes for each model. Using the measurement models established for

the EdASQ from Chapter 3, I only tested models that used separate three-factor models for positive and negative events instead of testing six-factor models that combine positive and negative events.

Due to the importance of correlating error variances for the measurement model of the EdASQ, all three factors of explanatory style for positive and then negative events were necessary to the eventual model. I did not achieve good model fit using a three-factor explanatory style and a three-factor efficacy model. I separated the teachers' sense of efficacy factors, creating models in which the three-factor explanatory style model predicted one of the TSES-LF factors. Theoretically, this is acceptable since each factor is considered independent of the others. Unlike the EdASQ, the item sets for each subscale for the TSES-LF are not linked by a situation and, therefore, can be considered separately. The analysis in this study describes the effort to develop sound models that fit the data and clarify the relationship between explanatory style and teachers' sense of efficacy. The theoretical structural equation model that was tested for this research is presented in Figure 4.2.

Results

Descriptive Statistics and Reliability

Descriptive summative analysis is provided in Table 4.3. Teachers in this study have a neutral explanatory style as shown by the composite score, with a mean of 1.07 on the EdASQ. The mean composite positive (CP) score was 5.08 while the mean composite negative (CN) score was 4.00. Reliability analysis shows that the CP has a Cronbach's alpha of .860 while the CN has an alpha coefficient of .720. Previous studies have shown similar CP (mean of 5.48) and CN (mean of 4.18) scores for university freshmen (Higgins, Zumbo, & Hay, 1999).

Figure 4.2

Structural Model Framework for the Relationships among Educator Explanatory Style, Teachers' Sense of Efficacy, and Burnout

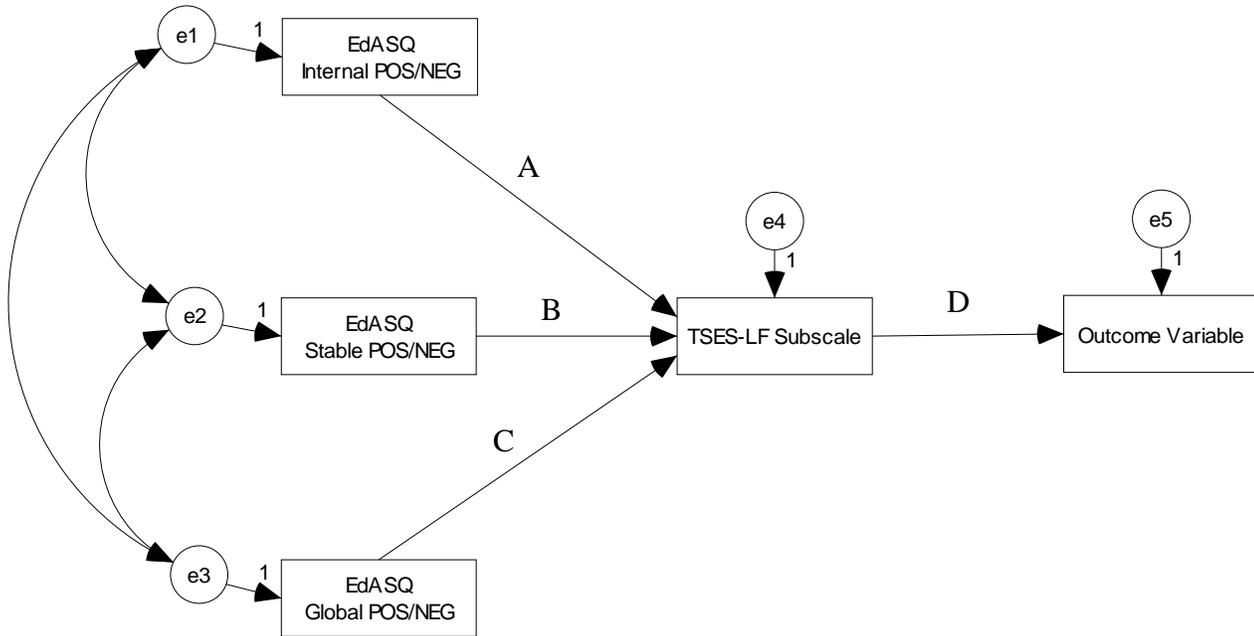


Figure 2: Educator explanatory style precedes the development of a teacher's sense of efficacy, which, in turn, predicts burnout, the outcome variable.

NOTE: EdASQ = Educator Attributional Style Questionnaire; POS = Positive Events; NEG = Negative Events; TSES-LF = Teacher's Sense of Efficacy Scale-Long Form

For the TSES-LF, the average scores for each subscale are 6.67 for student engagement, 7.15 for classroom management, and 7.31 for instructional strategies. This sample's scores compare well to Tschannen-Moran and Woolfolk-Hoy's (2001) research validating this measure. In that study, the researchers found a mean of 7.3 for student engagement; 6.7 for classroom management; and 7.3 for instructional strategies. Cronbach's alpha reliability analysis shows that each subscale has good internal reliability. Tschannen- Moran and Woolfolk-Hoy (2001) found alpha coefficients of .87 for student engagement; .90 for classroom management; and .91 for instructional strategies.

For the OLBI, the average scores for each subscale are 21.4 for disengagement and 18.4 for exhaustion. In validating the English translation of the OLBI, Halbesleben and Demerouti (2005) found mean scores similar to this study after accounting for differences in calculation procedures. Working adults had scores equivalent to 20.9 for exhaustion and 20.0 for disengagement. Firefighters had exhaustion scores of 23.3 and disengagement scores of 20.7. Cronbach's alpha reliability analysis shows that each subscale has good internal reliability.

Table 4.3

Summative descriptive statistics of Educator Explanatory Style, Teachers' Sense of Efficacy and Burnout

<i>Measures</i>	Whole Sample (<i>N</i> = 350)			Pessimists (<i>n</i> = 118)		Optimists (<i>n</i> = 116)	
	<i>M</i>	<i>SD</i>	<i>α</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
OLBI							
Exhaustion	18.4	3.4	.80	18.2	3.5	18.8	3.6
Disengagement	21.4	3.1	.73	21.3	3.3	21.5	3.3
Professional Development Hours	49.9	50.9	--	43.2	32.9	55.9	50.2
TSES-LF							
Student Engagement	6.7	.9	.83	6.5	.9	6.9	.9
Instructional Strategies	7.3	.9	.89	7.1	1.0	7.6	.9
Classroom Management	7.2	.9	.87	7.0	.9	7.4	.9
EdASQ							
Overall Composite	1.1	.9	.80	.15	.4	2.1	.6
Composite Positive	5.1	.7	.86	4.6	.7	5.7	.5
Internal Positive	4.7	.9	.73	4.1	.8	5.3	.7
Stable Positive	5.3	.9	.77	4.8	.9	5.9	.6
Global Positive	5.2	.9	.73	4.8	1.0	5.8	.7
Composite Negative	4.0	.7	.72	4.4	.6	3.6	.6
Internal Negative	4.0	.9	.52	4.4	.9	3.7	.9
Stable Negative	4.0	.9	.63	4.5	.9	3.6	.7
Global Negative	3.9	1.0	.64	4.4	.9	3.4	.9

Note: OLBI = Oldenburg Burnout Inventory; TSES-LF = Teachers' Sense of Efficacy Scale-Long Form; EdASQ = Educator Attributional Style Questionnaire.

The correlation table for EdASQ, TSES-LF, OLBI subscales, and the number of professional development hours is shown in Table 4.4. This table was used to build the structural equation models using the basic structure found in Figure 4.2. All of the correlations in the matrix trend in expected directions.

Table 4.4

Correlation Matrix for Educator Attributional Style Questionnaire, Teachers' Sense of Efficacy Scale-Long Form, and Burnout

Components	<i>EdASQ Components</i>			<i>TSES-LF Components</i>			<i>OLBI Components</i>			PD Hours		
	Internal POS	Stable POS	Global POS	Internal NEG	Stable NEG	Global NEG	Student Engagement	Instructional Strategies	Classroom Management		Exhaustion	Disengagement
Internal POS	1											
Stable POS	.498**	1										
Global POS	.428**	.615**	1									
Internal NEG	.064	.057	.112*	1								
Stable NEG	-.049	.200**	.073	.109*	1							
Global NEG	-.110*	.088	.294**	.328**	.380**	1						
Student Engagement	.164**	.215**	.290**	.077	-.081	.092	1					
Instructional Strategies	.230**	.303**	.306**	.101	.011	.037	.712**	1				
Classroom Management	.194**	.305**	.287**	.010	-.034	.063	.692**	.607**	1			
Exhaustion	.131*	.168**	.105	.053	-.011	.042	.317**	.285**	.275**	1		
Disengagement	.086	.159**	.122*	.130*	-.026	.108*	.436**	.390**	.311**	.588**	1	
Professional Development Hours	.126*	.124*	.147**	.023	-.017	.050	.099	.122*	.078	.028	.022	1

NOTE: EdASQ = Educator Attributional Style Questionnaire; TSES-LF = Teachers' Sense of Efficacy Scale –Long Form; OLBI = Oldenburg Burnout Inventory; PD = Professional Development; POS = Positive; NEG = Negative; *significant to the .05 level; **significant to the .01 level; Listwise: N=345

Research Question 1: What is the relationship between explanatory style and teachers' sense of efficacy? In order to test this research question, I followed a three-stage process:

Stage 1: I tested models showing the three factors of the TSES-LF together predicting the burnout measures to see the nature of the relationship between TSE and burnout (Figure 4.3). None of these models produced good fit, as shown in Table 4.5.

Figure 4.3

Structural Model Framework for Teachers' Sense of Efficacy Predicting Burnout

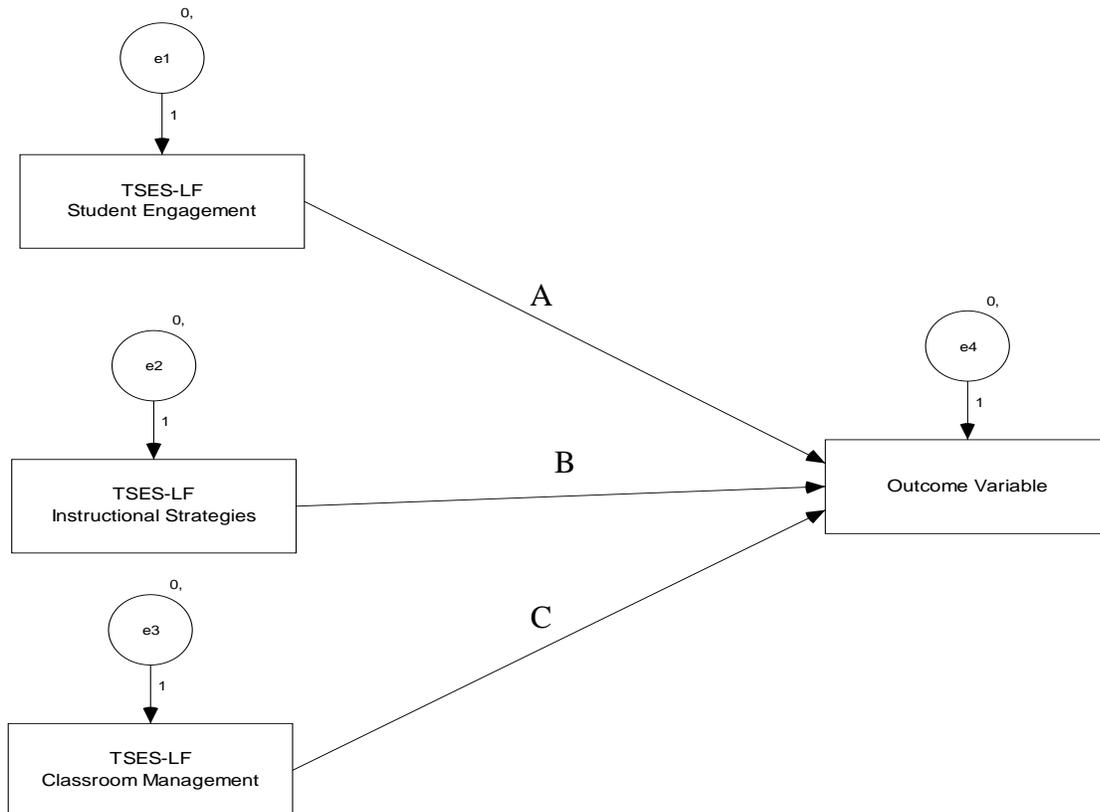


Figure 4.3: Structural model framework showing Teachers' Sense of Efficacy-Long Form (TSES-LF) subscales predicting elements of burnout.

Table 4.5

Fit Statistics for Teachers' Sense of Efficacy Scale-Long Form Predicting Burnout

Measures		Fit Statistics					Standardized Estimates			
TSES-LF Factors	Outcome Variable	χ^2	<i>df</i>	χ^2/df	<i>p</i>	CFI	RMSEA (90% CI)	Path A	Path B	Path C
3	Exhaustion	487.10	3	162.30	.000	.069	.529 (.490, .569)	.20	.09	.10
3	Disengage	487.10	3	162.30	.000	.128	.529 (.490, .569)	.31	.19	.00
3	PD Hours	486.16	3	162.01	.000	.000	.528 (.489, .568)	-.10	.25	-.02

NOTE: TSES-LF = Teachers' Sense of Efficacy-Long Form; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation

Stage 2: Based on Bandura's theory, which states that self-efficacy precedes attribution, I tested models where TSES-LF mediated explanatory style to predict burnout (see Figure 4.4). Most of these models did not produce good fit to the data, suggesting that efficacy is not a mediator of explanatory style and OLBI measures of burnout. The models where TSES-LF mediated explanatory style and professional development hours did show good fit to the data, but these statistics were not as robust as subsequent models (described in Stage 3 below) where explanatory style mediated TSES-LF and burnout. The fit data for these models are shown in Table 4.6, with the best fitting models highlighted in bold.

Figure 4.4

Structural Model Framework for Teachers' Sense of Efficacy Scale-Long Form Mediating Educator Attributional Style Questionnaire Predicting Burnout

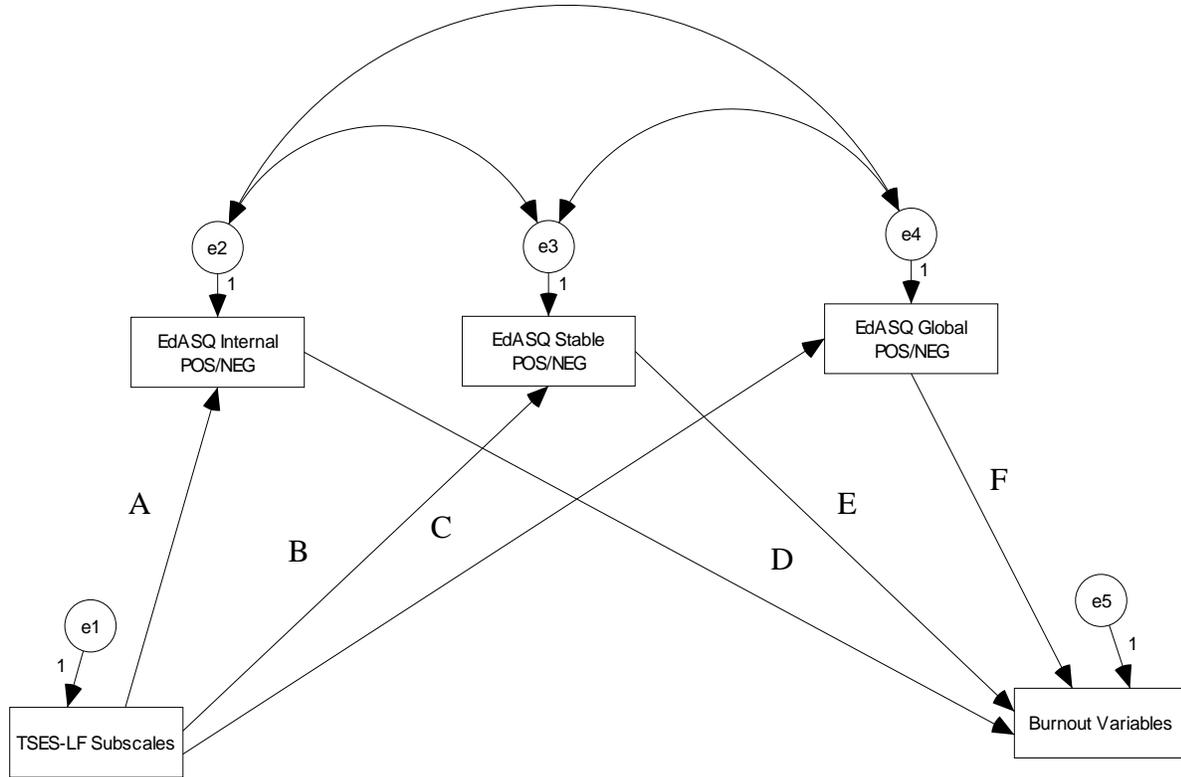


Figure 3: Model depicting TSES-LF preceding explanatory style in predicting burnout.
NOTE: TSES-LF = Teachers' Sense of Efficacy Scale-Long Form; EdASQ = Educator Attributional Style Questionnaire; POS = Positive Events; NEG = Negative Events

Table 4.6

Fit Statistics for Teachers' Sense of Efficacy Scale-Long Form Preceding Educator Attributional Style Questionnaire Predicting Burnout

Measures			Fit Statistics					Standardized Estimates					
TSES-LF	EdASQ	Burnout	χ^2	df	p	CFI	RMSEA (90% CI)	Path A	Path B	Path C	Path D	Path E	Path F
Student Engagement	Negative	Exhaustion	37.48	1	.000	.721	.251 (.186, .323)	.08	-.08	.10	.04	-.03	.04
Instructional Strategies	Negative	Exhaustion	28.37	1	.000	.763	.218 (.153, .290)	.10	.02	.05	.04	-.03	.04
Classroom Management	Negative	Exhaustion	28.74	1	.000	.760	.219 (.155, .292)	.01	-.03	.07	.04	-.03	.04
Student Engagement	Positive	Exhaustion	33.67	1	.000	.903	.238 (.173, .310)	.17	.22	.30	.06	.14	-.01
Instructional Strategies	Positive	Exhaustion	22.05	1	.000	.938	.191 (.127, .264)	.23	.30	.32	.06	.14	-.01
Classroom Management	Positive	Exhaustion	22.03	1	.000	.937	.191 (.127, .264)	.19	.30	.28	.06	.14	-.01
Student Engagement	Negative	Disengage	66.50	1	.000	.609	.337 (.271, .408)	.08	-.08	.10	.10	-.08	.10
Instructional Strategies	Negative	Disengage	56.51	1	.000	.634	.310 (.244, .381)	.10	.02	.05	.10	-.08	.10
Classroom Management	Negative	Disengage	35.56	1	.000	.734	.245 (.180, .317)	.01	-.03	.07	.10	-.08	.10
Student Engagement	Positive	Disengage	65.19	1	.000	.826	.334 (.268, .405)	.17	.22	.30	.00	.13	.04
Instructional Strategies	Positive	Disengage	50.58	1	.000	.865	.293 (.228, .365)	.23	.30	.32	.00	.13	.04
Classroom Management	Positive	Disengage	29.04	1	.000	.917	.220 (.156, .293)	.19	.30	.28	.00	.13	.04
Student Engagement	Negative	PD Hours	2.93	1	.087	.980	.058 (.000, .140)	.08	-.08	.10	.01	-.03	.06
Instructional Strategies	Negative	PD Hours	5.50	1	.019	.951	.088 (.029, .166)	.10	.02	.05	.01	-.03	.06
Classroom Management	Negative	PD Hours	1.83	1	.176	.991	.038 (.000, .125)	.01	-.03	.07	.01	-.03	.06
Student Engagement	Positive	PD Hours	1.12	1	.290	1.000	.014 (.000, .113)	.17	.22	.30	.08	.05	.10
Instructional Strategies	Positive	PD Hours	2.10	1	.147	.997	.044 (.000, .129)	.24	.31	.32	.08	.05	.10
Classroom Management	Positive	PD Hours	.28	1	.591	1.000	.000 (.000, .089)	.19	.30	.28	.08	.05	.10

NOTE: Models in bold show those with good model fit.

NOTE: TSES-LF = Teachers' Sense of Efficacy-Long Form; EdASQ = Educator Attributional Style Questionnaire; PD Hours = Professional Development Hours; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation

Stage 3: I tested the theoretical model from Figure 4.2 to determine whether the three-factor explanatory style model mediated TSES-LF and burnout. Fit statistics are shown in Table 4.6 with the best fitting models are highlighted in bold. When the models were tested using the three-factor measurement model for the EdASQ along with one subscale from the TSES-LF and burnout, good fits for the models were found. The best fitting models followed particular patterns with causal explanations of positive and negative events mediating TSES-LF differently for exhaustion and disengagement. In addition, the standardized estimates for each path (except one) grew from the TSES-LF-only model to the EdASQ-added model (see Table 4.8). Adding EdASQ to the model helps TSES-LF better predict burnout since the EdASQ-added models found good model fit and provided gains to the standardized path estimates for the TSES-LF subscales predicting burnout.

The negative items from the EdASQ mediated TSES-LF in predicting exhaustion. How teachers explain negative events helps build efficacy when considering how exhausted and overwhelmed in their jobs they will feel. Optimistic explanations of negative events lead to increased sense of efficacy in teachers, which, in turn, leads to decreased exhaustion. Teachers who explain bad events optimistically will see those events as external, temporary, and specific to the situation at hand rather than internally caused, permanent, and global in influence. They will not feel the effects of negative events quite as much, helping to promote a greater sense of capability to move forward after bad experiences and avoiding burnout.

Interestingly, the positive items showed better fit when mediating TSES-LF in predicting disengagement. Therefore, how teachers explain good events helps build teachers' sense of efficacy when considering the other aspect of burnout – whether teachers will feel engaged in their work. A more optimistic explanation of positive events in the classroom helps

Table 4.7

Fit Statistics for Explanatory Style Preceding Teachers' Sense of Efficacy Scale-Long Form Predicting Burnout

EdASQ Events	Measures		Fit Statistics						Standardized Estimates			
	TSES-LF	Burnout	χ^2	<i>df</i>	χ^2/df	<i>p</i>	CFI	RMSEA (90% CI)	Path A	Path B	Path C	Path D
Positive	Student Engagement	Exhaustion	6.176	3	2.05	.103	.991	.043 (.000, .091)	.04	.04	.25	.32
Positive	Instructional Strategies	Exhaustion	3.900	3	1.30	.272	.997	.023 (.000, .077)	.08	.15	.19	.28
Positive	Classroom Management	Exhaustion	4.110	3	1.37	.250	.997	.025 (.000, .079)	.03	.19	.15	.28
Negative	Student Engagement	Exhaustion	.372	3	.12	.946	1.000	.000 (.000, .010)	.05	-.14	.13	.32
Negative	Instructional Strategies	Exhaustion	.692	3	.23	.875	1.000	.000 (.000, .035)	.09	.00	.02	.28
Negative	Classroom Management	Exhaustion	1.009	3	.33	.799	1.000	.000 (.000, .044)	-.01	-.07	.10	.28
Positive	Student Engagement	Disengage	3.293	3	1.09	.349	.999	.013 (.000, .073)	.04	.04	.25	.43
Positive	Instructional Strategies	Disengage	1.322	3	.44	.724	1.000	.000 (.000, .051)	.08	.15	.19	.39
Positive	Classroom Management	Disengage	1.768	3	.58	.622	1.000	.000 (.000, .057)	.03	.19	.15	.31
Negative	Student Engagement	Disengage	4.753	3	1.58	.191	.990	.032 (.000, .083)	.05	-.14	.13	.43
Negative	Instructional Strategies	Disengage	7.147	3	2.38	.067	.973	.049 (.000, .096)	.09	.00	.02	.39
Negative	Classroom Management	Disengage	8.169	3	2.72	.043	.960	.055 (.000, .044)	-.01	-.07	.10	.31
Positive	Student Engagement	PD Hours	6.619	3	2.20	.075	.987	.012 (.000, .095)	.04	.04	.25	.12
Positive	Instructional Strategies	PD Hours	5.808	3	1.93	.121	.991	.040 (.000, .089)	.08	.15	.19	.15
Positive	Classroom Management	PD Hours	7.331	3	2.44	.062	.986	.013 (.000, .097)	.03	.19	.15	.09
Negative	Student Engagement	PD Hours	.483	3	.16	.923	1.000	.000 (.000, .024)	.05	-.14	.13	.11
Negative	Instructional Strategies	PD Hours	.782	3	.26	.854	1.000	.000 (.000, .038)	.09	.00	.02	.15
Negative	Classroom Management	PD Hours	.689	3	.22	.876	1.000	.000 (.000, .035)	-.01	-.07	.09	.09

NOTE: Models in bold show those with good model fit.

NOTE: EdASQ = Educator Attributional Style Questionnaire; TSES-LF = Teacher's Sense of Efficacy Scale-Long Form; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation

Table 4.8

Change in Standardized Estimates for Paths from Competing Models

TSES-LF	Burnout	TSES-LF alone	EdASQ Mediating TSES-LF	Δ in Estimate (Col 2 – Col 1)
Student Engagement	Exhaustion	.20	.32	.12
Instructional Strategies	Exhaustion	.09	.28	.19
Classroom Management	Exhaustion	.10	.28	.18
Student Engagement	Disengage	.31	.43	.12
Instructional Strategies	Disengage	.19	.39	.20
Classroom Management	Disengage	.00	.31	.31
Student Engagement	PD Hours	-.10	.12	.22
Instructional Strategies	PD Hours	.25	.15	-.10
Classroom Management	PD Hours	-.02	.09	.11

NOTE: TSES-LF = Teachers' Sense of Efficacy Scale-Long Form; Disengage = Disengagement; PD = Professional Development; EdASQ = Educator Attributional Style Questionnaire; Δ = change in

teachers feel more efficacious and, thus, more engaged in their work. They will see positive events as something they can control, will last into the future, and will affect other areas of their lives. They will feel empowered by positive events that occur and will more likely engage further in teaching as a profession.

When the models were tested for professional development hours, good model fit was also found. All of the models tested for these relationships demonstrated good model fit, and the fit statistics were more robust than those tested earlier showing TSES-LF mediating explanatory style. The best models showed the negative items from the EdASQ mediating TSES-LF in

predicting the number of professional development hours teachers believed they would complete in the coming year. These models show that teachers who are more optimistic in their explanatory style feel more efficacious and will then likely engage in more professional development hours than their more pessimistic colleagues.

Research Question 2: How are optimists and pessimists, who have different explanatory styles, different in regards to teachers' sense of efficacy and burnout? To test the second research question, I used the same model structure shown in Figure 4.2, but instead of a correlation matrix for the entire sample, I created new matrices for the teachers with pessimistic and optimistic explanatory styles. These matrices are shown in Table 4.9 and Table 4.10. I identified the pessimistic and optimistic teachers by dividing the original sample into thirds. Those teachers with the lowest third of EdASQ scores were identified as pessimistic, and those with the highest third of scores were identified as optimistic. Descriptive statistics for each of these groups is shown in Table 4.3. I conducted analysis of variance between optimists and pessimists on the subscales for the EdASQ, and Table 4.11 shows that optimists and pessimists have significantly different explanatory styles across the board. Optimistic and pessimistic teachers also differ significantly on teachers' sense of efficacy and the number of professional development hours estimated, but they do not differ significantly on exhaustion or disengagement.

The fit statistics for the structural equation models for pessimists is shown in Table 4.12, and optimists are shown in Table 4.13. As in the previous SEM analysis, most of the models tested showed good fit. However, the best fitting models followed characteristic patterns for each type of explanatory style. For the pessimists, their explanation of positive events best predicted TSES-LF and burnout. Pessimistic teachers explain positive events as external, temporary, and

specific to the situation. When they explain positive events in these ways, the good events do not lead to increased sense of efficacy and professional development and increases exhaustion and disengagement. For pessimists, experiencing mastery (success) may not have the building effect for efficacy that it should because of how they explain good events, which is contrary to Bandura (1994) but supports Pajares (2002). For optimists, their explanation of negative events best predicted TSES-LF and burnout. For optimistic teachers, how they explain negative events predicts whether they will have higher efficacy and professional development and lower exhaustion and disengagement. Optimists see bad events as external, temporary and specific. They will not be dragged down by bad experiences in the classroom. These models show that explanations of both positive and negative events are important to developing efficacy. In addition, optimists and pessimists need to focus on different types of situational attributions to build efficacy and avoid burnout.

Table 4.9

Correlation Matrix for Pessimistic Teachers for Explanatory Style, Teachers' Sense of Efficacy, and Burnout

Components	EdASQ Components			TSES-LF Components			OLBI Components			PD Hours		
	Internal POS	Stable POS	Global POS	Internal NEG	Stable NEG	Global NEG	Student Engagement	Instructional Strategies	Classroom Management		Exhaustion	Disengagement
Internal POS	1											
Stable POS	.195*	1										
Global POS	.239**	.571**	1									
Internal NEG	.405**	.257**	.326**	1								
Stable NEG	.185*	.696**	.513**	.101	1							
Global NEG	.183*	.494**	.724**	.268**	.488**	1						
Student Engagement	.124	.096	.206*	.158	.094	.121	1					
Instructional Strategies	.142	.243**	.221*	.238**	.234*	.138	.685**	1				
Classroom Management	.108	.264**	.244**	.123	.149	.136	.729**	.644**	1			
Exhaustion	.114	.080	.106	-.137	.144	.163	.338**	.220*	.290**	1		
Disengagement	.110	.093	.125	.093	.124	.178	.475**	.386**	.386**	.582**	1	
PD Hours	-.088	-.083	-.003	-.067	-.018	-.062	.067	.043	.006	-.049	.116	1

NOTE: EdASQ = Educator Attributional Style Questionnaire; TSES-LF = Teachers' Sense of Efficacy Scale –Long Form; OLBI = Oldenburg Burnout Inventory; PD = Professional Development; POS = Positive; NEG = Negative;

*significant to the .05 level

**significant to the .01 level

Listwise: N=118

Table 4.10

Correlation Matrix for Optimistic Teachers for Explanatory Style, Teachers' Sense of Efficacy, and Burnout

Measures	EdASQ Components			TSES-LF Components			Burnout					
	Internal POS	Stable POS	Global POS	Internal NEG	Stable NEG	Global NEG	Student Engagement	Instructional Strategies	Classroom Management	Exhaustion	Disengage	PD Hours
Internal POS	1											
Stable POS	.404**	1										
Global POS	.328**	.365**	1									
Internal NEG	.240**	.163	.160	1								
Stable NEG	.205*	.250**	.127	-.085	1							
Global NEG	.094	.114	.301**	.123	.250**	1						
Student Engagement	.150	.202*	.203*	.053	-.060	.156	1					
Instructional Strategies	.226*	.295**	.305**	.149	-.070	.161	.688**	1				
Classroom Management	.202*	.385**	.188*	.024	-.021	.118	.606**	.446**	1			
Exhaustion	.149	.274**	.103	.187*	-.070	.020	.264**	.295**	.278**	1		
Disengage	.089	.247**	.150	.085	-.072	.103	.432**	.448**	.268**	.593**	1	
PD Hours	.132	.130	.090	.029	.022	.018	-.061	.116	.042	.000	-.171	1

NOTE: EdASQ = Educator Attributional Style Questionnaire; TSES-LF = Teachers' Sense of Efficacy Scale –Long Form; PD = Professional Development; POS = Positive; NEG = Negative

*significant to the .05 level

**significant to the .01 level

Listwise: N=116

Table 4.11

Analysis of Variance for Pessimists and Optimists Comparing Educator Attributional Style Questionnaire, Teachers' Sense of Efficacy Scale-Long Form and Burnout

Measures	F	df	p	Cohen's d	Effect Size r
Internal Positive	146.880	1	.000**	-1.60	-.62
Stable Positive	113.600	1	.000**	-1.14	-.57
Global Positive	86.140	1	.000**	-1.22	-.52
Internal Negative	31.882	1	.000**	.74	.34
Stable Negative	60.554	1	.000**	1.03	.45
Global Negative	74.933	1	.000**	1.13	.49
Student Engagement	9.202	1	.003**	-.40	-.19
Instructional Strategies	13.334	1	.000**	-.48	-.23
Classroom Management	11.220	1	.001**	-.43	-.21
Exhaustion	1.625	1	.204	-.16	-.08
Disengage	.328	1	.568	-.07	-.03
PD Hours	5.028	1	.026**	-.29	-.14

NOTE: Disengage = Disengagement; PD = Professional Development

**significant to the .001 level

Pessimists: Listwise N = 118

Optimists: Listwise N = 116

Table 4.12

Fit Statistics for Pessimists

EdASQ Events	Measures		Fit Statistics					Standardized Estimates				
	TSES-LF Subscales	Burnout	χ^2	<i>df</i>	χ^2/df	<i>p</i>	CFI	RMSEA (90% CI)	Path A	Path B	Path C	Path D
Negative	Student Engagement	Exhaustion	9.21	3	3.07	.027	.887	.131 (.040, .232)	.13	.05	.08	.33
Negative	Instructional Strategies	Exhaustion	8.57	3	2.85	.037	.899	.124 (.028, .225)	.21	.22	.01	.21
Negative	Classroom Management	Exhaustion	8.00	3	2.66	.046	.900	.118 (.014, .220)	.10	.11	.05	.29
Positive	Student Engagement	Exhaustion	.823	3	.27	.844	1.000	.000 (.000, .086)	.08	-.04	.22	.33
Positive	Instructional Strategies	Exhaustion	.995	3	.33	.812	1.000	.000 (.000, .094)	.08	.14	.15	.21
Positive	Classroom Management	Exhaustion	.963	3	.32	.810	1.000	.000 (.000, .095)	.04	.19	.12	.29
Negative	Student Engagement	Disengage	2.06	3	.68	.599	1.000	.000 (.000, .134)	.13	.05	.08	.47
Negative	Instructional Strategies	Disengage	1.93	3	.64	.587	1.000	.000 (.000, .130)	.21	.22	.01	.38
Negative	Classroom Management	Disengage	2.29	3	.76	.514	1.000	.000 (.000, .139)	.10	.11	.05	.39
Positive	Student Engagement	Disengage	.632	3	.21	.889	1.000	.000 (.000, .071)	.08	-.04	.22	.47
Positive	Instructional Strategies	Disengage	.518	3	.17	.915	1.000	.000 (.000, .057)	.08	.14	.15	.38
Positive	Classroom Management	Disengage	.896	3	.29	.826	1.000	.000 (.000, .091)	.04	.19	.12	.39
Negative	Student Engagement	PD Hours	2.170	3	.72	.538	1.000	.000 (.000, .088)	.13	.05	.08	.07
Negative	Instructional Strategies	PD Hours	2.403	3	.80	.493	1.000	.000 (.000, .088)	.21	.22	.01	.05
Negative	Classroom Management	PD Hours	2.180	3	.72	.536	1.000	.000 (.000, .072)	.10	.11	.05	.01
Positive	Student Engagement	PD Hours	.850	3	.28	.837	1.000	.000 (.000, .136)	.08	-.04	.22	.07
Positive	Instructional Strategies	PD Hours	.846	3	.28	.838	1.000	.000 (.000, .142)	.08	.14	.15	.05
Positive	Classroom Management	PD Hours	.639	3	.21	.887	1.000	.000 (.000, .136)	.04	.19	.12	.01

Listwise N = 118

NOTE: Models in bold show those with good model fit.

NOTE: EdASQ = Educator Attributional Style Questionnaire; TSES-LF = Teachers' Sense of Efficacy Scale-Long Form; PD = Professional Development; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error or Approximation; CI = Confidence Interval

Table 4.13

Fit Statistics for Optimists

EdASQ Events	Measures		Fit Statistics					Standardized Estimates				
	TSES-LF Subscales	Burnout	χ^2	<i>df</i>	χ^2/df	<i>p</i>	CFI	RMSEA (90% CI)	Path A	Path B	Path C	Path D
Negative	Student Engagement	Exhaustion	4.10	3	1.36	.250	.914	.056 (.000, .174)	.02	-.10	.18	.26
Negative	Instructional Strategies	Exhaustion	3.00	3	1.00	.391	1.000	.004 (.000, .155)	.12	-.10	.18	.30
Negative	Classroom Management	Exhaustion	4.50	3	1.50	.212	.874	.065 (.000, .180)	.01	-.05	.13	.28
Positive	Student Engagement	Exhaustion	6.67	3	2.22	.083	.923	.057 (.000, .208)	.06	.13	.13	.26
Positive	Instructional Strategies	Exhaustion	5.28	3	1.76	.152	.961	.080 (.000, .191)	.10	.17	.20	.29
Positive	Classroom Management	Exhaustion	4.30	3	1.43	.230	.977	.061 (.000, .177)	.06	.34	.04	.28
Negative	Student Engagement	Disengage	1.02	3	.34	.795	1.000	.000 (.000, .099)	.02	-.10	.18	.43
Negative	Instructional Strategies	Disengage	.520	3	.17	.915	1.000	.000 (.000, .058)	.12	-.10	.18	.45
Negative	Classroom Management	Disengage	2.03	3	.67	.564	1.000	.000 (.000, .134)	.01	-.05	.13	.27
Positive	Student Engagement	Disengage	4.09	3	1.36	.251	.982	.056 (.000, .174)	.06	.13	.13	.43
Positive	Instructional Strategies	Disengage	2.61	3	.87	.455	1.000	.000 (.000, .147)	.10	.17	.20	.45
Positive	Classroom Management	Disengage	3.54	3	1.18	.315	.990	.039 (.000, .165)	.06	.34	.04	.27
Negative	Student Engagement	PD Hours	.142	3	.04	.986	1.000	.000 (.000, .000)	.02	-.10	.18	-.06
Negative	Instructional Strategies	PD Hours	.051	3	.01	.997	1.000	.000 (.000, .000)	.12	-.10	.18	.12
Negative	Classroom Management	PD Hours	.076	3	.02	.995	1.000	.000 (.000, .159)	.01	-.05	.13	.04
Positive	Student Engagement	PD Hours	3.20	3	1.06	.361	.994	.024 (.000, .120)	.06	.13	.13	-.06
Positive	Instructional Strategies	PD Hours	1.54	3	.51	.673	1.000	.000 (.000, .140)	.10	.17	.20	.11
Positive	Classroom Management	PD Hours	2.29	3	.76	.513	1.000	.000 (.000, .174)	.06	.34	.04	.04

Listwise N = 116

NOTE: Models in bold show those with good model fit.

NOTE: EdASQ = Educator Attributional Style Questionnaire; TSES-LF = Teachers' Sense of Efficacy Scale-Long Form; PD = Professional Development; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error or Approximation; CI = Confidence Interval

Discussion

Explanatory Style as a Mediator to Teachers' Sense of Efficacy

This study demonstrates that explanatory style mediates teachers' sense of efficacy in predicting burnout. The models tested in this study indicate that the explanatory style of teachers is an antecedent in developing a teacher's sense of efficacy, which is contrary to previous theoretical predictions that efficacy fosters causal attributions and not vice versa. How teachers explain good and bad events in the classroom helps them develop efficacy beliefs about their teaching. In addition, this research shows that both good and bad events contribute to the development of efficacy in the classroom. This research suggests a new model for the relationship between efficacy and explanatory style, which is shown in Figure 4.5.

Figure 4.5

New Theoretical Model for the Relationship Between Efficacy and Causal Attributions

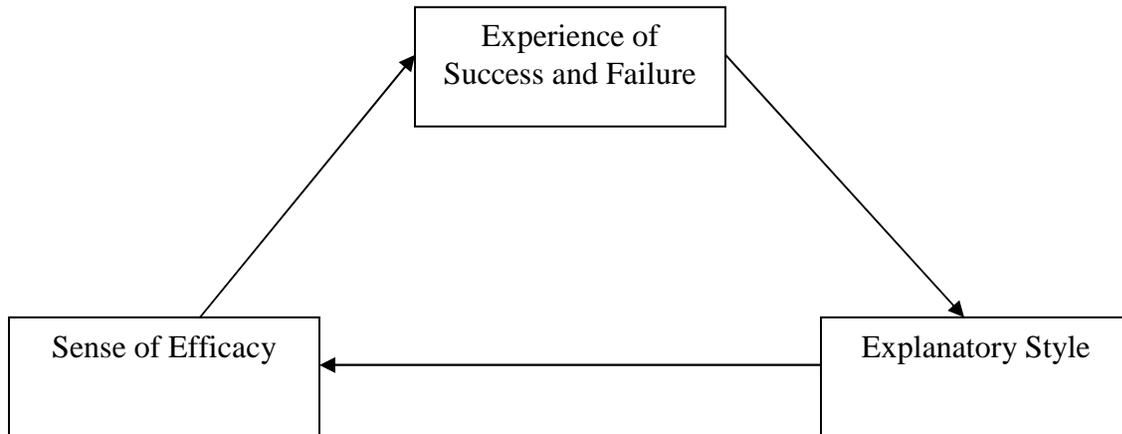


Figure 4.5: A new model showing that explanatory style influences a sense of efficacy when experiencing both success and failure.

According to this model, efficacy and explanatory style work in a feedback loop. This model differs from Figure 4.1 in two ways. First, Figure 4.5 includes both experiences of success and failure. Figure 4.1 only focuses on experiences of failure. This research indicates that experience of success and failure both influence the development of efficacy. Second, Figure 4.5 shows that explanatory style informs efficacy. Explanatory style mediates a teacher's sense of efficacy, which then influences how capable people feel about dealing with future experiences of success and failure. Then, once success or failure is experienced, explanatory style occurs, which builds the sense of efficacy further. Even though some have asserted that efficacy informs explanatory style (Bandura, 1994; Pajares, 2002), this research does not support that assertion. The models that tested teachers' sense of efficacy mediating explanatory style to predict burnout did not show good fit.

This feedback loop may explain how hard-fought mastery experiences help develop efficacy. Hard-fought mastery experiences are those in which setbacks and obstacles occur before mastery is achieved. While those with already high efficacy persevere through failures and setbacks, those with low efficacy may not have the resources it takes to persevere and ultimately achieve mastery, and by extension, efficacy. This research suggests a mechanism for building efficacy in teachers who have may have low efficacy. Helping teachers develop a more optimistic explanatory style will help those with both low and high efficacy build or maintain efficacy using explanations of both successful and unsuccessful experiences in the classroom. Thus, if explanatory style mediates efficacy during the setbacks of a hard-fought experience, optimists are more likely to persevere and, in turn, gain efficacy through the experience of mastery. Thus, this study indicates that mastery experiences are not the only experiential contributors to efficacy.

Bad Events Matter As Well As the Good

The relationship between explanatory style and efficacy to predict burnout shows how attending to explanations of both positive and negative events can help teachers build efficacy and avoid burnout. An interesting finding of this study is that negative event explanations mediate efficacy in predicting exhaustion, while positive event explanations mediate efficacy in predicting disengagement. Exhaustion, according to the OLBI, involves how much energy one is expending toward one's job. People who have jobs that leave them with little energy to pursue outside interests or to go above-and-beyond the job's duties feel exhausted. According to this model, if teachers explain negative events in an optimistic way (external, temporary, and isolated), they will have higher efficacy and feel less exhausted. They will feel more energy to pursue either their own outside interests or seek out ways to overachieve in their jobs. Explaining negative events in optimistic ways seem to help teachers reduce the impact of those bad events on how they feel about their capabilities as teachers and their view of their jobs. The disengagement measure of the OLBI describes how connected one feels towards the job. According to this study, if teachers explain positive events in the classroom in optimistic ways (internal, stable, and global), they will have higher efficacy and thus feel more engaged. Optimistic teachers can use the success of positive events not only to build efficacy, but also to feel as though they have a personal connection to their jobs. By focusing on explanations of both positive and negative experiences in the classroom, teachers can build efficacy and address both components of burnout. Additionally, if teachers are aware of what component of burnout they are feeling about their job, they can target their explanations of relevant events more specifically to build efficacy and tackle their specific burnout needs.

This study suggests that teacher burnout relies on how they explain both positive and negative events rather than just focusing on how teachers explain negative events only. Prior efficacy research and theory focuses almost exclusively on the impact of successful, or positive, events in building efficacy and suggests that bad events, or those that bring failure, have only a negative affect on efficacy. This research indicates that not only should efficacy research focus on how people explain events, but also how their explanations of good and bad events contribute to a total picture of efficacy building. It is interesting to note that much of the research in explanatory style focuses on how people explain negative events or failures. In fact, the original ASQ has been modified to ask for responses only about negative events since these explanations better predict depression. This study indicates that helping teachers explain both good and bad events can lead to higher levels of efficacy and burnout.

Explanatory Style, Efficacy, and Professional Development

The relationships among explanatory style, efficacy, and professional development hours show how attending to explanations of negative events only can help teachers build efficacy and pursue more professional opportunities. While models for positive event explanations also yielded good model fit, the models for negative event explanations yielded better model fit overall. These models indicate that helping teachers explain negative events in optimistic ways can help them have greater efficacy and, in turn, pursue more professional development hours in a given year. Professional development is often focused on helping teachers address weaknesses in their teaching, so it is not surprising that negative event explanations would contribute to whether a teacher would feel as though more hours would be helpful. If teachers were pessimistic, they would explain negative events as internal, stable, and global, and they might not feel as though any further training would help alleviate the recurrence of negative classroom

events. Optimistic teachers, however, would see further training as a viable way to correct errant instructional, classroom management, or student engagement practices. More research would be needed to see if the explanations for both positive and negative events lead teachers to pursue certain types of professional development activities. It would be interesting to see if how teachers explain negative events predicts whether they pursue activities that address weakness and if how they predict positive events predicts whether they pursue professional growth opportunities like advanced degrees or certification.

Pessimism or Optimism? Realism Matters

Perhaps the most enlightening finding from this research is the way in which optimists and pessimists differ in how their explanatory style mediates efficacy in predicting burnout. Pessimists and optimists experience different cognitive processes in the journey toward efficacy and burnout. Pessimists will experience changes in efficacy and burnout if they explain positive events pessimistically (as external, temporary, and specific). Thus, for pessimistic teachers, disputing the personal, permanent, and pervasive nature of good events may leave them feeling incapable, exhausted, disengaged, and unwilling to seek training to help deficiencies in the classroom. Good events for pessimists do not build efficacy since they dismiss their role in making the good event happen and doubt whether the good event will have any lasting or global effects. Therefore, mastery experiences for pessimists may not have the efficacy-building impact that they do for optimists.

Optimists will experience changes in efficacy and burnout if they explain negative events optimistically (as external, temporary, and specific). Thus, for optimistic teachers, dismissing the personal, permanent, and pervasive nature of bad events may leave them feeling just as incapable, exhausted, disengaged, and unwilling to seek professional development as their

pessimistic colleagues. For optimists, bad events may not have the instructive impact needed to help them be reflective of their teaching practices. If optimistic teachers have a negative experience in the classroom, such as when a lesson does not go as planned, they may not take appropriate personal responsibility for its failure. They may dismiss the event as a fluke that will not recur or influence future lessons. They may blame external factors, such as student apathy or low ability, for the failure of the lesson. These types of explanations for negative classroom events may lead teachers to feeling as though they can do nothing to change a bad, immutable situation. They may feel exhausted with continually trying the same methods over and over again, hoping for the right set of caring or high-ability students to walk in the door. They may feel disconnected from students whom they feel are not capable of the challenging work they are presenting. These optimistic teachers may also forego professional development opportunities aimed at trying new instructional practices since they feel their current practice is sufficient, if only in the right circumstances.

The implications of these findings are important for understanding why teachers of all stripes get burned out and leave teaching. Not only should administrators be concerned with pessimistic teachers getting burned out, but they should also be concerned about optimistic teachers. According to this study, teachers should avoid being pessimistic about positive classroom experiences. It is good for teachers to explain good events as internal, stable, and global. However, teachers should also avoid being too optimistic about failures in the classroom. It is also good for teachers to be reflective about their practice and shoulder some of the responsibility for classroom events gone awry. It is too simple to say that teachers should be optimists in all things. Teachers perhaps should be realists instead, taking responsibility for both the good and the bad.

Future Directions

This research suggests a mechanism for building efficacy in teachers that capitalizes on mastery experiences. Mastery experiences are one of the four main ways to develop efficacy, and while experiencing mastery is certainly ideal, it is often difficult to capitalize on mastery experiences in teaching situations, especially in districts that struggle. Efficacy training programs with teachers are often difficult to administer successfully in that mastery experiences should be authentic rather than manufactured. Instead of waiting for success to happen, teachers can learn how to explain good and bad events in ways that maximize efficacy and reduce burnout. Teachers can also assess their own type of explanatory style to be sensitive to the different ways optimists and pessimists are affected by success and failure. Successful explanatory style training programs already exist (Seligman, Reivich, Jaycox, & Gillham, 1995). The next step for this research should involve developing teacher-training programs that incorporate explanatory style training into efficacy-building activities.

The low response rate for this study is one major limitation for this research. The most significant rate of survey attrition occurred during the EdASQ portion of the survey. This indicates that the EdASQ items are likely too cumbersome for large-scale research with teachers. Finding a way to measure explanatory style without relying on the labor-intensive way the measure is typically administered could increase the participation rates in studies using these measures. Teachers are typically pressed for time each day as they plan lessons, manage administrative duties (such as taking attendance and managing discipline), and grade student work. Having a valid and concise measure of how teachers explain events would improve the utility of the EdASQ for future research.

Another limitation of this study involves the type of teacher surveyed. Although teachers from a broad spectrum of socioeconomic levels were included in this study, no teachers from urban districts were a part of this research. Future research should include teachers from urban districts to see if the same relationships among explanatory style, efficacy, and burnout exist in environments that historically pose greater challenges for teachers. Teachers in urban school districts typically experience a higher incidence of negative experiences than those in affluent, suburban districts. It would be interesting to see if teachers in struggling districts exhibit the same patterns of explanatory style, efficacy, and burnout as those in this study.

This research helps clarify the relationship between explanatory style and efficacy and suggests ways to develop professional training programs that help teachers build efficacy. As the research in this area matures, we can develop ways to help teachers navigate the good and bad situations that occur in the classroom in ways that build efficacy and reduce burnout so we can keep strong teachers in the field longer. This research provides an important clarification regarding how explanatory style is an antecedent to efficacy when experiencing success and failure. Hard-fought mastery experiences are excellent ways to build efficacy, but persevering through the setbacks and obstacles is required to reach the goal of mastery. Without an optimistic explanatory style, teachers do not view the obstacles as challenges to overcome. Teachers will need to develop optimistic, but not too optimistic, explanations for failure in order to fight hard toward mastery. This research suggests that how teachers think about the positive and the negative matters.

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CHAPTER 5

CONCLUSIONS AND DISCUSSION

This dissertation set out to explore two main questions. First, can educator explanatory style be measured in context? And second, what is the theoretical and empirical relationship between explanatory style and teachers' sense of efficacy in reducing burnout?

This research shows that explanatory style can be measured with an educator-specific measure, and that explanatory style matters in teaching. Explanatory style is a mediator to teachers' sense of efficacy in predicting burnout in teachers. Adding explanatory style to teachers' sense of efficacy provides it with more predictive power for burnout than when alone. Additionally, a moderately optimistic explanatory style seems to benefit teachers most. Being too pessimistic or too optimistic can lead to low efficacy and burnout, so aspiring to a more realistic explanatory style seems to reduce burnout in teachers the most. This chapter examines how these general conclusions were reached and what future directions are in store for researching further the role of explanatory style in teaching.

Explanatory Style and Teachers' Sense of Efficacy: Theoretically Connected

Chapter 2 examined explanatory style, teachers' sense of efficacy, the theoretical relationships between the two variables, and proposed a rationale for considering both in concert to reduce teacher burnout. Research examining explanatory style, the characteristic ways in which people explain good and bad events (Seligman, 1998), shows that those with more pessimistic types of explanatory style are more at risk for depression (Peterson & Vaidya, 2001) and are more likely to give up in the face of challenge (Seligman, Nolen-Hoeksema, Thornton, &

Thornton, 1992). Teachers who maximize the positive and de-emphasize the negative may feel less burned out and remain in teaching longer. They may believe they are more capable as teachers, which is referred to as a teacher's sense of efficacy (Tschannen-Moran & Woolfolk-Hoy, 2001). Teachers with a high sense of efficacy about teaching tend to use a larger variety of teaching strategies and more proactive disciplinary procedures (Graham, Harris, Fink, & MacArthur, 2001; Tschannen-Moran & Woolfolk Hoy, 2001). These two concepts independently provide positive outcomes. Yet, discovering how these two constructs work together provides a mechanism for using how teachers think about success and failure to promote higher efficacy. While there are many variables that influence whether teachers will stay in the field longer, the ways teachers think about classroom experiences is important to mediating how capable teachers feel to enact change in their own classrooms.

Explanatory style and teachers' sense of efficacy are based on experiences of success and failure. For efficacy, mastery (i.e., successful) experiences are the primary means to develop high efficacy, so experiencing success and avoiding failure are the keys to having a healthy sense of efficacy. For explanatory style, how people interpret successes *and failures* defines their type of explanatory style (optimist or pessimist), and interventions exist that help pessimists become more optimistic. Thus, while efficacy is a good predictor of many positive teaching outcomes, one must first experience success to achieve more success later. This is problematic in high-failure situations like teaching. If optimistic explanatory style develops high self-efficacy, then considering explanatory style and efficacy in high-failure situations may create opportunities for interventions that go beyond mastery experiences.

The Importance of Domain Specificity: Educator Explanatory Style

Using domain-specific measures of explanatory style accounts for better model fit and more variance than using generic attributional style measures (Higgins, Zumbo, & Hay, 1999). Research shows that explanatory style can be measured effectively by modifying the ASQ to fit particular situations or domains (Peterson & Barrett, 1987). Higgins, Zumbo, and Hay (1999) go even further and propose that there is no such thing as a non-situational attributional style. Their research showed that the use of context-dependent item sets (CDIS) increased model fit and accounted for more variance than non-CDIS items. Additionally, the diathesis-stress model of depression suggests that explanatory style may not be evident without the presence of a stressor. Research in context-dependent attributional style suggests that depressionogenic (pessimistic) attributional style is more apparent when faced with negative life events in the same context and not as apparent outside of the context (Proudfoot, Corr, Guest, & Gray, 2001). Thus, domain-specific explanatory style measures allows respondents to imagine situations that are actually within the realm of possibility and present an imaginary stressor for a specific context to reveal explanatory style. Explanatory style measures for children (CASQ, Seligman, et al, 1984), teens (TASQ, Lieber, 1997), and financial-service sector workers (Proudfoot, Corr, Guest & Gray, 2001) exist that tap into situations often faced by these populations. This research adds to that list of domain-specific measures with the Educator Attributional Style Questionnaire (EdASQ).

Chapter 3 indicates that the EdASQ is a reliable and valid measure of explanatory style in teachers. The EdASQ has shown to have similar internal reliability to the original ASQ and correlates in similar ways to self-esteem as the ASQ. Just as the ASQ is predictive of high self-esteem, so, too, is the EdASQ. In addition, the EdASQ has a similar factor structure as the ASQ when the positive items are analyzed independently from the negative items. According to this

research, teachers exhibit distinct explanatory styles for positive and negative events separately. Chapter 3 confirms that measures based on the original 12-situation ASQ should be analyzed using positive items and negative items separately rather than together. Considering positive and negative events separately can provide researchers with more specific ways to develop less pessimistic explanatory styles in teachers. In addition, error variances for the internal, stable, and global items for each situation should be correlated to provide the best fit for the data. Since each internal, stable, and global item is tied together by a situation, the measurement for each item is tied together. Correlating the error variances allows for the items to be considered together instead of separately. Chapter 3 helps establish a reliable and valid measure and a baseline for explanatory style in teachers that will be useful for future research into teacher attributions about school.

Explanatory Style as Mediator for Teachers' Sense of Efficacy

Up to this point, the research has not examined whether efficacy precedes causal explanations of mastery experiences or vice versa. Bandura (1994) argues that efficacy precedes causal explanations and proposes that causal attributions are affected by efficacy beliefs. He theorizes that those with high efficacy attribute failure to low effort while those with low efficacy attribute failure to low ability (Figure 2.2).

Even though Bandura states that mastery experiences are one of the best ways to develop efficacy, he acknowledges that not all mastery experiences are created equal. Easy successes are not as valuable as those that are won via perseverance through setbacks and adversity. Bandura does not explain how those with little or no efficacy at the outset get through setbacks. If experiencing success breeds efficacy, then only in the end after success is gained would experiences fraught with setbacks and adversity contribute to a higher sense of efficacy.

Bandura's theory does not explain how one works through the setbacks and adversity except to say that if one has higher efficacy, perseverance is more likely. If people do not have high efficacy in the first place, it is unclear how they would get through to the end of a hard-fought mastery experience without it. It would seem, then, that a variable between setbacks and success exists that would be important to determining whether efficacy is developed through hard-fought mastery experiences. While Bandura believes that this variable is not causal attributions, this research demonstrates that explanatory style is a variable that mediates teachers' sense of efficacy in predicting burnout.

Chapter 4 demonstrates that explanatory style mediates teachers' sense of efficacy in predicting burnout. The explanatory style of teachers is an antecedent to developing a teacher's sense of efficacy. How teachers explain good and bad events in the classroom helps them develop efficacy beliefs about their teaching. In addition, this research shows that good *and bad* events contribute to the development of efficacy in the classroom.

This research suggests a new model for the relationship between efficacy and explanatory style, which is shown in Figure 4.5. According to this model, efficacy and explanatory style work in a feedback loop. Experiences of success and failure both influence the development of efficacy. Explanatory style mediates a teacher's sense of efficacy, which then influences how capable people feel about dealing with future experiences of success and failure. Then, once success or failure is experienced, explanatory style occurs, which builds or destroys the sense of efficacy further. Even though some have asserted that efficacy informs explanatory style (Bandura, 1994; Pajares, 2002), this research does not support that assertion. The models that tested teachers' sense of efficacy mediating explanatory style to predict burnout did not show good fit.

This feedback loop may explain how hard-fought mastery experiences help develop efficacy. Hard-fought mastery experiences are those in which setbacks and obstacles occur before mastery is achieved. While those with already high efficacy persevere through failures and setbacks, those with low efficacy may not have the resources it takes to persevere and ultimately achieve mastery, and by extension, efficacy. This research suggests a mechanism for building efficacy in teachers who have may have low efficacy. Interventions focusing on teachers' explanatory style could help those with low and high efficacy build or maintain efficacy using explanations of successful *and unsuccessful* experiences in the classroom. Thus, since explanatory style mediates efficacy during the setbacks of a hard-fought experience, optimists are more likely to persevere and, in turn, gain efficacy through the experience of mastery.

Bad Events Matter As Well As the Good

The types of causal explanations teachers make about success and failure provide the efficacy they need to weather difficult teaching situations. Explanations of success *and failure* contribute to an increased sense of efficacy. An optimistic teacher views successful teaching as internal, global and stable but views unsuccessful teaching as external, isolated, and unstable. Thus, not only do successful experiences lead to increased efficacy, but experiences of failure also develop efficacy. These types of explanations about the causes of events, successful and unsuccessful, lead to the teacher having a higher sense of efficacy, which, in turn, leads to more resiliency and less burnout.

The specific relationships between explanatory style and efficacy to predict burnout shows how attending to explanations of both positive and negative events can help teachers build efficacy and avoid burnout. Negative event explanations mediate efficacy in predicting

exhaustion, while positive event explanations mediate efficacy in predicting disengagement. Exhaustion, according to the OLBI, involves how much energy one is expending toward one's job. People who have jobs that leave them with little energy to pursue outside interests or to go above-and-beyond the job's duties feel exhausted. According to this model, if teachers explain negative events in an optimistic way (external, temporary, and isolated), they will have higher efficacy and feel less exhausted. They will feel more energy to pursue either their own outside interests or seek out ways to overachieve in their jobs. Explaining negative events in optimistic ways seem to help teachers reduce the impact of those bad events on how they feel about their capabilities as teachers and their view of their jobs. The disengagement measure of the OLBI describes how connected one feels towards the job. According to this study, if teachers explain positive events in the classroom in optimistic ways (internal, stable, and global), they will have higher efficacy and thus feel more engaged. Optimistic teachers can use the success of positive events not only to build efficacy, but also to feel as though they have a personal connection to their jobs. By focusing on explanations of both positive and negative experiences in the classroom, teachers can build efficacy and address both components of burnout. Additionally, if teachers are aware of what component of burnout they are feeling about their job, they can target their explanations of relevant events more specifically to build efficacy and tackle their specific burnout needs. Now, instead of using only mastery experiences to increase efficacy, experiences of success and failure can be used to increase efficacy. In addition, interventions can target differential explanatory styles to mediate the development of efficacy and avoid burnout. As such, the diagnosis of low efficacy and burnout in teachers can be more detailed, making subsequent interventions more effective.

Teacher burnout is influenced by teachers' explanations of both positive and negative events rather than just focusing on explanations of negative events only. Prior efficacy research and theory focuses almost exclusively on the impact of successful, or positive, events in building efficacy and suggests that bad events, or those that bring failure, have only a negative affect on efficacy. Not only should efficacy research focus on how people explain positive, mastery events, but also on how their explanations of bad, non-mastery events contribute to a total picture of efficacy building. Conversely, it is interesting to note that much of the research in explanatory style focuses on how people explain only negative events or failures. In fact, the original ASQ has been modified to ask for responses only about negative events since these explanations better predict depression. This study indicates that research using context-dependent item sets should not neglect positive situations. Examining how non-depressed individuals explain good events as well as the bad can provide a more detailed picture of the role of explanatory style in context.

Pessimism vs. Optimism? Realism Matters

Research is divided over whether pessimism is completely detrimental to performance (i.e., Sanna & Chang, 2003; Tiggeman & Crowley, 1993). This research suggests that being extremely pessimistic or extremely optimistic are both undesirable, but in very specific ways. Pessimists experience changes in efficacy and burnout if they explain positive events pessimistically (as external, temporary, and specific). Thus, for pessimistic teachers, disputing the personal, permanent, and pervasive nature of good events may leave them feeling incapable, exhausted, disengaged, and unwilling to seek training to help deficiencies in the classroom. Good events for pessimists do not build efficacy since they dismiss their role in making the good event happen and doubt whether the good event will have any lasting or global effects. Therefore, mastery experiences for pessimists may not have the efficacy-building impact that they do for

optimists. Essentially, not only do bad events matter for efficacy, but some good events many *not* matter for efficacy if teachers have a pessimistic explanatory style.

The models tested in Chapter 4 for pessimists and optimists show how those with each type of explanatory style differ in how those explanations influence efficacy and burnout. Optimists experience changes in efficacy and burnout if they explain negative events optimistically (as external, temporary, and specific). Thus, for optimistic teachers, dismissing the personal, permanent, and pervasive nature of bad events may leave them feeling just as incapable, exhausted, disengaged, and unwilling to seek professional development as their pessimistic colleagues. For optimists, bad events may not have the instructive impact needed to help them be reflective of their teaching practices. If optimistic teachers have a negative experience in the classroom, such as when a lesson does not go as planned, they may not take appropriate personal responsibility for its failure. They may dismiss the event as a fluke that will not recur or influence future lessons. They may blame external factors, such as student apathy or low ability, for the failure of the lesson. These types of explanations for negative classroom events may lead teachers to feeling as though they can do nothing to change a bad, immutable situation. They may feel exhausted with continually trying the same methods over and over again, hoping for the right set of caring or high-ability students to walk in the door. They may feel disconnected from students whom they feel are not capable of the challenging work they are presenting. These optimistic teachers may also forego professional development opportunities aimed at trying new instructional practices since they feel their current practice is sufficient, if only in the right circumstances.

Administrators should be concerned with both pessimistic and optimistic teachers getting burned out. According to this research, teachers should avoid being pessimistic about positive

classroom experiences. By explaining positive events as external, temporary, and specific, teachers can negate the efficacy-building impact of mastery experiences. Thus, it is good for teachers to explain good events as internal, stable, and global. This type of explanation helps build efficacy when success is experienced. However, teachers should also avoid being too optimistic about failures in the classroom. By explaining negative events as external, temporary, and specific, teachers may not take appropriate responsibility for what goes wrong in the classroom. Thus, it is also good for teachers to be reflective about their practice and shoulder some of the responsibility for classroom events gone awry. It is too simple to say that teachers should be optimists in all things in order to build efficacy and avoid burnout. Teachers perhaps should be realists instead, taking responsibility for both the good and the bad so they can build efficacy and seek corrective action when needed.

Future Directions

The theoretical foundations for explanatory style and efficacy are robust and hint at the relationship between explanatory style and efficacy. This research helps clarify this relationship. By developing an educator explanatory style measure and using it along with established measures of teachers' sense of efficacy, I have shown how explanatory style mediates teachers' sense of efficacy in predicting burnout. Since explanatory style mediates efficacy, any experience one has during teaching could be used to build efficacy. Understanding what type of explanatory style maximizes a teacher's sense of efficacy will help administrators develop training programs that maximize job satisfaction and professionalism. Training teachers to think more realistically about success and failure could be the key to building a high sense of efficacy and helping teachers be more effective.

This research suggests a mechanism for building efficacy in teachers that capitalizes on mastery experiences. Mastery experiences are one of the four main ways to develop efficacy, and while experiencing mastery is certainly ideal, it is often difficult to capitalize on mastery experiences in teaching situations, especially in districts that struggle. Efficacy training programs with teachers are often difficult to administer successfully in that mastery experiences should be authentic rather than manufactured. Instead of waiting for success to happen, teachers can learn how to explain good and bad events in ways that maximize efficacy and reduce burnout. They can explain good events optimistically and bad events realistically. Teachers can assess their own type of explanatory style to be sensitive to the different ways optimists and pessimists are affected by success and failure. Optimistic teachers can focus on whether they are taking enough appropriate responsibility for classroom failures. Pessimistic teachers can focus on whether they are capitalizing on good events appropriately. Successful explanatory style training programs already exist (Seligman, Reivich, Jaycox, & Gillham, 1995). The next step for this research should involve developing teacher-training programs that incorporate explanatory style training into efficacy-building activities.

The relationships among explanatory style, efficacy, and professional development hours show how attending to explanations of negative events only can help teachers build efficacy and pursue more professional opportunities. Helping teachers explain negative events in optimistic ways can help them have greater efficacy and, in turn, pursue more professional development hours in a given year. Professional development is often focused on helping teachers address weaknesses in their teaching, so it is not surprising that negative event explanations would contribute to whether a teacher would feel as though more hours would be helpful. If teachers were pessimistic, they would explain negative events as internal, stable, and global, and they

might not feel as though any further training would help alleviate the recurrence of negative classroom events. Optimistic teachers, however, would see further training as a viable way to correct errant instructional, classroom management, or student engagement practices. More research is needed to see if the explanations for positive and negative events lead teachers to pursue certain types of professional development activities. It would be interesting to see if how teachers explain negative events predicts whether they pursue activities that address weakness and if how they predict positive events predicts whether they pursue professional growth opportunities like advanced degrees or certification.

One way to evaluate explanatory style further is to analyze the causes teachers give for each situation presented in the EdASQ. Teachers provide a short free-response cause to each situation on the EdASQ and all ASQ-style measures. Traditionally, these responses are not analyzed to determine if they correspond to responses given to the subsequent internal, stable, and global Likert items. Future research should examine these free-response causes to determine if the causes are consistent with the Likert responses and to assess the qualities of the provided causes. This type of qualitative research could be valuable to understanding teacher cognitive processes and how explanatory style more specifically relates to teaching.

The low response rate for this research is one major limitation for this research. The most significant rate of survey attrition occurred during the EdASQ portion of the survey. This indicates that the EdASQ items are likely too cumbersome for large-scale research with teachers. Finding a way to measure explanatory style without relying on the labor-intensive way the measure is typically administered could increase the participation rates in studies using these measures. Teachers are typically pressed for time each day as they plan lessons, manage administrative duties (such as taking attendance and managing discipline), and grade student

work. Having a valid and concise measure of how teachers explain events would improve the utility of the EdASQ for future research.

Another limitation of this study involves the type of teacher surveyed. Although teachers from a broad spectrum of socioeconomic levels were included in this study, no teachers from urban districts were a part of this research. Future research should include teachers from urban districts to see if the same relationships among explanatory style, efficacy, and burnout exist in environments that historically pose greater challenges for teachers. Teachers in urban school districts typically experience a higher incidence of negative experiences than those in affluent, suburban districts. It would be interesting to see if teachers in struggling districts exhibit the same patterns of explanatory style, efficacy, and burnout as those in this study.

This research helps clarify the relationship between explanatory style and efficacy and suggests ways to develop professional training programs that help teachers build efficacy. As the research in this area matures, we can develop ways to help teachers navigate the good and bad situations that occur in the classroom in ways that build efficacy and reduce burnout so we can keep strong teachers in the field longer. This research provides an important clarification regarding how explanatory style is a mediator to efficacy when experiencing success and failure. Hard-fought mastery experiences are excellent ways to build efficacy, but persevering through the setbacks and obstacles is required to reach the goal of mastery. Without an optimistic explanatory style, teachers do not view the obstacles as challenges to overcome. Teachers will need to develop optimistic, but not too optimistic, explanations for failure in order to fight hard toward mastery. This research suggests that how teachers think about the positive and the negative matters.

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APPENDIX A

Measures of Teacher Explanatory Style, Self-Esteem, Teachers' Sense of Efficacy, and Burnout

Explanatory Style

EDUCATOR ATTRIBUTIONAL STYLE QUESTIONNAIRE (derived from Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1984)

Directions:

1. Read each situation and vividly imagine it happening to you.
2. Decide what you believe to be the one major cause of the situation if it happened to you.
3. Write this cause in the blank provided.
4. Answer the questions about the cause by circling one number per question. Do not circle the words.
5. Go on to the next situation.

SITUATIONS

A STUDENT COMPLIMENTS YOU ON THE LESSON YOU TAUGHT HIM/HER.

1. Write down the one major cause: _____

2. Is the cause of your student's compliment due to something about you or something about other people or circumstances?

Totally due to other people 1 2 3 4 5 6 7 Totally due to me
or circumstances

3. In the future, when you teach this student, will this cause again be present?

Will never be present again 1 2 3 4 5 6 7 Will always be
present

4. Is this cause something that just affects interacting with students, or does it also influence other areas of your life?

Influences just this particular 1 2 3 4 5 6 7 Influences all
situation situations
in my life.

YOU HAVE BEEN LOOKING FOR A TEACHING JOB UNSUCCESSFULLY FOR SOME TIME.

5. Write down the one major cause: _____

6. Is the cause of your unsuccessful job search due to something about you or something about other people or circumstances?

Totally due to other people or circumstances 1 2 3 4 5 6 7 Totally due to me

7. In the future, when looking for a job, will this cause again be present?

Will never be present again 1 2 3 4 5 6 7 Will always be present

8. Is this cause something that just affects looking for a job, or does it also influence other areas of your life?

Influences just this particular situation 1 2 3 4 5 6 7 Influences all situations in my life.

YOU WIN “TEACHER OF THE YEAR.”

9. Write down the one major cause: _____

10. Is the cause of your becoming teacher of the year due to something about you or something about other people or circumstances?

Totally due to other people or circumstances 1 2 3 4 5 6 7 Totally due to me

11. In the future, will this cause again be present?

Will never be present again 1 2 3 4 5 6 7 Will always be present

12. Is this cause something that just affects getting teaching recognition, or does it also influence other areas of your life?

Influences just this particular situation 1 2 3 4 5 6 7 Influences all situations in my life.

A COLLEAGUE COMES TO YOU WITH A PROBLEM IN THE CLASSROOM, AND YOU DON'T TRY TO HELP HIM/HER.

13. Write down the one major cause: _____

14. Is the cause of your not helping your colleague due to something about you or something about other people or circumstances?

Totally due to other people or circumstances 1 2 3 4 5 6 7 Totally due to me

15. In the future, when a colleague comes to you with a problem, will this cause again be present?

Will never be present again 1 2 3 4 5 6 7 Will always be present

16. Is this cause something that just affects what happens when a colleague comes to you with a problem, or does it also influence other areas of your life?

Influences just this particular situation 1 2 3 4 5 6 7 Influences all situations in my life.

YOU TEACH AN IMPORTANT LESSON AND THE STUDENTS REACTS NEGATIVELY.

17. Write down the one major cause: _____

18. Is the cause of the class's negative reaction due to something about you or something about other people or circumstances?

Totally due to other people or circumstances 1 2 3 4 5 6 7 Totally due to me

19. In the future, when you teach, will this cause again be present?

Will never be present again 1 2 3 4 5 6 7 Will always be present

20. Is this cause something that just affects teaching, or does it also influence other areas of your life?

Influences just this particular situation 1 2 3 4 5 6 7 Influences all situations in my life.

YOU DO A PROJECT FOR YOUR SCHOOL WHICH IS HIGHLY PRAISED.

21. Write down the one major cause: _____

22. Is the cause of your being praised due to something about you or something about other people or circumstances?

Totally due to other people 1 2 3 4 5 6 7 Totally due to me or circumstances

23. In the future, when do a project, will this cause again be present?

Will never be present again 1 2 3 4 5 6 7 Will always be present

24. Is this cause something that just affects doing projects, or does it also influence other areas of your life?

Influences just this particular 1 2 3 4 5 6 7 Influences all situation in my life.

YOU HAVE A CONFERENCE WITH A PARENT WHO ACTS HOSTILELY TOWARDS YOU.

25. Write down the one major cause: _____

26. Is the cause of the parent acting hostile due to something about you or something about other people or circumstances?

Totally due to other people 1 2 3 4 5 6 7 Totally due to me or circumstances

27. In the future, when interacting with parents, will this cause again be present?

Will never be present again 1 2 3 4 5 6 7 Will always be present

28. Is this cause something that just affects interacting with parents, or does it also influence other areas of your life?

Influences just this particular 1 2 3 4 5 6 7 Influences all situation in my life.

YOU CAN'T GET ALL THE WORK DONE THAT OTHERS EXPECT OF YOU.

29. Write down the one major cause: _____

30. Is the cause of your not getting the work done due to something about you or something about other people or circumstances?

Totally due to other people 1 2 3 4 5 6 7 Totally due to me or circumstances

31. In the future, when doing work that others expect, will this cause again be present?

Will never be present again 1 2 3 4 5 6 7 Will always be present

32. Is this cause something that just affects doing work that others expect of you, or does it also influence other areas of your life?

Influences just this particular situation 1 2 3 4 5 6 7 Influences all situations in my life.

YOUR PRINCIPAL HAS GIVEN YOU SEVERAL POSITIVE EVALUATIONS.

33. Write down the one major cause: _____

34. Is the cause of your principal evaluating you more positively due to something about you or something about other people or circumstances?

Totally due to other people 1 2 3 4 5 6 7 Totally due to me or circumstances

35. In the future interactions with your principal, will this cause again be present?

Will never be present again 1 2 3 4 5 6 7 Will always be present

36. Is this cause something that just affects how your principal treats you, or does it also influence other areas of your life?

Influences just this particular situation 1 2 3 4 5 6 7 Influences all situations in my life.

YOU APPLY FOR A TEACHING POSITION THAT YOU WANT VERY BADLY, AND YOU GET IT.

37. Write down the one major cause: _____

38. Is the cause of your getting the teaching position due to something about you or something about other people or circumstances?

Totally due to other people or circumstances 1 2 3 4 5 6 7 Totally due to me

39. In the future, when you apply for a teaching position, will this cause again be present?

Will never be present again 1 2 3 4 5 6 7 Will always be present

40. Is this cause something that just influences applying for a teaching position, or does it also influence other areas of your life?

Influences just this particular situation 1 2 3 4 5 6 7 Influences all situations in my life.

YOU PLAN A PROFESSIONAL DEVELOPMENT WORKSHOP FOR YOUR COLLEAGUES, AND IT GOES BADLY.

41. Write down the one major cause: _____

42. Is the cause of the workshop going badly due to something about you or something about other people or circumstances?

Totally due to other people or circumstances 1 2 3 4 5 6 7 Totally due to me

43. In the future, when you are planning workshops, will this cause again be present?

Will never be present again 1 2 3 4 5 6 7 Will always be present

44. Is this cause something that just affects planning workshops, or does it also influence other areas of your life?

Influences just this particular situation 1 2 3 4 5 6 7 Influences all situations in my life.

YOU GET A LETTER FROM A FORMER STUDENT THAT THANKS YOU FOR YOUR POSITIVE INFLUENCE IN HIS/HER LIFE.

45. Write down the one major cause: _____

46. Is the cause of your getting the positive letter due to something about you or something about other people or circumstances?

Totally due to other people 1 2 3 4 5 6 7 Totally due to me
or circumstances

47. In the future, will this cause again be present?

Will never be present again 1 2 3 4 5 6 7 Will always be
present

48. Is this cause something that just affects getting positive letters from students, or does it also influence other areas of your life?

Influences just this particular 1 2 3 4 5 6 7 Influences all
situation situations
in my life.

Self-Esteem

ROSENBERG SELF-ESTEEM SCALE – (Rosenberg, 1957)

For each of the following statements, use the scale below to indicate your agreement or disagreement.

1 = strongly agree 2 = agree 3 = disagree 4 = strongly disagree

1. I feel that I am a person of worth, at least on an equal basis with others.
2. I feel that I have a number of good qualities.
3. All in all, I am inclined to feel that I am a failure.
4. I am able to do things as well as most people.
5. I feel I do not have much to be proud of.
6. I take a positive attitude toward myself.
7. On the whole, I am satisfied with myself.
8. I wish I could have more respect for myself.
9. I certainly feel useless at times.
10. At times I think I am no good at all.

Teachers' Sense of Efficacy

TEACHERS' SENSE OF EFFICACY SCALE-LONG FORM (Tschannen-Moran & Woolfolk-Hoy, 2001)

Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential. Use the following scale to respond to the questions:

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a bit		A Great Deal

1. How much can you get through to the most difficult students?
2. How much can you do to increase students' memory of what they have been taught in previous lessons?
3. How much can you do to keep students on task on difficult assignments?
4. How much can you do to get children to follow classroom rules?
5. How much can you do to motivate students who show low interest in schoolwork?
6. How much can you do to get students to work together?
7. How much can you do to control disruptive behavior in the classroom?
8. How much can you do to overcome the influence of adverse community conditions on student learning?
9. How much can you do to make your classroom a safe place?
10. How much can you do to make students enjoy coming to school?
11. How much can you assist parents in helping their children do well in school?
12. How much can you do to get students to believe they can do well in school work?
13. How much can you do to get students to trust you as a teacher?
14. How much can you do to make parents feel comfortable coming to school?
15. How much can you do to reduce class absenteeism?
16. How much can you do to insure that your assessment strategies accurately evaluate student learning?
17. To what extent are you able to create lessons that hold students' interest?
18. How much can you gauge student comprehension of what you have taught?
19. To what extent can you influence the self-discipline of your students?
20. To what extent are you able to tailor your lessons to the academic level of your students?
21. To what extent are you able to maximize instructional time?
22. How much can you do to adjust your lessons to meet the needs of the individual students?
23. How much can you do to meet the needs of a diverse student body?
24. How much can you do to overcome a student's resistance to a particular subject?
25. How much can you do to repair student misconceptions?
26. How much can you do improve the understanding of a student who is failing?
27. How much can you do to influence student performance?
28. How much can you do to calm a student who is disruptive or noisy?
29. How much can you do to adjust your lessons to the proper level for individual students?
30. How much can you do to influence how well your students do on standardized tests?

31. How much can you do to help students with behavior difficulties?
32. How much can you do to deal with students with learning disabilities?
33. How much can you use a variety of assessment strategies?
34. To what extent can you insure that students understand your rationale for grading?
35. To what extent can you vary teaching strategies to best communicate information to your students?
36. How well can you implement alternative strategies in your classroom?

Burnout

OLDENBURG BURNOUT INVENTORY (Demerouti, Bakker, Vardakou, & Kantas, 2003)

Directions: Rate your level of agreement with the following statements on the following scale:

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

1. I always find new and interesting aspects in my work.
2. It happens more and more often that I talk about my work in a negative way.
3. After work, I tend to need more time than in the past in order to relax and feel better.
4. Lately, I tend to think less at work and do my job almost mechanically.
5. I find my work to be a positive challenge.
6. During my work, I often feel emotionally drained.
7. Over time, one can become disconnected from this type of work.
8. After working, I have enough energy for my leisure activities.
9. After my work, I usually feel worn out and weary.
10. This is the only type of work that I can imagine myself doing.
11. There are days when I feel tired before I arrive at work.
12. I can tolerate the pressure of my work very well.
13. I feel more and more engaged in my work.
14. When I work, I usually feel energized.

APPENDIX B

Means, Standard Deviations, T-values, P-values, Variances, Regression Weights and Factor Score Weights for Educator Attributional Style Questionnaire Items

Item Number	Positive or Negative	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	Variance	Regression Weight	Factor Score Weight
Internal 1	Positive	4.57	1.26	3.98	.001**	1.73	.886	.045
Internal 3	Positive	4.26	1.49	5.08	.001**	2.15	1.468	.063
Internal 6	Positive	4.42	1.50	5.13	.001**	2.18	1.492	.083
Internal 9	Positive	5.22	1.17	5.57	.001**	1.38	1.352	.138
Internal 10	Positive	4.99	1.26	5.59	.001**	1.57	1.373	.174
Internal 12	Positive	4.89	1.32			1.76	1.000	.057
Internal 2	Negative	3.52	1.75	2.08	.037*	3.09	.447	.042
Internal 4	Negative	3.80	1.88	2.38	.017*	3.63	.576	.041
Internal 5	Negative	4.75	1.43	3.70	.001**	2.07	.900	.145
Internal 7	Negative	3.13	1.35	3.72	.001**	1.78	.854	.168
Internal 8	Negative	4.20	1.74	3.18	.001**	2.98	.781	.081
Internal 11	Negative	4.91	1.49			2.22	1.000	.170
Stable 1	Positive	5.24	1.15	4.89	.001**	1.40	.709	.054
Stable 3	Positive	5.32	1.34	7.13	.001**	1.87	1.296	.098
Stable 6	Positive	4.42	1.50	6.61	.001**	1.70	.992	.096
Stable 9	Positive	5.49	1.16	7.79	.001**	1.35	1.162	.223
Stable 10	Positive	5.29	1.30	6.79	.001**	1.67	1.044	.098
Stable 12	Positive	5.46	1.20			1.44	1.000	.139
Stable 2	Negative	4.23	1.49	2.55	.011*	2.30	.709	.030
Stable 4	Negative	3.73	1.46	3.52	.001**	2.20	1.249	.065
Stable 5	Negative	3.93	1.40	3.82	.001**	1.90	1.616	.120
Stable 7	Negative	3.93	1.38	3.78	.001**	1.88	1.557	.135
Stable 8	Negative	4.63	1.48	3.73	.001**	2.22	1.536	.101
Stable 11	Negative	3.80	1.51			2.30	1.000	.039
Global 1	Positive	4.94	1.47	3.43	.001**	2.14	.624	.034
Global 3	Positive	5.11	1.56	5.46	.001**	2.43	1.337	.082
Global 6	Positive	5.13	1.47	5.42	.001**	2.17	1.131	.096
Global 9	Positive	5.35	1.32	5.96	.001**	1.72	1.236	.163
Global 10	Positive	5.35	1.39	5.70	.001**	1.92	1.166	.117
Global 12	Positive	5.39	1.45			2.11	1.000	.092
Global 2	Negative	4.07	1.85	2.81	.005*	3.41	.517	.045
Global 4	Negative	3.78	1.81	4.08	.001**	3.27	.726	.084
Global 5	Negative	3.67	1.60	5.09	.001**	2.54	1.056	.183
Global 7	Negative	3.37	1.67	4.86	.001**	2.82	1.027	.154
Global 8	Negative	4.79	1.69	4.13	.001**	2.83	.693	.090

Global 11	Negative	3.95	1.69	2.86	1.000	.146
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** significant to the .001 level

* significant to the .05 level