AN EXPLORATORY STUDY OF ACADEMIC OPTIMISM AND FLOW OF ELEMENTARY SCHOOL TEACHERS

DISSERTATION

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the Degree of Doctor of Philosophy in the Graduate
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by

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ABSTRACT

The goal of this research was to examine individual teachers’ beliefs about their experiences, abilities, students, and academic tasks through two concepts evolving out of positive psychology - flow and academic optimism. Researchers have theorized and found correlational support for the idea that flow is an optimal psychological state underlying peak performance. This study examined two competing models of flow. Jackson (1998) defined flow as a holistic, subjective experience encompassing all nine of Csikszentmihalyi’s original elements. Quinn (2006) conceived of flow as a causal model, with antecedents and consequences defining flow as the merging of awareness and application. The results from CFA and SEM of 260 elementary school teachers, demonstrated that Jackson’s model provided a better explanation of flow for teachers. For teachers, flow is a holistic and integrated concept with nine aspects.

Hoy and colleagues (2006) theorized that collective teacher efficacy, faculty-trust in students and parents, and academic emphasis are dimensions of a single latent trait of schools called academic optimism. The (Hoy, et. al., 2007) model of individual academic optimism was well supported. Teacher academic optimism is a second-order factor comprised of three first order factors: sense of teacher efficacy, teacher trust in parents and students and individual teacher academic emphasis. In this analysis, the measures of
individual academic optimism were refined.

The construct of general life optimism describes an individual’s positive expectation about the future. Enabling structure describes the extent to which the structure of a school supports teachers’ work. The correlational results yielded that a teacher sense of flow and academic optimism were positively related. General life optimism was positively correlated with academic optimism. Enabling school structure was positively correlated with academic optimism but the relation with flow was not supported. Finally, the results from exploratory analysis of multiple predictors for teacher sense of academic optimism showed that general life optimism, flow and teacher perception of enabling school structure all made significant contribution to the explanation of teacher’s sense of academic optimism, while academic optimism and general life optimism made significant contributions to the explanation of teacher’s sense of flow.
Dedicated to my husband Jacinto, and our three beautiful children,

David, Elisabeth, and Matthew.
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CHAPTER 1

INTRODUCTION

The current study examines two concepts that have evolved from the recent literature on positive psychology – flow and academic optimism of teachers. In this chapter, the background for the study is sketched, the need and purpose delineated, and then the basic terms of the inquiry are defined. Finally, the research questions guiding the empirical phase of the study are stated and the limitations are specified.

Background of the Study

Studies of achievement relative to effective educational practices are among the oldest traditions in educational research. So why now has the interest in effective practices leading to greater achievement been renewed with such intensity? In January of 2002, President Bush signed the No Child Left Behind Act to give educators clear direction in educational reform. No Child Left Behind is based on stronger accountability for results, more freedom for states and communities, proven effective education methods, and more choices for parent. Of the four pillars of No Child Left Behind, two address the need for renewed interest in achievement. Stronger accountability and proven education methods foreshadow the research for this study. Studies of achievement have historically identified problems and addressed dilemmas
from a perspective that typically blames the victims for their lack of success in traditional methods of schooling. This deficit thinking shifts responsibility away from educators by providing excuses that take control of the education of children out the hands of the educators. Deficit thinking has served to reinforce the achievement gaps that exist among the nations racial, ethnic and socioeconomic dividing lines. Although there are several studies demonstrating how deficit thinking negatively impacts achievement, the current study explores two positive psychological constructs that provide the promise of positively influencing teaching performance - flow and academic optimism of teachers.

Need and Purpose

The bipartisan law, No Child Left Behind, has made educational reformation a legal mandate. Schools are for the first time in history being legally held accountable for the academic progress of every child. Contemporary developments in educational research have informed us that the traditional structures of schools, teaching practices, beliefs and dispositions all must be reconsidered as we seek effective ways to unlock teaching and learning potential and high academic performance for all students. Because No Child Left Behind has an accountability provision, closing the achievement gap has become a national priority. Schools held accountable for student progress must have high expectations for every child (NCLB retrieved April 09, 2005).

Rapid changes are taking place in the racial and ethnic composition of the nation bringing a renewed sense of urgency to this work. African American, Latino and Native American populations are growing and already make up nearly one-third
of the under 18 population. They are predicted to comprise two-fifths of this population by 2030. America is a diverse society in which educational differences have the potential to become a progressively larger source of inequality and social conflict. Without such progress, the United States will continue to be unable to draw on the full range of talents in our population during an era when the value of an educated citizenry has never been greater. (Retrieved September 25, 2006, from http://www.collegeboard.com/research/pdf/reachingthe_3952.pdf).

This research study not only addresses the theoretical significance under-pinning the new direction in reform, it has practical significance as educators work to reclaim the professional challenge of closing the achievement gaps. As student populations change, so too must teaching techniques. Addressing achievement requires an evaluation of what works and what doesn’t. Under the Proven Methods provision on NCLB, schools are required to provide highly qualified teachers prepared to meet the challenges and educational needs of their students. Fullan (2001) acknowledged that changes in beliefs and understanding (as the first principle) are the foundation of achieving lasting reform.

In light of the need to consider teacher belief and experiences that lead to student achievement, I chose to study individual teachers as we, as educators seek to find optimistic solutions in reform.

Four decades ago, Paola Freire (1970) concluded that oppression begins at the psychological level. Kumashiro (2000) said, “oppression originates in discourse, and, in particular, in the citing of particular discourses, which frame how people think, feel, act, and interact” (p. 40). More recently, Mano Singham (2003) identified the significance of
the relationship between teacher and student when he demonstrated the direct psychological effect the teacher had on the student relative to the social interaction and value messages communicated between the two. Singham (2003) stated that while “the ethnicity of the teacher seems to have little effect on student performance: 81% of black females and 62% of black males want to ‘please’ the teacher more than they do a parent; the comparable figures for whites are 28% for female and 32% for males. In other words, the impact the teacher has on the student is far greater for minority students than for majority students” (p. 589). Hardiman and Jackson (1997) identify privilege and oppression as the result of forces and mechanisms that go far beyond the individual psychological level.

In schools with large Hispanic populations, Wagstaff and Fusarelli (1995) reported, “the single most important factor in the academic success of minority students was the leader’s explicit challenge to, and rejection of, a deficit model of explaining differential student achievement” (Shields, Bishop & Mazawi, 2004, p. 4). To further illustrate the critical importance of what goes on between student and teacher in the process of schooling, Shields, Bishop and Mazawi (2004) discussed deficit thinking and pathologizing practice in psychology as pervasive in most educational thinking related to difference, “creating and perpetuating images of children in ways that are destructive, in ways that predispose some children to be successful, confident, and engaged, and others to become lower achieving, timid or aggressive, reluctant, and disengaged” (p. 1).

Countering deficit thinking is a relatively new movement called positive psychology. We have come to a place in history where positive psychology is necessary.
to address the negative thought patterns that have kept students from achieving in traditional methods of schooling. Shields, Bishop and Mazawi (2004) said “we acknowledge the need for us as educators to confront differences together, to overcome pathologies related to difference” (p. 22). While psychologists have also traditionally focused on such pathologies as deficits, weaknesses, disease and damage, positive psychology has evolved over the past 10 years to focus on talents, virtues, and possibilities. This positive framework evolved as scholars called for a redirection of focus in psychology from treating pathologies to understanding how to enhance competence and capacity within a given context (Peterson & Seligman, 2004; Seligman, 2002). Studies indicated that teachers’ beliefs significantly influence student learning (Butler, 2000; Jordan, Lindsay, & Stanovich, 1997). Gregoire (2003) claimed that, “understanding how teachers’ beliefs relate to their practice as well as to student outcomes may be the missing link between calls for school reform and teacher implementation of that reform” (p. 149). Positive teachers beliefs can stimulate positive practices in the classroom and positive student engagement.

Positive psychology is grounded in scientific inquiry and is defined as the study of human strengths and optimal functioning (Kurz, 2006). Positive psychologists investigate the subjective well being of an individual relative to their personal well-being and satisfaction including flow, joy, sensual pleasures, happiness, optimism, hope and faith (Seligman, 2002). Positive psychology provides an interesting and promising lens through which to identify the purpose, situation and problems we face as we work toward change solutions.
Congruent with the contemporary change in psychological focus and consistent with research on effective teaching reform, two useful positive psychological constructs that likely hold important keys toward unlocking teaching and learning potential and high academic performance for all students; the concepts of teacher academic optimism and flow were proposed. In light of the identified problems in advancing academic achievement for all students, and in review of current literature, academic optimism and flow have surfaced as potentially powerful forces in high achievement and high performance experiences. The need to counter deficit model thinking and pathologizing psychology with optimistic solutions and positive psychology seems clear. This study was one of the first of its kind to examine the nature of flow experiences and academic optimism among teachers.

Definition of Concepts

*Positive psychology* seeks to explore and explain optimal environments by analyzing positive emotions, traits, institutions and situations where humans thrive and flourish (Seligman & Csikszentmihalyi, 2000). Essentially, it is the study of human strengths and optimal functioning. The goal of positive psychology is to understand the personal traits and dispositions that contribute to the psychological health and general well being of individuals and collectives (Myers, 2001).

*Deficit thinking* refers to the notion that students (particularly those of low-income, racial/ethnic minority background) fail in school because such students and their families have internal defects (deficits) that thwart the learning process (for example: limited educability; low motivation; inadequate family support). Deficit thinking, an
endogenous theory, “blames the victim” rather than examining how the schools are structured to prevent certain students from learning (Valencia, 1997).

_Social cognitive theory_ (Bandura, 1986, 1997) is a general framework for understanding human learning and motivation. Bandura (1997) believed that humans exercise control over their lives through agentive actions. People act, reflect on those actions, and change their behaviors accordingly and constantly. Bandura identified three dimensions of his theory; behaviors, personal factors and the environment, which interact dynamically forming a triadic set of interactions known as reciprocal determinism.

_Academic optimism of schools_ is a contemporary construct identified by Hoy, Tarter, and Woolfolk Hoy (2006) to comprise the collective properties of academic emphasis, self-efficacy and trust working together to create a positive academic environment called academic optimism. The three components also create a dynamic triadic set of interactions that enable behaviors that press for academic achievement. Each property is defined as follows:

_Academic emphasis_ is the extent to which the school is driven by a quest for academic excellence – a press for academic achievement. High, but achievable academic goals are set for students; the learning environment is orderly and serious; students are motivated to work hard; and students respect academic achievement (Hoy & Miskel, 2005; Hoy, Tarter, & Kottkamp, 1991). This study examined the individual academic emphasis of teachers, so it refers to the extent to which a teacher is driven by a quest for academic excellence – a press for academic achievement.
Self-Efficacy was introduced by Albert Bandura (1977) and defined as the “belief in one’s capacity to organize and execute the courses of action required to produce given attainment” (p. 3). Teacher self-efficacy was identified over 30 years ago as one of the few teacher characteristics related to student achievement (Armor et al., 1976; Ashton & Webb, 1986; and Ross, 1992; Woolfolk Hoy & Weinstein, 2006). Tschannen-Moran and Woolfolk Hoy (2001) define a teacher’s sense of efficacy as a “judgment of his or her capability to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated” (p. 783).

Student achievement and sense of efficacy are clearly related. Research has demonstrated that there are positive associations between student achievement and three kinds of efficacy beliefs; self-efficacy beliefs of students (Pajares, 1994, 1997), self—efficacy beliefs of teachers (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998), and teachers’ collective efficacy beliefs about the school (Goodard, Hoy, & Woolfolk Hoy, 2000). This research focused on self-efficacy beliefs of teachers; the attitude of the teacher.

Trust has been referred to as “the foundation of school effectiveness” (Cunningham & Gresso, 1993). Annette Baier (1985) argued that trust is necessary for effective cooperation and communication - the basis for productive relationships. Hoy (2003) examined the relationship between faculty trust and achievement while controlling for SES and found that faculty trust in parents and students was positively related to student achievement. “Bryk and Schneider, and Hoy and his colleagues reinforce each other in
the common conclusion that faculty trust of students and parents enhances achievement” (Hoy, Tarter, & Woolfolk Hoy, 2006, p. 428).

In academic optimism, the trust component refers to faculty trust in parents and students as a collective school property. Tschannen-Moran and Hoy (2000) defined trust as “one’s vulnerability to another in the belief that the other will act in one’s best interest” (p. 551). They conclude that trust is a concept with five separate facets: benevolence, reliability, competence, honesty, and openness. These facets vary together to form an integrated construct of faculty trust in elementary schools (Hoy & Tschannen-Moran, 1999; 2003) and secondary schools (Smith, Hoy, & Sweetland, 2001). Faculty trust is defined as “the group’s willingness to be vulnerable to another party based on the confidence that the latter party is benevolent, reliable, competent, honest, and open” (Hoy, Tarter, Woolfolk Hoy, 2006, p. 429; Hoy & Tschannen-Moran, 1999, 2003 p. 187).

Because trust has been found to be foundational to relationship building and cooperation, and because of the sensitive nature of relationships relative to student engagement, it follows that teacher trust of students and parents enhances student achievement. At the individual level of academic optimism, trust then, is specifically defined as the teacher’s willingness to be vulnerable to another party based on the confidence that the latter party is benevolent, reliable, competent, honest, and open.

*Academic optimism of teachers* is a construct comprising three components: teachers’ sense of academic emphasis, teachers’ sense of self-efficacy and teachers’ sense of trust in their students and parents (Hoy, Tarter, & Woolfolk Hoy, 2006). While academic optimism has been primarily examined as an organizational variable, this study
is only the second to examine individual teacher dispositions associated with academic optimism. Hoy, Tarter, and Woolfolk Hoy (2006) believed that the teachers’ sense of academic optimism encompasses teachers’ positive beliefs about themselves, students and parents, and instruction.

*General Life Optimism* “is the mood or attitude associated with an expectation about the social or material future. It is one which the evaluator regards as socially desirable, to his advantage or for his pleasure” (Tiger, 1979, in Peterson, 2000, p. 44). Carver and Scheier (2002) define optimism as one’s positive expectations for the future. This study examined “academic optimism,” bringing together teachers’ dispositions and beliefs about behaviors with personal and environmental factors positively related to expectations in student achievement.

*Flow* was defined first by Csikszentmihalyi (1975) as a “holistic sensation that people feel when they act with total involvement” (p. 36). Csikszentmihalyi (1990) further described flow as a very positive psychological state that typically occurs when a person perceives a balance between the challenges associated with a situation and his or her capabilities to accomplish or meet these demands. He identified the following characteristics of flow as: challenge-skill balance, action-awareness merging, clear goals, unambiguous feedback, concentration on the task at hand, sense of control, loss of self-consciousness, transformation of time and an autotelic experience. Each of the nine components defined as follows:
Challenge-skill balance in flow is a perceived balance between the challenges of the situation and one’s skill, with both operating at a personally high level (Jackson & Marsh, 1996). This dimension occurs when a person’s skill is at just the right level to cope with the situational demands, which are above average for the person (Csikszentmihalyi & Csikszentmihalyi, 1988). A challenge skill balance refers to a feeling of balance between the demands of the situation and perceived skills (Marsh & Jackson, 2000).

Action-awareness merging is the involvement in the flow activity so deep that it becomes spontaneous or automatic (Jackson & Marsh, 1998). This merging is experienced when there is no awareness of self as separate from the actions one is performing. Action-awareness merging is involvement so deep that it becomes almost automatic (Marsh & Jackson, 2000).

Clear goals refers to goals in the activity that are clearly defined (either set in advance or developed out of involvement in the activity) giving the person in flow a strong sense of what he or she is going to do. Marsh and Jackson (2000) defined goal clarity as “a feeling of certainty about what one is going to do” (p. 345).

Unambiguous feedback occurs when immediate and clear feedback is received, usually from the activity itself, allowing the person to know he or she is succeeding in the set goal (Jackson & Marsh 1998). Unambiguous feedback, then, is the immediate and clear feedback to ones’ actions (Marsh & Jackson, 2000).
Concentration on task at hand refers to a complete and intense sense of focus when an individual is in a flow state. Jackson and Marsh (1998; 2000) described this occurrence when individuals are feeling really focused.

Sense of control is a sense of exercising control without the person actively trying to exert control (Jackson & Marsh, 1998). It is described as a feeling like you can do anything and you cannot imagine anything going wrong. Csikszentmihalyi (1975) has changed the labeling of this dimension from being “in control” (p. 44), to the “paradox of control” (1990, p. 59), to “sense of control” (1993, p. 181). Critical to this dimension is the potential for control, especially the sense of exercising control in difficult situations. Marsh and Jackson (2000) simply referred to this dimension as a sense of exercising control.

Loss of self-consciousness is when concern for the self disappears during flow as the person becomes one with the activity (Jackson & Marsh, 1998). When freed from self-consciousness the performer becomes a more natural performer, where doing things instinctively and confidently becomes evident in the performer’s actions. Marsh and Jackson (2000) defined this dimension as a lack of concern for or worry about the self.

Transformation of time refers to time altering perceptibility, in either slowing down, or speeding up, giving the perception that the event was “over so fast.” Time may simply become irrelevant and out of one’s awareness” (Jackson & Marsh, 1998, p. 20). Marsh and Jackson (2000) defined time transformation as an altering of the way time passes.
**Autotelic experience** is what Csikszentmihalyi claimed to be the end result of being in flow. Autotelic experience is described as “really enjoying the experience” or “leaving you on a high.” Jackson and Marsh (1998) viewed autotelic experience as an intrinsically rewarding experience. An activity (Marsh & Jackson, 2000) is autotelic if it is done for its own sake, with no expectation of some future reward or benefit.

**Enabling structure of a school** is hierarchy that helps rather than hinders and a system of rules and regulations that guide problem solving rather than punish failure (Hoy & Sweetland, 2000; 2002; 2003; in Hoy & Miskel, 2005). Hoy and Miskel (2005) identified features of enabling structures as calling for two-way communication; viewing problems as learning opportunities; supporting differences; and encouraging trust, cooperation, openness, joint problem solving, and innovation (p. 104).

**Statement of the Research Questions**

There are five general questions guiding this study:

1. What is the nature and meaning of individual academic optimism?
2. What is the nature and meaning of flow for teachers?
3. What is the relationship between teacher flow and individual academic optimism?
4. What are the psychological and structural correlates (predictors or antecedents) of academic optimism and flow of teachers?
5. What is the relationship between teacher flow, individual optimism and teacher perception of enabling school structures?
Generally, I looked at two competing models that explain flow to determine which of the two is the better fit for teacher experiences of flow. Next, I tested individual teacher academic optimism as a second order latent construct composed of trust, efficacy, and academic emphasis. Then, I explored the relationship between individual academic optimism and teacher flow. Hoy, Tarter, and Woolfolk Hoy (2006) have already demonstrated that academic optimism and student achievement are strongly related at the school level through previous research. It was anticipated that there would be evidence of positive correlation between the two constructs. Finally, some of the structural and psychological predictors of each construct were explored as well as those of enabling structures of hierarchy.

Scope and Limitations

This research focused on two positive constructs, academic optimism and flow at the teacher level and not on the collective roots of the constructs. The study was limited to elementary schools in Ohio rural, urban and suburban public settings. An attempt was made to select a diverse set of schools within the sample, but there was no guarantee of the representation of all elementary teachers in Ohio. Participation in the study was voluntary; hence, a few teachers elected not to participate. The study was exploratory and a beginning analysis of the positive individual properties of teachers. No attempt was made to link the concepts developed in this inquiry to student achievement; that research needs to be done after the concepts here are developed and refined.
Delimitations of the Study

As a descriptive study investigating the beliefs of elementary school teachers in Ohio, this exploration focused specifically at the elementary school level. The only beliefs examined were those aligned with the constructs of academic optimism, flow, general life optimism and enabling structures as identified in the research. The intent of the study was to describe what teacher beliefs exist and the interrelatedness of the two concepts as well as teacher beliefs pertaining to enabling structures. The research did not attempt to discuss or otherwise analyze principals, leadership style, school community or collegial environments of schools. The attention was focused on the classroom and building level allowing for an understanding of the individual teachers’ level of academic optimism and its relatedness to flow experiences.

Summary

This first chapter offered a brief description of the background, need and purpose for this study. Although positive psychology is a relatively new movement of investigating problems and seeking solutions, two new positive constructs are offered to provide theoretical and practical usefulness to the work of educational reform designed to make teachers more productive in the classroom. Each of the terms and concepts of the study were briefly defined and await further development in the next chapter. The nature and meaning of the concepts, their interrelations, and some of the antecedents of each provided guiding issues explored in the research. Finally the scope and limitations of the study were specified.
CHAPTER 2
REVIEW OF THE LITERATURE

This chapter reviews the conceptual ancestry and theoretical underpinnings of both academic optimism and flow. First, a brief overview of positive psychology is presented because the framework provides the major underpinnings for the current study. Next, a review of the literature on the two major constructs of the study, academic optimism and flow, along with an examination of the work on enabling structure are set forth. Finally, the relevant literature is used to develop theoretical rationales for the hypotheses and models that guided this research.

Positive Psychology

Positive psychology is an exciting new orientation in the field of psychology that seeks to go beyond the traditional focus on illness and pathology to look at areas of human experience that include well being and fulfillment. While the interest in well-being fulfillment and optimal human functioning is not new, positive psychology as a focus of study is relatively new. For centuries, philosophers have been intrigued by the illusiveness of personal happiness and have been motivated out of the belief that happiness is the ultimate goal of existence for many years. Aristotle understood the desire for happiness to be the ultimate goal of existence referring to is as the “chief good”—sum
mum bonum—(Csikszentmihalyi, 2003) in that while we desire other goods, such as
money and power, we do so because we believe they will make us happy, what the individual truly desires is happiness for its own sake.

From Aristotle, via Gestalt psychology, to positive psychology, cultivation, complexity and optimal functioning are central concepts: Living organisms are oriented toward increasing complexity (Linley & Joseph, 2004, p. 23). The concepts of the good life, well-being, or happiness are all associated with the concept of optimal functioning. In Aristotle’s model of the good life, eudaimonia, is the “state of being well and doing well in being well” (MacIntyre, 1984, p. 148). Aristotle addressed optimal functioning and the benefits of virtue in his treatises on eudaimonia, and thus concluded that what constitutes the good for man “is a complete human life lived at its best, and the exercise of the virtues is a necessary and central part of such a life…” (p. 149). Seligman (2002) viewed the differences between the two approaches to the good life: hedonic and eudaimonic approaches as a divided research into hedonic approaches that concentrate on emotions, and eudaimonic approaches that concentrate on the fully functioning person. Far more positive psychologists take a eudaimonic approach to the good life (Seligman, 2002). Ryan and Deci (2001) defined the eudaimonic approach as being concerned with optimal functioning and experience (p. 142) and maintain that the good life is well-being, which arises when the individual is functioning optimally.

Psychological abstracts published since 1887 have been overwhelmingly focused on the negative aspects of mental health. The great majority of those identified negative aspects of mental health pertain to psychopathologies that include anxiety and depression.
10% of published abstracts have been devoted to the positive aspects of mental health (e.g., courage, life satisfaction, altruism; Myers, 2000).

Before World War II, psychology had three distinct missions: curing mental illness, making the lives of all people more productive and fulfilling, and identifying and nurturing talent (Seligman & Csikszentmihalyi, 2000, p. 6). The early focus on positive psychology can be traced to the work of Terman’s studies of giftedness (Terman, 1939) and marital happiness (Terman, Buttenwieser, Ferguson, Johnson & Wilson, 1938), Watson’s writings on effective parenting (Watson, 1928) and Jung’s work in the search for and discovery of meaning in life (Jung, 1933)” (Seligman & Csikszentmihalyi, 2000 p.6). At the close of the war in 1946 economic interests in treating mental illness from a disease model perspective in addition to grants awarded for the research of pathologies shifted the focus of psychology toward healing and therapy for mental illness. The downside was that the two remaining fundamental missions of psychology – making the lives of all people better and nurturing genius were gravely neglected. While the roots of positive psychology as a discipline of study can be traced back as far as forty years, it is still a relatively recent addition to psychology and psychological studies. The positive psychology framework has evolved over the past ten years as a clear redirection of focus from treating pathologies to understanding how to enhance competence and capacity within a given context (Peterson & Seligman, 2004; Seligman, 2002).

There have been two periods when the American public, as well as the community of scientific psychologists, evidenced a particularly strong interest in issues
of psychological growth and health, namely, the 1960s when the human potential movement swept the country, and currently when considerable attention is being given to positive psychology (Seligman & Csikszentmihalyi, 2000). “These two periods represent times of relative affluence, when the economically advantaged have found that material security and luxury do not, in themselves, secure happiness” (Ryan & Deci, 2001, p.142). Maslovian theorists would argue that in both of these historical time periods, other basic needs haven been met (physiological - food, water, sex, sleep, homeostasis; safety – security of self, employment, resources, family, health and property; love - friendship, family, sexual intimacy; and esteem – confidence, achievement, respect of and by others): the nation’s interest in self-actualization - morality, creativity, spontaneity, problem solving, lack of prejudice and the acceptance of facts, is the logical next pursuit.

Positive psychology is rooted in humanistic psychology. APA Presidents Maslow and Rogers were both humanistic psychologists whose work focused on “positive” aspects of human nature. In the humanistic psychology movement of the 1960’s the work of these two seminal thinkers served to inform the study of positive psychology from topics such as creativity, self-actualization, and “utopian” society (Rich, 2001). Behaviorist B.F. Skinner was fascinated by what “could be” as described in his novel Walden Two. Skinner (1976) describes how operant conditioning could be used to create the ideal society. Csikszentmihalyi (1975) published “Play and Intrinsic Reward” in the Journal of Humanistic Psychology as early work in the theory of “flow”.

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Sheldon and King (2001) considered positive psychology to be the “scientific study of ordinary human strengths and virtues” (p. 216), consisting of three domains: positive subjective experiences, positive individual traits, and institutions that promote them (Seligman & Csikszentmihalyi, 2000).

Martin Seligman recounts a conversation with his then five-year-old daughter (Nikki) in explaining how he arrived at the conviction that a movement toward positive psychology was necessary and long overdue. While focusing on the task of gardening, he grew impatient with his daughter throwing weeds into the air, singing, and dancing around. He yelled at her, she walked away, then came back and said:

“Daddy do you remember before my fifth birthday? From the time I was three to the time I was five, I was a whiner. I whined every day. When I turned five, I decided not to whine anymore. That was the hardest thing I’ve ever done. And if I can stop whining, you can stop being such a grouch” (Seligman 2002, pp. 3-4). It was during this exchange, Seligman recognized that “Raising children…is more than fixing what is wrong with them. It is about identifying their strongest qualities, what they own and are best at, and helping them find niches in which they can best live out these strengths” (Seligman & Csikszentmihalyi, 2000, p. 6).

Mihaly Csikszentmihalyi illuminated his personal struggle to reconcile the twin imperatives: to understand what is and what could be, that led him through the works of Maslow, Rogers and other humanistic psychologists to making a journey to the United States to pursue psychology as a recognized discipline. In his search he found a lack of
vision to justify attitude and methodology. He offered this search as the origin of his conviction when he too concluded that the time had arrived for a positive psychology. He documents the realization for the need for positive psychology in Europe during World War II as illustrated:

“As a child, I witnessed the dissolution of the smug world in which I had been comfortably ensconced. I noticed with surprise how many of the adults I had known as successful and self-confident became helpless and dispirited once the war removed their social supports, yet there were a few who kept their integrity and purpose despite the surrounding chaos. This experience set me thinking: What sources of strength were these people drawing on?” (Seligman & Csikszentmihalyi, 2000, p. 6).

Csikszentmihalyi’s primary interest was to communicate a reminder to the field that psychology also includes the study of strength and virtue. Foregrounding this approach of study is prevention. Prevention researchers have learned that there are human strengths that act as buffers against mental illness. Strengths such as courage, future mindedness, optimism, perseverance and the capacity for flow to name a few. Seligman and Csikszentmihalyi (2000) stated, “families, schools, religious communities, and corporations need to develop climates that foster these sorts of strengths” (p. 7).

Positive psychology offers a common language in the discourse surrounding well-being, fulfillment, and optimal functioning to professionals working in a variety of sub disciplines. It is applicable in a variety of settings and is relevant for individuals, groups,
organizations, communities, and societies (Linley & Joseph, 2004). Relevant to education and to this study is Seligman and Csikszentmihalyi’s (2000) claim that positive psychology as a field of study is about valued subjective experiences that include well being, contentment, and satisfaction (in the past); hope and optimism (for the future) and flow and happiness (in the present). Additionally, the science and practice will reorient psychology back to its two neglected missions - making normal people stronger and more productive and making high human potential actual. As we work toward raising achievement, restoring creativity and maximizing learning potential at all levels of education, positive psychology is the most promising lens through which to view our mission rather than through the deficit model through which we also have traditionally operated.

*Positive Psychology Defined*

Grounded in scientific inquiry, positive psychology is the study of human strength and optimal functioning. The goal of positive psychology is to understand the personal traits and dispositions that contribute to the psychological health and general well being of individuals and collectives (Myers, 2000). Specifically, positive psychologists investigate well being as it relates to satisfaction (past); flow, joy, the sensual pleasures, and happiness (present; and optimism, hope, and faith (future) (Seligman, 2002).

Positive psychology defined by Seligman and Csikszentmihalyi (2000) is “a science of positive subjective experience, positive traits and positive institutions” (p. 5). It has become an important and significant catalyst of change in focus of psychology
from its preoccupation with repairing the worst things in life to building positive qualities. Psychology is not only about the study of disease, weakness, and damage; it is also the study of strength and virtue. “Treatment is not just fixing what is broken; it is nurturing what is best. It is about work, education, insight, love, growth and play” (Seligman & Csikszentmihalyi, 2000, p.6). Seligman goes on to say, “in this quest for what is best, positive psychology does not rely on wishful thinking, self-deception, or hand waving; instead, it tries to adapt what is best in the scientific method to the unique problems that human behavior presents in all its complexity” (Seligman, 2002, p. 4).

Considering the necessary shift psychology has taken from treating pathologies toward preventing them; journeying beyond illness toward well-being, fulfillment and ultimately toward human strength and optimal function, there must be studies undergirding the quest for and understanding of personal traits and dispositions that contribute to psychological health and general well being of individuals and collectives (Myers, 2001). Indistinguishably, studies of educational practice, personal traits, disposition and structures, grounded in scientific inquiry, will authenticate the predictors, contributors and antitheses of academic health and wellbeing. Initial studies such as this one, can serve to aid in our understanding of teaching and learning practices that yield optimal functioning and strength as we push toward high academic gains for many more, if not all students.
Inspired by the wind of change blowing through the United States relative to equity and excellence in education; and with respect to the refreshing shift in focus in psychology I was led to two concepts of study. The two concepts growing out of the new tradition of positive psychology are flow and optimism. This study will consider flow and optimism, more specifically academic optimism as two powerful forces that may lead us toward a better understanding of the contributors, predictors, and antitheses of greater gains in academic achievement.

*Flow and Academic Optimism*

The current inquiry evolved from the perspective of positive psychology. The focus of the study is on flow and optimism - two constructs that accentuate positive qualities of teachers and teaching. In particular, the nature of flow experiences of teachers as well as individual academic optimism of teachers was explored. Both flow and optimism are integral features of positive psychology as became apparent in the review of literature.

**Flow**

Linley and Joseph (2004) identified a number of constructs meant to capture “optimal experience”. A psychological variable that seems to resonate with Aristotle’s concept of eudaimonia is intrinsic motivation - the motivation for participating in an activity for the enjoyment of doing the activity. Intrinsic motivation is a motivation that is innate to performing the activity itself. Deci and Ryan’s (1985) Self Determination Theory holds that when individuals engage in activity that satisfies the organismic needs
of autonomy, competence, and relatedness, they experience genuine happiness, self-esteem and more.

Flow is a more “specific type of intrinsically motivated state that bears remarkable resemblance to Aristotle’s notion of eudaimonia” (Linley & Joseph, 2004, p. 38). Flow involves being optimally challenged by experience. “In flow, the demands of a situation match the individual’s ability and the individual is engaged fully in the act of doing the activity. In flow, the person loses self-consciousness and a sense of the passing of time and enters into a different level of experience. Flow is both an enjoyable and a much desired state” (Linley & Joseph 2004, p. 38). Flow and flow experiences then can be viewed as being intricately related to an individual’s quality of experiences and therefore, her quality of life. Csikszentmihalyi noted that optimal experiences are those extraordinarily rich epiphanies when “we feel in control of our actions, masters of our own fate. He believed that in the rare occasions of these experiences, we have a deep sense of exhilaration and enjoyment that is long cherished and becomes a landmark in memory for what life should be like” (Csikszentmihalyi, 1990, p. 3). It seems that contrary to the commonly held beliefs about the best moments of our lives, they are not the passive, receptive, relaxing times. The best moments “usually occur when a person’s body or mind is stretched to its limits in a voluntary effort to accomplish something difficult and worthwhile, thus, optimal experience, is something we make happen” (p. 3).
In *Anna Karenina*, Leo Tolstoy described how the wealthy landowner and Russian aristocrat, Levin learns to move like the servant Titus, while mowing hay with a scythe. In his description, he vividly captures flow:

“I will swing less with my arm and more with my body,” he thought, comparing Titus’s row (hay) with which looked as if it had been cut with a line, with his own unevenly and irregularly scattered grass.

… He thought of nothing, desired nothing, except not to lag behind and to do the best job he could. He heard the clang of scythes and ahead of him saw Titus’s erect figure moving on…

Levin lost all awareness of time and had no idea whether it was late or early. A change now began to take place in his work, which gave him enormous pleasure. In the midst of his work moments came to him when he forgot what he was doing and began to feel light, and in those moments his swath came out as even and good as Titus’s. But as soon as he remembered what he was doing and started trying to do better, he at once felt how hard the work was and the swath came out badly.

In this hottest time the mowing did not seem so hard to him…more and more often those moments of unconsciousness came, when it was possible for him not to think of what he was doing. The scythe cut by itself. These were happy moments.
The longer Levin mowed, the more often he felt those moments of oblivion during which it was no longer his arms that swung the scythe, but the scythe itself that lent motion to his whole body, full of life and conscious of itself, and, as if by magic, without a thought of it, the work got rightly and neatly done on its own. These were the most blissful moments.

…Levin came after him and often thought that he would surely fall, going up such a steep slope with a scythe, where it was hard to climb even without a scythe; but he climbed it and did what was needed. He felt that some external force moved him (Tolstoy, 1878; 2002, p. 249-256).

The picture Tolstoy paints is particularly appealing in that while it encapsulated all of the elements of flow, it does so with the “chief good” eloquently illustrated. Here, is a man of tremendous wealth, of the noblest status seeking and finding enjoyment, happiness and bliss mowing grass with the Russian peasants. The picture comes to life as he finds improvement in the quality of his life through the experience of developing complex skill as he works to accomplish a purposeful yet daunting task. Tolstoy provided an alluring artistic rendition of Csikszentmihalyi’s claim that “every experience we have-every thought, feeling, desire, or memory every act, conversation, or accomplishment-must pass through the screen of attention for it to become real to us” (Csikszentmihalyi, 2003, p. 78). He further asserted “that we call our life, a sum of all of the experiences that have filtered through attention over time. From this perspective it is easy to understand that what we pay attention to, and how we pay attention, determine the content and
quality of our lived life… Psychological capital is built up when invested attention results in a more complex consciousness - more refined skill, a fuller understanding of some subject, a deeper relationship. This usually takes place when we use our skills to confront a higher level of challenges- in other words, when we experience flow. These are the kind of investments of attention that will bring returns later in the form of an improved quality of life‖ (p. 78).

Almost all of the world’s religions that have sought to improve the human condition over the centuries have tried to make similar epiphanies available to the individual through some focused practice like ritual, prayer, meditation, fasting or some method of refining inner discipline. Elements of the flow experience can be found in early Protestantism, in the rules of the Jesuits, in the earlier Christian monastic orders like the Benedictines, and are recognizable in Buddhism and Taoism. Elements of flow can be found wherever you find in culture people seeking to make meaning of life and seeking the “rapture of life” (Csikszentmihalyi, 2003, p. 60). Csikszentmihalyi (2003) said that “flow and religion are different faces of the same quest: to find a reason, a justification for being alive.” He continued, “While flow experiences are not a substitute for religion, they do give an intimation of what the rapture of life can be, and point toward an existence more imbued with soul‖ (p. 60).

While flow is a very positive psychological state that most often occurs when a person perceives a balance between the challenges associated with a situation and her ability to meet these demands, experiencing flow is not easy (Jackson &
Because flow is a state of consciousness where one becomes totally absorbed in what they are doing to the exclusion of all other thoughts and emotions, focus is key to experiencing flow. Experiencing flow involves a focus that serves as a conduit for the mind and body to work together harmoniously toward a kind of effortless excellence. The merging of action and awareness is made possible when the centering of attention is on a limited stimulus field (Csikszentmihalyi, 2000). Some have called this process a ‘narrowing of consciousness,’ a ‘giving up the past and future’ (Maslow, 1971, pp. 63-63). In that peculiar dynamic state yields a holistic sensation that people feel when they act with total involvement - the flow experience.

There are some activities in which flow is rather more readily experienced than others. Csikszentmihalyi and colleagues have studied various pursuits that included climbing, chess and basketball among other games. In studying the quality of experience people have had with flow, games and play, specifically sports games have been associated with a number of very positive qualities. Flow experiences found in activities other than games, include activities involving creativity, the arts and sciences and a variety of other human contexts in which one can similarly enter into an enjoyable inner state. “Experiences analogous to flow have been reported in contexts usually called ‘transcendental’ or ‘religious.’ Maslow’s ‘peak experiences’ and De Charms’ ‘origin state’ share many distinctive features with the flow process” (Csikszentmihalyi, 1975 p. 37). In whatever context people feel a deep sense of enjoyment, they describe that experience in terms similar to those used to describe the flow experience. Irrespective of
persons (age, gender, race, social economic status or level of education), they report the same mental state. “Whenever the goal is to improve the quality of life, the flow theory can point the way” (Csikszentmihalyi, 1990, p. 5).

The fundamental components of flow emphasize how important individual mental factors are in finding flow. Recognizing that flow is psychological state is to recognize that it can only be achieved through control of the mind - or attention. Jackson and Csikszentmihalyi (1999) acknowledged that it is a mind-set that allows flow in many different sport situations emphasizing the importance of the mental factors involved in finding flow. They refer to the nine dimensions of flow as fundamental components of flow:

1. Challenge-skill balance
2. Action-awareness merging
3. Clear goals
4. Unambiguous feedback
5. Concentration on the task at hand
6. Sense of control
7. Loss of self-consciousness
8. Transformation of time
9. Autotelic experience
Flow Component #1 – Challenge-Skills Balance

The universal precondition for flow lies in the balance between challenge and a person’s perception that there is something for her to do and that she is skillfully capable of doing it. The golden rule of flow is this first component of challenge and skill balance.

To experience flow, it is not enough for both challenge and skill to be equal. They both need to be extending the person, stretching them to new levels (Jackson & Csikszentmihalyi, 1999). People are at their happiest times when they have a purpose and are actively involved in trying to reach a challenging goal. Jackson and Csikszentmihalyi (1999) refer to this kind of joy as a “built in reward system” (p. 35) that motivates us to overcome challenge. Joy is described as “a survival mechanisms that motivates explorers to risk their lives to reach new continents or planets, that inventors work for years in hopeless poverty to perfect a new machine, or that artists struggle to express a unique vision on canvas” (p. 35). What all of these seek is the enjoyment that comes from mastering challenge. There is a unique joy that comes from stretching physical and mental potential in new directions that will ultimately motivate human creativity and “result in the accomplishments that make us different from any other form of life” (p.36).

“Challenge” conceptually and broadly equates with situational demands or opportunities for action. It can refer to either a situational, physical or mental (psychological) demand or both. “Skill” is also broad in its reference to one’s ability to
act upon or deal with a given situation. In the case of optimal opportunity for flow to occur, both factors must be relatively high for the individual. “The starting point for flow is likely to occur when challenge and skill go beyond a person’s average levels” (Jackson & Csikszentmihalyi, 1999, p. 36). Challenge can range in degree from low to high, and likewise, an individual’s level of skill can range in degree from low to high. As challenge increases, so too must skill in order for flow to occur. The zone within which flow can occur lies within the quadrant where an individual’s high skill is matched with a high demand or high challenge. In order to stay within the flow channel, the level of skill must be able to be adjusted according to the complexity of the demand. In a situation where one’s skill sets are too advanced for the situation to inspire engagement one may relax or even experience boredom, due to the lack of intrigue or provocation from the test or perceived challenge.

At the opposite end of the challenge spectrum is anxiety. When a task makes too high of an impact on the individual’s present skill set, beyond what she believes she can accomplish, the strain of the challenge is overwhelming in her consciousness and she is unable to enter into a flow state. When an individual finds himself or herself depending on skills that they are uncertain of to accomplish a goal, fear enters their consciousness. The more they give in to the focus on fear, the more irrational it becomes and anxiety then consumes one’s mental abilities, pushing us further and further from the ability to focus on the task at hand. While the skill level of an individual must be stretched, it cannot fall out of their perception of being reached adequately to meet the demand. The
skills required to meet the challenge must be perceived to be proficient and adjustable in order for growth to occur. An individual motivates themselves from a position of confidence (in their competence) and then stretching toward overcoming challenge. This unique combination allows entry into the flow channel. In a situation where neither skill nor challenge is significantly present, an individual is likely to experience apathy - a feeling of low energy, boredom and a loss of attention. They then fall outside of the flow channel.

The complexity of an activity lends to the increased likelihood of requiring greater skill development. Teachers and mentors can demonstrate skill technique, provide suitable challenge and/or provide feedback necessary to support the psychic energy required to support the opportunity for flow. It is this social capital that nurtures the psychological capital. It then is within the safety of confidence (psychological capital) that a novice, or neophyte begins to believe in their ability move toward increasing skill and ultimately toward excellence. People who learn to invest psychic energy in complex activities have a greater opportunity then, to become more complex individuals - skillful, accomplished, expert professionals. Jackson and Csikszentmihalyi (1999) asserted “flow is predicted to occur when the individual’s challenges are above his or her personal average, but also in line with perceived skills (provided these are also above average). So according to flow theory, people are always seeking to progress further along the flow channel created by the match between challenges and skills” (p. 40).
The relationship between physical skill and mental state is a two way street. While our thoughts influence our performance, our performance affects the way we think about ourselves. The way we choose to use our skill depends in great part on positive attitude and commitment. Skills must also be so well practiced to the degree of proficiency or mastery, that an individual can abandon herself to spontaneous action to experience flow. “Practice the skills to the point that you can forget you have them, then abandon yourself to the performance” (Jackson & Csikszentmihalyi, 1999, p. 51).

Flow Component #2 – Action-Awareness Merging

On Tolstoy’s (2002; 1878) canvass, Levin is described as having “moments of oblivion during which it was no longer his arms that swung the scythe, but the scythe itself that lent motion to his whole body, full of life and conscious of itself, and, as if by magic, without a thought of it, the work got rightly and neatly done on its own” (p. 252). When an individual has a sense of oneness with the movements she is making, she is experiencing the second flow dimension: the merging of action and awareness. Rather than the mind thinking of the body’s movements from outside, the mind and body are fused into one. “The oneness does not require effort in flow” (Jackson & Csikszentmihalyi, 1999, p. 19). The feedback of the moment is processed spontaneously by the mind. Like breathing, which can only be in part consciously controlled, the spontaneity of response inherent to action awareness becomes almost reflexive as though it has slipped into the realm of the autonomic nervous system. The body responds with a very natural ease. Action and awareness merge when an individual becomes totally
absorbed in what they are doing. Though distinct, it is difficult if not impossible at these moments to separate the creator from the creation. In these moments one can no longer think of herself separate from her movement. William B. Yeats (1927) refers to the moments when mind and body fuse in the final verse of his acclaimed poem:

\[ \text{O body swayed to music, O brightening glance,} \]

\[ \text{How can we know the dancer from the dance?} \]

William B. Yeats, 1927 - Among School Children (stanza 8)

Athletes in flow have described their actions to be effortless and spontaneous. They reported, “Things just seemed to happen” or “happened automatically”. It is the sensation found in a runner’s high, a sensation of floating or flowing, lightness with an easiness of movement that was most often mentioned when describing action and awareness merging. This unified consciousness brought about through the merging of the mental with the physical processes Jackson and Csikszentmihalyi (1999) believed to be the “most telling aspect of the flow experience” (p. 20). Csikszentmihalyi (1975) stated “the merging of action and awareness is made possible by the centering of attention on a limited stimulus field” (p. 40). The transcendence of normal awareness that occurs in flow is a very special experience. Tolstoy’s (2002; 1878) Levin reflected, “these were the most blissful moments” (p. 252). However, in order for action to merge with awareness to such an extent, the activity must be feasible relying again on one’s perception of their ability to perform.
There are keys to one’s ability to become totally absorbed in action. Total absorption requires not having any mental space for worrying about one’s self (Jackson & Csikszentmihalyi, 1999, p. 66). Letting go of concern for what others are thinking of us allows for freedom from self-consciousness. This is a liberating experience separate from the way we normally function in a world where we are all too aware of ourselves as we give ourselves over to the social persona we present to others based on what we think is expected. Jackson and Csikszentmihalyi contended that it takes considerable mental discipline to silence the voices of criticism and judgment (either from self or others). When energy is consumed in worry, it takes away from one’s ability to focus on the performance of the task. Worry manifests itself as a distraction pushing attention away from the task. “In moments of pressure” Jackson and Csikszentmihalyi (1999) said, “the self-worrying athlete fails because of a lack of focus that stems simply from insufficient confidence… actually, awareness of the body and its movement is often heightened in flow.

In addition to forgetting self, in physical competition, the athlete is at a distinct advantage if they are able to eliminate the distraction of the opposition as a threat. Worrying about what a competitor is likely to do or how one’s skill compare to the opponent’s skill prevents total absorption. Because attention is required for optimal performance, or experience, it is in the worrying, either about self or other that signals inefficient attention. Worrying about self, other, opponent, or even environmental factors:
temperature, humidity or the physical attractiveness of a setting can all influence one’s quality of focused attention and thus the quality of their experience.

Having a focus on process, paying attention to the actions involved in accomplishing a task, or the actions involved in the techniques of a performed skill keeps one in the present, because process is about doing. Outcome focus takes us out of the moment and allows room for worry. Focusing on process sufficiently narrows the individual’s sphere of consciousness and keeps them totally in tune with what is happening at the moment. “By staying present, you center yourself in the performance. You are also in control of your actions and thus able to direct their future” (Jackson & Csikszentmihalyi, 1999 p. 72). When one focuses on process and skill, goals become clearer. Not necessarily the goals associated with outcome or the big goal of completion, but the mini step goals when well executed lead to outstanding performance. Goals (particularly small goals) direct action and provide narrow focus. “For action to merge with awareness to such an extent as to allow for flow, the activity must be feasible. Flow seems to occur only when the tasks are within one’s ability to perform” (Csikszentmihalyi, 1975, p. 39).

Flow Component #3 – Clear Goal

Clarity of intention helps to focus attention and avoid distraction (Jackson & Csikszentmihalyi, 1999, p. 21). Inherent to the clarity of intent is the moment-by-moment awareness that calls us to respond only to what is next and what is to be done next. The mind-set of an individual is more readily facilitated toward flow by knowing exactly
what it is they are trying to accomplish. Visualization, particularly of a performance ahead of time brings clarity to what is desired thus, supposed to happen. Goal clarity affords the individual the opportunity to predict the outcome of an event before it actually happens. The thought process involved in clarifying goals and visualizing gives the performer a reference place from which to draw on during the performance as she monitors her actions. The focus is not taken away from the skill necessary to execute, but rather on perfecting the adjustment of skill to meet the demand. With attention focused on goals, as they unfold, monitoring comes easily and stays readily within the control of the performer.

The second benefit of clarified goals, is that it provides confidence to the performer that the skill they have are sufficient to meet the demand. This confidence then, provokes an intuition about the performance and comfort in knowing that it is going to be good. Goals serve to help organize the mind into a plan of accomplishment. It is important for a performer to know their goal. When one doesn’t have any goals, or when the goals are not believed or valued, there is little motivation for completing the task. Without motivation, there is little energy put forth in seeking a challenge (Jackson & Csikszentmihalyi, 1999). When motivation is low, anxiety or worry may surface in the realization that it is difficult to perform any task with low levels of energy to commit toward the challenge.

Jackson and Csikszentmihalyi (1999) identified two types of goals in achievement: task goals or outcome goals. Jackson believed that an athlete with a task
goal desires to improve his or her own performance in a certain way and is not concerned with how the performance may compare with other participants’ achievements. Task-oriented athletes enjoy the process of competition and the challenge of extending personal limits… an outcome or ego goal, on the other hand, sets standards in comparison to other competitors and is focused on how well he can do against others of similar ability (p. 82). With this perspective, the obvious goal type that lends itself to flow experiences and ultimately to completion of a task well done is the task goal. Where one focuses during an event becomes critical to the achievement of flow. Task orientated goals are more conducive to allowing the performer to maintain a measure of control, thus making her much more conducive to opportunities to achieving flow. Returning to the stage, an 1800 Russian meadow:

“Titus kept on without stopping, without showing the slightest fatigue, but Levin was already beginning to fear that he would not hold out, he was so tired. He felt he was swinging with his last strength and decided to ask Titus to stop. But just then, Titus himself stopped… the second time was the same. Titus moved on swing after swing, without pausing, without tiring. Levin followed him finding it harder and harder: there came a moment when he felt he had no strength left, but just then Titus stopped and whetted his scythe… so they finished the first swath. He rejoiced knowing now that he would hold out. His satisfaction was poisoned only by the fact that his swath did not look good. ‘I’ll swing less with my arm, more with my whole body,’ he thought comparing Titus’s swath, straight as an
arrow, with his own rambling and unevenly laid swath… the following swaths were easier… He thought of nothing, desired nothing, except not to lag behind and to do the best job he could”…

… “Levin looked around him and did not recognize the place, everything was so changed. An enormous expanse of the meadow had been mowed, and its already fragrant swaths shone with a special new shine in the slanting rays of the evening sun… They had done an extraordinary amount of work for forty-two men. The whole of the big meadow, which in the time of the corvee (serfs) used to be mowed in two days by thirty scythes, was already mowed… no matter how they hurried, they did not ruin the grass, and the swaths were laid as cleanly and neatly” (Tolstoy, 2002; 1878, pp. 250-254).

At the moment of Levin’s greatest challenge, beginning to feel overwhelmed with fatigue and lacking in motivation, he shifted his focus toward a task goal, a technique focus that would emphasize more effort used with the whole of his body rather than the draining and cumbersome use of his arms. This mental shift to a task (oriented) goal offered him the narrowing of focus necessary to regain attention, increase his motivation, and ultimately then to experience flow. Imagine the despair he would have experienced if his attention were instead directed to an outcome goal. The massiveness of the meadow would certainly have drained him of any motivation to continue another step let alone to completion. Goals are building blocks of motivation (Jackson & Csikszentmihalyi, 1999, p. 83).
Jackson and Csikszentmihalyi (1999) asserted that specific goals that are task-focused give direction to action (p. 85). There is tremendous benefit in writing down goals. It helps to clarify and specify our intention as well as providing a point for feedback and evaluation as performance is tested against the standard an individual sets. The process of visualizing, as mentioned, engages the performer at yet another level of involvement. Mental imagery helps the performer focus on key elements of the work and helps many find their goals to be more real and their performance more effortless (Jackson & Csikszentmihalyi, 1999). As goals become more real to the performer, they also become more concrete and rehearsing them allows an individual to act on them with automaticity. Once clearly defined, internalizing the direction toward the completion of the goal follows. Motivation is well served by setting goals. Placing importance on the achievement of a goal energizes an individual and focuses her attention. When one clearly knows what they want or what they choose to accomplish with determination, they are raising both challenge and skill to levels that facilitate flow.

*Flow component #4 - Unambiguous feedback*

In order for an individual to stay closely connected with what they are doing and to maintain control of where they are headed in terms of reaching their desired goal, they must rely on feedback. Feedback is critical to a successful performance for a couple of reasons. It provides information to the performer as to whether or not she is on target for achieving her goals, and serves as a motivator to keep a performer moving in the direction of the most positive feedback. This is particularly true for the novice, as she
develops fundamental skills. According to the flow theory, as skill acquisition increases, so too does confidence. While confidence increases, the frequency with which one needs feedback may decrease, but the need for consistent feedback remains.

Jackson and Csikszentmihalyi (1999) determined the types of feedback athletes could tune into come from many different sources. There is feedback from the external environment (from competitors or participants) and feedback from within. In sport as with some other activities, the body itself provides feedback in the form of kinesthetic awareness... being aware of the quality of performance as it occurs and how it matches an ideal performance is a skill that allows athletes to know moment by moment whether they are creating the movements they want. The individual then can make adjustments as required to maintain or return to an optimal level.

“He rejoiced knowing now that he would hold out. His satisfaction was poisoned only by the fact that his swath did not look good. ‘I’ll swing less with my arm, more with my whole body,’ he thought comparing Titus’s swath, straight as an arrow, with his own rambling and unevenly laid swath... the following swaths were easier... He thought of nothing, desired nothing, except not to lag behind and to do the best job he could” (Tolstoy, 2002; 1878, p. 250). At the point, Levin recognized that he had completed the first swath he was joyful knowing that he physically was able – competent to stand before the task. His enthusiasm shifted immediately. The external feedback he received when he looked at his portion compared to Titus’ portion was not favorable. The feedback was clear to him; his skill was not adequate to yield the same smooth cut. He then shifted his
focus to technique improvement. Working with a changed technique, Levin developed a more efficient skill and the subsequent swaths became not only easier, but also straighter and more visually appealing as he progressed toward his goal.

When you know how well you are doing, when feedback is clear and immediate you feel more involved in the pursuit and more alive. Clear goals help to improve experience, but another important component toward reaching those goals, “is knowing moment by moment, you are on the way” (Jackson & Csikszentmihalyi, 1999, p. 93). Immediacy of feedback is important to keep the performer satisfied with their performance and focused on the task. The difference between task oriented goals and outcome oriented goals is simply that setting sights at the end of a long journey is far less satisfying than having a shorter term goal because it is difficult to tell if you are making progress. It is also easier to get distracted, or loose motivation along the way. “If the journey is broken, however, into smaller stages, aiming only to reach the next point of completion, each step bring you noticeably closer to your intended goal; this keeps you more attentive and involved in the task” (Jackson & Csikszentmihalyi, 1999, p. 93).

“Flow usually contains coherent, non-contradictory demands for action and provides clear, unambiguous feedback to a person’s actions. This component of flow, like the preceding one, is made possible because one’s awareness is limited to a restricted field of possibilities whereby one clearly knows what is “good” and what is “bad.” Goals and means are logically ordered” (Csikszentmihalyi, 1975, p. 40). A person behaves or acts in ways that are compatible with her sense of success. What is necessary to provide
meaning to the performer is that the feedback be clear. When feedback is clear to the performer, she is then able to make rational decisions about the very next step of her performance, the next strategy, and the moment-by-moment action necessary to address the feedback. If the feedback is positive, then the logical next step will keep her in line with prior movements advancing both her level of skill and confidence. If however, feedback is negative, the need to receive a more desirable feedback calls for her to make an adjustment, a shift in thought, and/or movement. When feedback is unclear, or ambiguous, the performer cannot gage an appropriate next step with a degree of confidence. She is inclined to loose confidence in her skill and ultimately her focus.

“It is difficult to keep a positive attitude in the face of criticism or negative feedback. Just one piece of information that says you are not doing well can wipe out previous evidence of success. It is easy to lose confidence by focusing on errors and perceiving that you are failing. Depending on how you interpret negative feedback, the information can either hurt or help in the long run” (Jackson & Csikszentmihalyi, 1999, p. 98). If wanting to do well becomes too strong a goal in the athlete’s mind, Jackson and Csikszentmihalyi (1999) argued instead of the goal facilitating a flow experience, it may disrupt the rhythm or timing of movements, thus interrupting the opportunity a successful performance.

*Flow component #5 - Concentration on the task at hand*

When goals are clear, feedback relevant, and challenges and skills are in balance, attention becomes ordered and fully invested. Because of the total demand on psychic
energy, a person in flow is completely focused. There is no space in consciousness for distracting thoughts or irrelevant feelings. Self-consciousness disappears, yet one feels stronger than usual (Csikszentmihalyi, 1997, p. 31). “Feedback is neither good nor bad in itself. It is simply information that can be used to monitor and adjust performance as needed” (Jackson & Csikszentmihalyi, 1999, p. 103). While positive feedback is significantly more beneficial for the novice, it is important to recognize that the feedback not necessarily need be positive. Negative feedback can be just as motivating as positive feedback as long as it doesn’t threaten an individual’s sense of competency or capability. Once competency is threatened, focus then is no longer solely on the task or the skill to be refined, but the self; the psyche of a challenged ego demands her attention like a crying infant in desperate need of comfort. When the ego is threatened, an individual is forced to concentrate on self, in an effort to naturally respond to the humanistic need for self-preservation. The problem with this response, in the case of finding flow, is that the shift of focus to self causes an inability to then focus at the task at hand and subsequently, a lack of motivation. Attention divided cannot yield a flow experience. Worse, a threatened ego can send identity messages of incompetence. As negative thoughts enter into the individual’s beliefs relative to her ability to perform the task well, it then threatens her desire to complete the task. She then stands at risk of not developing skill. Worse, she risks mentally dropping out of the learning experience altogether. “If we want to learn anything, we must pay attention to the information to be
learned. And attention is a limited resource: There is just so much information we can process at any given time” (Csikszentmihalyi, 1996, p. 8).

Feedback and concentration are interrelated components. Feedback is an important part of the flow experience, because it keeps concentration on the activity by providing information about how well or how poorly a person is doing. Positive feedback seems to be especially important at the beginning of the experience (Csikszentmihalyi, 1990, p. 70). As one begins to attempt a task, positive feedback helps to develop confidence in their perceived ability to perform the task and perform it well. Perceived strength tends to build upon strength and what develops from that perception is an interest in meeting new challenges. One, who has met goals and achieved mastery in other competencies, can more readily transfer the confidence necessary to acquire skill to meet goals in another new capacity. Each time a performer reaches mastery she develops a greater sense of overall ability. While threats to an individual’s ability may still come with every new challenge, they are not as threatening to her overall sense of self or identity as a learner or performer. Thus, making it easier to set and reset goals, concentrate more intently and meet a challenge.

In Bandura’s (1997) self-efficacy theory he suggested that performance accomplishments are a major source of self-efficacy, the belief that one can successfully accomplish a task. Relative to our drama, Levin was certainly portrayed as an older accomplished man. Although Levin is a fictional character, so we cannot know his thought processes, we can attribute his ability to instantly shift his focus from
dissatisfaction to changing strategy to meet success to prior success. Jackson and Csikszentmihalyi (1999) interviewed an international rugby player as he recounted a World cup final event that offers an authentic perspective to mastery experience lending an individual to confidence and to flow:

Towards the end of the game when there was a lot of pressure from people watching the game and thinking we would loose… I was totally relaxed, totally confident. I wasn’t worried at all, and in my mind was saying, “Where are they going to go next? Do we need a defensive position?” There was no panic whatsoever. There was a lot to play for. If we’d lost that, we would have had the wall fall in on us, the whole world would have fallen around our shoulders really… There was enormous pressure, no doubt. But the pressure didn’t seem to be in the game. Confidence overcame the pressure (Jackson & Csikszentmihalyi, 1999, p. 59).

In principle, nothing breeds success like success, particularly as far as confidence is concerned. The importance of confidence to a performer and to the flow experience is critical and cannot be understated. Jackson and Csikszentmihalyi said that confidence “is built up or eroded away over a period of time as a consequence of the experiences one has in sport and how these are interpreted. Learning to nurture confidence and not let it be at the mercy of the environment will ensure that a positive and strong self-belief develops” (p. 60). Jackson and Roberts (1992) and Jackson, Kimiecik, Ford, and Marsh
(1998) show that confidence or perceived ability is critical to the experience of flow in athletes.

“Concentration is a critical component and one of the characteristics of optimal experience mentioned most often. Learning to exclude irrelevant thoughts from consciousness and instead to tune into the task at hand is a sign of a disciplined mind” (Jackson & Csikszentmihalyi, 1999, p. 25). Staying in the present requires a variety of skills we can develop. Mind control, or mental capacity development include being able to refocus quickly, use task goals, keep strategy points simple, planning for the event, mental imagery, etc… all lend themselves to the preparation and practice of deep concentration. Directing attention to a narrow focus may help to totally engross you in the activity. Concentration is an all-important skill. The sort of focus required in flow is complete and purposeful with no extraneous thoughts distracting from the task at hand. When the experience is so intense that it requires every bit of attention, and the intensity of concentration becomes effortless. And so it follows, in a flow state, concentration is much easier to sustain than in non-flow experiences. “Finding what attentional foci helps to bring about complete mental involvement in your performance is the key principle for finding flow” (Jackson & Csikszentmihalyi, 1999, p. 121).

Because in flow the task at hand demands complete attention daily worries and problems cannot register in the mind. It is for this reason that an enjoyable experience produces as ecstatic state. Csikszentmihalyi (2003) believed that “the human mind is programmed to turn to threats, to unfinished business, to failures and unfulfilled desires
when it has nothing else more urgent to do, when attention is free to wander. Without a task to focus our attention, most of us find ourselves growing progressively depressed. In flow, there is no room for such rumination” (p. 50). In flow, there is no room for any thoughts other than what you are doing and feeling right at the moment, in the “now” (Jackson & Csikszentmihalyi, 1999, p. 25). While flow provides a relief from daily stressors unlike other forms of escape - drugs, alcohol, promiscuous sex, the consequences of are different. Flow involves meeting challenges and developing skills, which lead to growth. “It is an escape forward from current reality, whereas stimulants like drugs lead backward” (Csikszentmihalyi, 2003, p. 50).

Flow component #6 - Sense of control

The sixth characteristic of flow is described as a sense of control over what you have to do. This sense of control comes from an individual’s belief that she has the required skill to accomplish the task at hand. “Flow experiences occur in activities where one can cope, at least theoretically, with all the demands for action” (Csikszentmihalyi, 1975, p. 45). While in flow there is a feeling of empowerment that frees the performer from fear of failure thus feeling competent in addressing the challenges before her. Feeling in control conveys a sense of security and power that is most attractive to us, particularly because we more often find ourselves negotiating or surrendering our sense of security and power over our ability to respond to life demands and challenges. Feeling in control conveys a sense of security and power. Jackson and Csikszentmihalyi (1999) said “the attraction of control rests at least partly with the dread of its opposite. Feeling
out of control can be a scary experience and carries with it worry and other negative emotions. Being unable to influence what is happening to you and around you creates feelings of helplessness and inadequacy. These feelings break down confidence and make us pull back from involvement and risk” (p. 127).

In order to grow, to stretch ourselves beyond the point of comfort, we must be willing to take risks. Risk will only be assumed when there is some measure of confidence. Meeting with success in risk, requires not only the confidence to perform but also that confidence must be balanced with skill preparation. Without adequate skill, assuming the risk of challenge can be reckless and likely to result in failure. Like success, failure can impact our sense of control and confidence. There is a necessary balance between skill and challenge that puts one on the cutting edge of performance where flow occurs. This is what makes flow, like the feeling of total control so fleeting: by their very nature, it is impossible to experience either of them for any length of time. When we become comfortable with a certain level of control, it is time to move on to a higher challenge, which pushes us forward into new areas of risk and uncertainty. Likewise, when our skills knowledge is under threat, confidence becomes unstable and our performance is at the mercy of chance. It is within a few golden moments when the performer is not faced with uncertainty about what they are going to do (goal direction) or concern that they may not have the necessary skill (confidence), that they experience a release from worrying about control (an empowerment) that we get close to flow. Once flow is achieved, it becomes a desired and much sought-after state.
When a performer recognizes that she is in control of how she responds, theoretically, the task becomes easier, however, the real test comes when the pressure is on. One of the key points is that the performer is in control of how she will respond to what happens and she is responsible for her own thoughts and actions. It is important to set the stage for flow through preparation and to release our awareness of self over to the knowledge that our performance is within our control. Exercising control in difficult situations is very satisfying. When a performer can exercise control in a difficult situation, a sense of calm develops that makes her feel invincible. Athletics, Sports and games easily lend to the illumination of this delicate balance. “While involved in sport, we can forget the looming threats and focus entirely on an activity that is potentially under our control. The rules of most games are clear; they limit what can happen and exclude everything else”

A dancer describes:

A strong relaxation and calmness comes over me. I have no worries of failure. What a powerful and warm feeling it is! I want to expand, hug the world. I feel enormous power to affect something of grace and beauty (Jackson & Csikszentmihalyi 1999, p. 125).

A basketball player describes:

I feel in control. Sure. I’ve practiced and have a good feeling for the shots I can make… I don’t feel in control of the other player – even if he’s bad and I know
where to beat him. It’s me and not him that I’m working on (Jackson & Csikszentmihalyi, 1999, p. 127).

A cyclist:

Your mind doesn’t wander from the job, your body feels great, everything runs; nothing, just nothing can go wrong. And you believe that nothing will go wrong, and there’s nothing that will be able to stop you or stand in your way. And you’re ready to tackle anything, and you don’t fear any possibility happening. And the possibilities do happen, you tackle them, and they go by, and nothing leaves its mark on you. And you go on to the next task, and it’s just exhilarating (Jackson & Csikszentmihalyi, 1999, p. 137).

Ultimately, control in sport is not about opponents or external obstacles. It is about learning to discipline a wandering mind, fluttering emotions, an unsteady will. Sport creates the possibility of achieving control over the self (Jackson & Csikszentmihalyi, 1999, pp. 126-127). Total control over the mind is not an appropriate expression to describe accurately what happens when in flow. What does happen in flow is an increase in mental control, as maximum attention is demanded for the individual to utilize her highest skill level.

Accomplishment at this high level leads to a greater mental complexity of the individual personal growth. Like anything outstanding and enduring, complexity is not without cost, either material or psychological. Those who learn to invest psychic energy in complex activities enjoy the opportunity to become more complex people. Every living
thing is born to grow. We all have a need to learn. Growth is a common, compulsory experience to stimulate people, to keep them interested in life and living. When there is no growth, no forward movement, we face unchallenging situations resulting in boredom and disinterest. If there is no new challenge, development not only ceases, but entropy begins. The second law of thermodynamics is that the entropy of a closed system can only increase. This reality is played out in every living organism, because it is the law of energy and nature. When human capacity is not pushed forward through growth and development, there is essentially, a closed system in effect. When physical and/or mental capacity is not engaged over long periods of time deterioration begins and disorder takes root. Jane Fonda is quoted in Csikszentmihalyi’s interview as having said:

People are capable, including myself, of perpetual change and growth. It’s the one thing in the entire universe that goes counter to the second law of thermodynamics – entropy-everything descends into decay. Everything spirals downward, rots and decays, except the human spirit, which has the capacity to grow and to evolve upward (Csikszentmihalyi, 2003, p. 35).

The freedom to control mental capacity cannot be understated. The sense of control is directly related to one’s sense of empowerment. As long as we respect challenge and develop the appropriate skills to meet them, we are able to cope with most any situation. Control precedes the immensely strong feeling that our fate is within our own grasp. “To control attention means to control experience, and therefore the quality of life” (Csikszentmihalyi, 1997, p. 98).
Flow component #7 - Loss of self-consciousness

Ordinarily, people experience daily conflicts in consciousness. When inner conflict exists, thoughts and actions become disordered and less efficient - the result is psychic entropy. In contrast, flow is a resulting experience of ordered consciousness. Jackson and Csikszentmihalyi (1999) asserted that when a person is in a flow state their “subjective states are in harmony; the body and mind are working together without internal conflict” (p.165). The flow experience is a “state of psychic negentropy because the mind is efficient and internally harmonious” (Jackson & Csikszentmihalyi, 1999, p. 165).

In flow, the concern for the self disappears, as do worries and intrusive negative thoughts. “Perhaps paradoxically, it is through a sense of control that loss of self-consciousness is facilitated. When you feel in top form, you can let go of worrying about how other see you and whether you have what it takes to be successful” (Jackson & Csikszentmihalyi, 1999, p. 27). The intensity of focus simply leaves no attention left over to worry about the stressors that are normally close to the surface of our consciousness. Performers have expressed the experience of being one with the activity as freeing them of self-consciousness. Loss of self-consciousness is “closely aligned with the merging of action and awareness - not worrying about oneself frees the self to become totally involved in the activity. Being one with the activity prevents thoughts related to the self from creeping in and disturbing the moment” (Jackson & Csikszentmihalyi, 1999, p. 27).
Up to now, the descriptions of the various components of flow have emphasized the mental demands necessary for a performer to become keenly aware of her body its ability and its functions, allowing for flow to occur. Jackson and Csikszentmihalyi (1999) said, “self-aware athletes learn to listen to their bodies and to know what good performance feels like” (p. 105). Sometimes all it takes in a performance is either an increase in skill or an adjustment to challenge to provide access to flow. Neither however, can occur unless the performer is self-aware. In a physical performance, learning to listen to the body, the rhythm of breathing or the feelings in muscle movement helps one to achieve concentration and increases performance. So if awareness of self is an integral part of finding flow, how can a key dimension of flow include the necessity for the loss of self-consciousness?

Self-awareness and self-consciousness although related, describe different states of mind and are therefore distinguishable concepts. Jackson and Csikszentmihalyi (1999) said “self-awareness simply means paying attention to the cues provided by movements and reactions, and making adjustments to what you are doing when something is not quite right” (p. 105). Giving the performer access to the important cues that can lead to necessary and positive change in performance. She continued, “When we are self-aware, we don’t think about the self at all; we simply process information about the fine nuances of our involvement in the activity. Self-consciousness on the other hand, means that we look at ourselves from the outside, as it were, and worry about how we are doing, how we look to others” (Jackson & Csikszentmihalyi, 1999, p. 105). Self-consciousness involves
and engages our ego. It interferes with flow and endangers performance because it makes an extraordinary demand of our attention. While self-awareness works within the demand of, and enhances our attention to task, self-consciousness works against the demand of our attention to task. In this regard, self-consciousness is contrary to self-awareness and the demands of the ego create a mental state that is the antithesis of that needed for flow. Jackson and Csikszentmihalyi (1999) reiterated the need to forget yourself in regaining attention, “so, in a paradoxical way, by paying attention to your body, or the activity engaging your skill, you forget the ego” (p. 67).

In flow, it is “the awareness of one’s ego, or social identity, that recedes into the background. The more attention we invest in the body and its performance, the less is left over to ruminate about saving face or impressing others” (Jackson & Csikszentmihalyi, 1999, p. 67). Forgetting self-consciousness, ego, or social identity, including name, rank, status and all of the responsibilities these entail, is not equivalent to a climber forgetting the self-awareness involved in the careful placement of her fingers on a challenging surface, or the surgeon or the pianists awareness of their hands in performance. In seeking flow self-consciousness and self-awareness are incompatible. When self-consciousness decreased, the opportunity for self-awareness increases. It is “an exhilarating feeling to be momentarily relieved of ambition, desire, threats, worry, defeats and fears” (Csikszentmihalyi, 2003). Freud’s (1923) well-known economic model links the individual’s experience of conflict-free energy to psychological health. The more that the individual is free of repression and conflict, in the view of Freud and later
ego psychologists, the greater their access to energy and hence, the greater the ego strength, and vitality and creativity associated with it (Hartmann, 1958).

The ego, as part of Sigmund Freud’s structural theory, exists to provide balance between primitive drives, morals, and reality while satisfying both the id and superego. In modern society, ego has come to mean self-esteem, self-worth, and one’s self. Giving one self over to the loss of self-consciousness at first glance seems to place the vulnerable self-esteem at risk. However, Csikszentmihalyi claimed (2003) “While one typically forgets the self during the flow experience, after the event a person’s self-esteem reappears in a stronger form than it had been before” (p. 56). Csikszentmihalyi’s findings have shown that after approaching a flow-like state a person’s self-esteem score climbs significantly. He continued “…people who have more flow experiences also have higher self-esteem overall” (p. 56). Once the “transcendence of individuality” and “fusion with the world” (Maslow, 1971, pp. 65, 70) are experienced self-ish considerations become irrelevant” (Csikszentmihalyi, 1990, p. 42).

*Flow component #8 – Time Transformation*

Prevalent in the description of flow state occurrences is the passing of time is experienced differently. Our societal dependence on time: scheduling events, deadlines, seasons and years contribute to pressures that burden us or distract us from pursuing authentic interests and passions. Likewise, time and the pressures associated with time awareness can prevent us from becoming involved in what we are doing. “Flow has the potential to free us from this pressure: one of the characteristics of being in flow is having
a transformed sense of the way time proceeds” (Jackson & Csikszentmihalyi, 1999, pp. 28-29). Ironically, the sense of time transforms in two very different ways. Generally, reported are experiences that indicated a shortening of time, hours that pass by like minutes, or minutes like seconds, but the reverse is also reported with seconds and minutes stretching into longer periods providing the perception of having all the time in the world for an action to be performed (Jackson & Csikszentmihalyi, 1999). What appears to happen in flow is that the performer has the required time to think through the motions of full engagement. The disorientation of time (time’s slowing and speeding) alters perception. A track and field athlete recounted 11 seconds of his event as if it all happened in slow motion, but still felt as if they occurred in an instant:

It felt like you’d slowed everything down and made sure everything was right, everything was fluent… It felt real quick, but everything felt slow at the same time.

The transformation of time that occurs in flow may seem contradictory depending on the event and way the athlete approaches it. For this reason, Csikszentmihalyi simply describes the time perception as being “experienced differently.” In a memory he shares an experience with his brother, Moricz and how he experienced time differently while engrossed in his passion for crystals:

“It was nine in the morning when I put it under the microscope. Outside it was sunny, just like today. I kept turning the rock around, looking at all the fissures, the intrusions, the dozen or more different crystal formations inside and around…
then I looked up, and thought that a storm must be coming, because it had gotten so dark… then I realized that it was not overcast, but the sun had been setting – it was past seven in the evening” (Csikszentmihalyi, 2003, p. 53).

The difference between Moricz’s interest in his crystals and ours is that he had developed a knowledge to decode each of the fissures and intrusions and make meaning of them in such a way that it intrigued him. To an untutored eye, “it was merely an interesting piece of stone, for him it was as fascinating and as richly detailed as a book. He could determine its chemical composition, the physical forces involved in shaping the rock, the kind of environment it came from, the geography of the region, the history of its discovery and the possible uses of its ingredients. When he brought his decoding skills in contact with the information that was latent in the rock, it sparked an episode of flow during which time stood dramatically still” (Csikszentmihalyi, 2003, p. 54).

Time can expand in some cases rather than contract. In sports events such as a track sprint, that involve speed and require quick reactions it is more likely that time will appear to lengthen providing a seemingly longer opportunity to respond in an appropriate fashion. Whichever the case, either time shortening or lengthening, “transformation of time is a by-product of total concentration” (Jackson & Csikszentmihalyi, 1999, p. 29). When we are focused to the point of total concentration, we simply cannot keep track of time, but are able to pick up things detailing the moment with absolute clarity. In the case of highly specialized surgeons, who have to move smoothly from one operation to the next so that they can begin work on a patient at exactly the right moment, the ability to
know what time it is subconsciously and intuitively is one of the skills acquired in order to experience flow” (Csikszentmihalyi, 2003, p. 54). Notably, in some sports losing sense of time may depend on whether keeping track of time is part of the sport task. Racers may be aware of every passing second because time is part of the challenge (Jackson & Csikszentmihalyi, 1999, p. 30).

Csikszentmihalyi (1999) believed that “in reality, we experience time far more subjectively, so that at various times it seems to speed up, slow down, or stand still. In flow, the sense of time adapts itself to the action at hand” (p. 54). An Olympic figure skater summarized flow’s altered sense of time:

Time does quicken and slow; it seems like it almost bends at your will… For instance, if you’re more in focus, it will slow down. And if you’re feeling really good about something really difficult, something that usually takes a long time, it goes by very quickly” (p. 55).

While this dimension of flow may not be as universally experienced as the others are, when the transformation of time is part of the flow experience, it is liberating to live in that timeless moment (Jackson & Csikszentmihalyi, 1999).

*Flow component #9 - Autotelic experience*

A relatively new area of research dealing with the perception of peak performances is the social cognitive approach to achievement behavior (Jackson & Roberts, 1992) whereby peak performance describes the upper limits of functioning. In particular, the work of Csikszentmihalyi and colleagues (Csikszentmihalyi, 1975,
is associated with peak performance and may provide some of the underlying elements to the perception of peak performance and possible predictors of peak performance.

Csikszentmihalyi calls the autotelic state of consciousness similar to the concept of peak performance, when people are fully engaged in an activity they enjoy and functioning at full capacity, “the flow experience”.

“Autotelic” is a word composed of two Greek roots: auto (self), and telos (goal). An autotelic activity is one we engage in for “its own sake because to experience it is the main goal” (Csikszentmihalyi, 1997, p. 117). An autotelic experience is one that is intrinsically rewarding, one that we choose to do for its own sake. Flow is an autotelic experience. The moments of full involvement attributed to flow is what makes it so enticing and what makes performers seek it over and over again. The autotelic experience is the end result of the other eight components of flow. Doing what you do because you love it becomes its own reward. While extrinsically rewarding activities have their own value, intrinsically rewarding activities seem to drive motivation farther and encompass personal satisfaction and enjoyment, thus a richer quality of life and living.

Csikszentmihalyi (2003) said, “The important thing to stress is that although we may be paid to do something, it does not mean we cannot enjoy it, too. The surgeons interviewed were well paid, and by and large loved what they were doing. Those who did not, were beginning to find themselves in trouble: Lacking flow in their work they sought it elsewhere, to the detriment of their professional skills and their lives as a whole” (p.
Jackson and Csikszentmihalyi echoed similarly “one advantage of taking part in sport for intrinsic reasons is that you are likely to have a much better time with such an outlook. Your goals influence what you focus on. When the goal is to enjoy the sport, attention is directed toward the activity itself, as what is to be gained is found with in the doing. When the goal is to obtain an external outcome, no longer is doing the activity for its own sake the focus. The athlete’s attention is split between the activity and the desired external outcome, with the result that less psychic energy is left to monitor and execute the performance. And as the activity itself loses significance, so does the likelihood of experiencing flow from it” (Jackson & Csikszentmihalyi, 1999, p. 145).

A famous composer remarked in response to the question of why do it, “I tell my students: don’t expect to make money, don’t expect fame or a pat on the back, don’t expect a damn thing. Do it because you love it” (Csikszentmihalyi, 2003, p. 57). Phil Jackson of the 1990’s Chicago Bulls fame wrote:

Most rookies arrive in the NBA thinking that what will make them happy is having unlimited freedom to strut their egos on national TV. But that approach to the game is an inherently empty experience. What makes basketball so exhilarating is the joy of losing yourself completely in the dance, even if it’s just for one beautiful transcendent moment” (Jackson & Csikszentmihalyi, 1999, p. 146).

Flow is so rewarding athletes describe the “perception of performing perfectly”, and feeling like a champion as you experience the “exhilaration of movements”. While the
skill training can be demanding it is reported that what the athlete gets out of the experience far exceeds what they put in and knowing (flow) can happen keeps you going through the bad times. Similarly athletes describe staying on a high for long periods of time following a flow episode. These experiences are available for everyone, not just the elite athlete, surgeon, dancer or poet. In order to fully appreciate the value of flow one must understand in the framework of flow, that anything can be enjoyable if the elements of flow are present.

Autotelic persons are not necessarily happier, but they are involved in more complex activities and feel better about themselves as a result. The point is to be happy while doing things that stretch our skills that help us grow and fulfill our potential. If there is one quality that distinguishes autotelic individuals, it is that their psychic energy seems inexhaustible because they are less concerned with themselves, and therefore have energy to experience life. What seems to matter most, is the enjoyment in pursuit of an activity for its own sake, and to know that what matters is not the result, but the control acquired over one’s attention. Csikszentmihalyi (1997) believed “the only way to take over the ownership of life is by learning to direct psychic energy in line with our own intentions (p. 130).

*Empirical Studies of Flow*

The ways in which people experience the world has long been a topic of interest in psychology. The theoretical perspective of flow and the flow state stems from the early work of Csikszentmihalyi (1975, 1990). Csikszentmihalyi’s research was born from an
interest he shared with Jacob W. Getzels who had been writing on the psychology of creativity. The body of work we now refer to as Flow began with Csikszentmihalyi’s doctoral thesis. In his study, Csikszentmihalyi watched and photographed painters and marveled at the trancelike state they entered when the work was going well. Intrigued by the absorption in their work and motivation so intense the artists persisted through fatigue, hunger and discomfort, Csikszentmihalyi was moved to search out a territory of human behavior that had been up until then, largely unexplored - the indulgence of adult leisure and play, and a phenomenological state less well understood – the experience of enjoyment. Learning more about these issues seemed to draw him closer to answering fundamental questions about the good life and living in happiness.

Upon completion of his initial study, Csikszentmihalyi taught a seminar at Lake Forest that focused on the study of play using readings from Jean Piaget, Roger Callois and Johann Huizinga. Interviews conducted from a soccer team member, choir singers and college theater thespians revealed a common, seemingly fundamental relationship between challenge and skill that was characteristic of an enjoyable activity. Initial writings from this work planted seeds of doubt in the belief that play was an opportunity for an immature organism to learn, to practice adult behaviors, and to develop skill. He found two things at fault with this line of thinking concerning play. One, it ignored the fact that play was enjoyable; second, it ignored forms of adult play. He began writing from his own experiences with rock climbing (Csikszentmihalyi & Bennett, 1971). In an effort to continue in his study of interest and attract grants to continue research at
University of Chicago with no obvious sources of funding for “play and enjoyment”

Csikszentmihalyi proposed a study of work satisfaction. This provided a more systematic approach to adult play and satisfaction in the context of work. The data source for this study was comprised of interviews from people involved in various intrinsically motivated activities that included modern dance, rock climbing, basketball, chess and surgery to discover what made the activity so attractive and rewarding. It was during these studies, the name flow was assigned as the most concise term for what had originally been called autotelic experience (Csikszentmihalyi, 1975). Results of these studies contributed to his first book *Beyond Boredom and Anxiety*.

The ideas contained in *Beyond Boredom and Anxiety* slowly worked their way into a wide variety of academic and practical settings (Csikszentmihalyi, 1988, p. 8). The results and implications of Csikszentmihalyi’s work were received by scholars who studied the psychological and sociological implications of free time, and were immediately found in the “literatures of play, sports, leisure, and recreation” (e.g., Widmeyer 1978; Pearson 1979; Sutton-Smith 1979; Iso-Ahola 1980; Kleiber 1980, 1981, 1985, 1986; Kleiber & Barnett 1980; Egger 1981; Neulinger 1981; Kelly 1982, 1986; Ingham 1986; Samdahl 1986). Since then, Flow theory has been applied to different populations such as in Gray’s 1977 study of older retired persons and Progen’s (1978) study of sports. From these early studies an important insight emerged that broadened the spectrum of Flow study. Csikszentmihalyi (1988) said “from the perspective of subjective experience, work and play are not necessarily opposites” and that “many people derive
greater rewards from their jobs than they do from free time, so traditional distinctions
between “work and leisure” makes little sense” (p. 9).

One of the first arenas in which flow was seen to be potentially practically useful
was in education. Csikszentmihalyi (1975) claimed “the most urgent applications of the
flow model were in schools and on the job, where most people spend most of their lives –
often in boredom or in states of uneasy anxiety” (p. 12). Mayers (1978) and Plihal (1982)
studies respectively found correlational relationships between student enjoyment as a
predictor of final grades and teacher enjoyment relative to the amount of attention
students showed in class. Csikszentmihalyi (2003) interviewed a mother describing the
teaching and learning process:

When I am working with my daughter, when she is discovering something
new…her reading is one thing that she’s really into, and we read together. She
reads to me, and I read to her, and that’s a time when I sort of lose touch with the
rest of the world, I’m totally absorbed in what I am doing (p. 40).

Csikszentmihalyi (2003) said that “paying attention to one’s daughter, watching her grow
and discover new things, and responding to the many changes in her personality
appropriately requires as much skill as it takes to be a good rock climber, farmer, or
surgeon. Immersion in such a complex activity enables one’s own self in turn to become
stronger and more complex” (p. 41). A complex individual is both fully differentiated
(with respect to the independent, responsible development of our individual uniqueness)
and integrated (with respect to the interdependence we have within our networks of

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relationships with others, and the natural environment). A fully complex individual Csikszentmihalyi (2003) argued is “one who has the best chance at leading a happy, vital and meaningful life” (p. 29). The two components of complexity – differentiation and integration support reoccurring themes in studies of flow: to be successful you must enjoy doing your best while at the same time contributing to something beyond yourself.

Since this initial inception of flow, there have been numerous studies by researchers interested in the psychological and sociological implications of flow. The focus shift from the kind of activities that defined leisure or led to enjoyment to the quality of the experience seemed to be a more accurate focus because many people obtain more satisfaction from their work than from their play. What individuals find enjoyable vary as much as individual preferences do, the experiences leading to flow states became a more reasonable approach of study. In an effort to find a more reliable method for measuring the quality of experience and to present a more authentic study flow in a natural context, the Experience Sampling Method (ESM) was developed (Csikszentmihalyi & Larson, 1987). This development in methodology made it easier to collect data about people’s thoughts and feelings in real-life everyday situations, and hence obtain instantaneous records of the quality of experience in free time as well as in recreational activities (Csikszentmihalyi & LeFevre, 1989). Up until this time, researchers traditionally relied on questionnaires or diaries to assess how people felt when involved in a variety of activities. ESM consisted of providing respondents with an electronic pager and a block of self-report forms with open-ended and scaled items. For a
week, respondents wore the pager and responded to 56 random interval pages. The ESM study findings measured quality experience differences in how teenagers felt when viewing television as opposed to how they felt when involved in sports and game thus paving the way for following studies in athletics and sport relative to peak performance.

Jackson and Roberts (1992) identified Privette and Bundrick’s (1991) study as having distinguished peak experience from peak performance. While “peak performance describes the upper limits of functioning, peak experience describes the upper limits of joy and positive feeling that may or may not involve the optimal levels of functioning” (p. 157). This work was significant in that it applied the perception of peak performance to the social cognitive approach to achievement behavior that had long been studied by Csikszentmihalyi and colleagues, relating the flow experience to the concept of peak performance. As part of an ongoing attempt to develop a valid and usable scale for assessing flow in sport and physical activity, Jackson and Marsh (1996) developed the Flow State Scale (FSS) as a new measure of flow in sport and physical activity. The nine FSS scales of the 36-item instrument represent the dimensions of flow identified by Csikszentmihalyi and four items measured each scale. While Jackson and Marsh acknowledged that flow could not be fully captured by a score on a questionnaire, experience sampling methods, or in depth interviews, Confirmatory Factor Analysis (CFA) performed were used to test the a priori factor structure underlying the FSS responses. In CFA, the researcher posits a structure and tests the ability of a solution based on the structure to fit the data by demonstrating that the solution is well defined,
parameter estimates are consistent with theory and predictions and chi square ratio and indices of fit are reasonable (Marsh, Balla & McDonald, 1988; McDonald & Marsh, 1990). The use of a diverse sample added support to the potential generalizability of the scale. The findings of this study presented the FSS instrument as a useful indicator of the flow construct. There have been studies conducted measuring flow experiences in daily life, examining and measuring challenge and skill as well as studies that examine the relationships between flow, self concept, psychological skills and performance among others.

Flow is a subjective experience in which people report performing their best. While it is not well defined, “it is sufficiently compelling that scholars have invoked the concept in a wide range of studies” (Quinn, 2005, p. 610). Ryan Quinn (2005) began looking at flow in the context of knowledge work and high performance workers within the context of organizations. He noted, “The problem with managing the performance of knowledge workers is that knowledge work is complex and situation-specific. It seldom has one single correct result, and there is seldom one correct way of doing it, so results are difficult to quantify” (p. 610). Knowledge work consists of goal-oriented activities that require high levels of competency to complete. Quinn argued that “there is little in the management literature that explains flow and its role in high performance, but by bringing the experiential concept of flow into organizational literature that focus on quantifiable results we can see how people use tacit goals, standards and values to judge the quality of their work, consider the unique characteristics of a situation, adapt, and
generate creative, even goal-changing insights” (p. 611). Similar to knowledge work, teaching is characteristically complex and situation specific, with seldom one correct way of doing it. This study is an initial attempt to quantify flow experience among teachers, as teaching consists of goal-oriented activities that require high levels of competency to complete. While there is no previous study or literature to explain flow and its role in high teaching performance, bringing the experiential concept of flow into school organizational literature focusing on quantifiable results may begin to elucidate how teachers use tacit goals, standards and values to judge the quality of their work, consider unique characteristics of a situation, adapt, and generate creative, goal-changing insights.

The Competing Flow Models

As part of an ongoing research program to elucidate the flow construct and to provide psychometrically valid measurement instruments that would be useful for describing and measuring flow, two competing models have emerged – one based on the work of Marsh and his colleagues (Jackson, 1992; Jackson & Elkund, 2002; Jackson & Marsh, 1996; Marsh & Jackson, 2000) and the other on the more recent research of Quinn (2005).

The Marsh and Jackson Model. One attempt to examine the empirical nature of flow was done by Marsh and Jackson (2000). They conducted an analysis with the purpose of determining whether the nine-factor a priori model was better able to fit the responses based on the state and trait versions of the flow instrument and to compare the fit of first-order and higher order models. Jackson and colleagues claimed two limitations
of their investigation, problems inherent to any initial attempt to quantify experiential states. First, asking participants to respond to a previous experience would be considerably more useful than having them complete a scale after a performance that may or may not have been a flow experience. The scale used, was to be completed immediately or soon after performance to assess flow state characteristics experienced. Further research was suggested to ascertain whether or not results are generalizable. Additionally a trait version of the FSS instrument should be developed to determine whether there are individual differences related to varied ability to experience flow.

The second limitation of the initial study is relevant to any research that attempts to quantify experiential states. The richness of complex phenomenological states, such as flow, may be better captured through qualitative research. Though the sample was a diverse sample adds support to the potential generalizability of the scale, it is possible that the factor structure based on heterogeneous sample may not generalize to specific subgroups. Jackson and Marsh (1996) admit that while flow cannot be fully captured by a score on a questionnaire, experience sampling methods, or in depth interview, “the flow construct instrument will hopefully lead to the elucidation of its nature and the factors and situations conducive to its experience” (p. 32).

Using confirmatory factor analysis, Marsh and Jackson (2000) examined alternative 1st–order and higher order models of responses to each instrument separately, then combined responses from the 2 instruments. They concluded that there was “good support for the construct validity of state and trait flow responses in that a priori 9-factor
(for each instrument separately) and the 18–factor (for the 2 instruments) model fit the data well. Correlations were substantially higher between matching trait and state validity criteria than were between non-matching factors, and external state and trait validity criteria were predictably related to specific state and trait flow factors” (p. 343).

Holding to the definition that of flow as a psychological state in which a person experiences all nine elements of flow, Jackson and colleagues used sports participants to test the holistic model by developing the flow state scale (FSS: Jackson and Marsh, 1996; Eklund, 2002) in order to measure the nine elements. Based on their work, they concluded that flow was a second-order factor consisting of the nine-first order factors explicated by Csikszentmihalyi.

A critical question was how to determine whether an a priori model fits the data or how to compare the relative fit of competing models. The purpose of the 2000 investigation was to use CFA to determine whether the nine-factor a priori model is able to fit the responses based on the state and trait version of the flow instrument and to compare the fit of first-order and higher order models. In the second portion of the study, CFAs were presented for the combined set of responses to both instruments providing a more demanding test of the a-priori model with 18 factors. Jackson and Marsh presented clear support for the a priori, nine-factor structure by showing the results generalized to responses by older athletes who completed the instrument shortly after actually completing their event. The a priori, 18 factor first-order model fit the data well, and the
pattern of relations between matching state and trait factors supported the convergent and discriminant validity of the responses” (2000, p. 365).

Jackson found support for the relevance of Csikszentmihalyi’s characterization of flow into nine dimensions and qualitative descriptions of being in flow but continued to seek a multi-method approach to flow, incorporating both qualitative and quantitative research, to establish the validity of the various constructs. The models based on both instruments demonstrated the superiority of the first order representation to higher order models positing one (state + trait) or two (state and trait) factors of flow. They concluded that the superiority of the first-order representation over the higher order representation was clear and that the fit of the higher order model was marginally poorer than the corresponding first-order model in separate analysis of state and trait responses, the differences, however were not large.

The Quinn Model. Based on Jackson and Marsh’s work, Ryan Quinn (2005) proposed and tested two competing models of flow in a sample of work experiences from engineers, scientists, managers, and technicians. First, the Marsh and Jackson model was tested, and then Quinn proposed and tested a competing model.

Quinn argued that treating flow as a second-order factor composed of nine first-order factors poses a problem. The problem is that Csikszentmihalyi’s flow elements represent different types of constructs. Quinn (2005) identified the challenge-skill balance and goal clarity components to be structural features of an activity. While concentration is a type of effort and feedback is a set of cues that the individual extracts
from the activity. He goes on to say that “the remaining elements are subjective experiences: perceptions of undergoing particular psychological, biological, and contextual events” (p. 614). Quinn attributes these differences in the constructs as the reason Jackson and her colleagues were unsuccessful in modeling flow as a second-order factor consisting of all nine factors. He believed “structural features like the challenge-skill balance and goal clarity are more likely to precede the other elements in a causal model because they define the activity that a person invests effort in, derives feedback from, and has a subjective experience in” (p. 614). Quinn distinguished a second way to conceive of the relationships between the flow elements - a causal model in which the nine elements are separated into antecedents and consequences. He justified this proposal with the logic that “goal setting and other organizational research provide us with a conceptual framework for understanding what the causal model should be” (p. 614).

Quinn argued that if the nine original elements could not serve as indicators of one flow construct, then the definition of flow had to be reconsidered. Csikszentmihalyi wrote (1975) that the “clearest sign of flow is the merging of action and awareness” (p.38). He stated that the merging of action and awareness is the degree to which an “activity becomes spontaneous, almost automatic; people stop being aware of themselves as separate from the activity they are performing” (Csikszentmihalyi, 1999, p. 53). While Quinn (2005) acknowledged that the automatic cognitive processing plays a role, he suggested, “Flow may best be defined as the experience of temporally merging one’s
situation awareness with the automatic application of activity-relevant knowledge and skills” (p. 615).

Situation awareness is “the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the future” (Endsley, 1995, p. 36; Bigley & Roberts, 2001). It is perception that comes in degree from an explicit effort to be aware of the particular circumstances within a given situation. Situation awareness requires a person to continually review situational circumstances and remain aware of elements in time and space. Endsley (1995) believed that people could not achieve desired results with situation awareness alone. Individuals must apply necessary knowledge and skill to move a situation toward a desired end. When skills are well honed people can apply them with automaticity, thus deftly moving a situation toward their goal with fluidity (Bargh, 1984; Louis & Sutton, 1991). Based on this understanding, Quinn (2005) maintained that as people merge their awareness with the automatic application of their activity-relevant knowledge and skill, so that awareness and application occur simultaneously rather than sequentially, they experience flow.

The terms merging and appropriate from their perspective are cornerstone in understanding how flow operates as the merging of awareness and application. “When people respond automatically to a particular awareness of an unfolding situation, they often respond as much to tacit, unconscious standards of appropriateness – learned in practice but never explicitly articulated – as they do to explicit goals and sub goals set for
the situation” (Quinn, 2005, p. 616). For the competent, tacit goals can be as clear as explicit goals. Flow involves tacit and explicit evaluations of a person’s performance or response to a given situation, but it is “more than a simple post hoc evaluation that he or she has completed a goal or responded appropriately. It is a string of (usually tacit) evaluations made in real time as a person responds automatically and maintains awareness of the unfolding circumstances of a situation” (Quinn, 2005, p. 616). With this insight, we understand the concept of “merging” as important to the definition of flow. Significantly, Quinn noted that the “perceived appropriateness of a person’s response is based on the perspective of the person who is responding” (p. 616). It is also worth noting that while flow is a subjective, temporary experience, it is based on a socialized subjectivity (Bourdieu & Wacquant, 1992) through which people learn their perspectives in repeated practice and interactions with relevant others in their community of practice. As the experience of making the most appropriate responses a person can in a given situation; is the best a person can perform, given her understanding at that particular time (Quinn, 2005).

Defining flow as the experience of merging situation awareness with the automatic application of activity-relevant knowledge and skills and modeling it as a first order construct in relation to Csikszentmihalyi’s identified elements eliminates the problems associated with the 1996 Jackson and Marsh model. This new model allows us to better describe and explain the relationships between the elements. Quinn argued that “this model no longer confounds activity characteristics with experiential outcomes, so
we no longer have to explain the effects of antecedents on flow using its indicators” or why some people experience flow even if they do not experience the rarity of all nine elements. According to Quinn, the antecedents of flow: goal clarity, challenge-skill balance, concentration and feedback clarity yield the four remaining flow elements – a sense of control, the autotelic experience, the loss of self-consciousness and the transformation of time. In this way of conceiving the relationships between the elements, flow is a causal model in which the nine elements are separated into antecedents and consequences of the other elements. It is defined as “the merging of action and awareness” the degree to which an “activity becomes spontaneous, almost automatic; people stop being aware of themselves as separate from the activity they are performing” (Quinn, 2005, p. 614).

Quinn acknowledged that it is not entirely possible to measure subject experience directly and it is not possible to test a causal model with survey data of the flow elements but he did use the survey data to: establish that people experience flow elements in work; rule out unlikely relationships proposed in previous studies not supported by this analysis; and provide support for the plausibility of the proposed relationships that were supported by his research. He tested the two models of flow and explored the effects of job and task types using data primarily from engineers, scientists, technicians and technical managers - skilled professionals whose work involves clear, challenging goals. All of these workers reported performing well and enjoying their work when they were able to concentrate. Quinn found results that support the redefinition and model that
conceive of flow as the experience of merging situation awareness with the automatic application of activity relevant knowledge and skills. He explored ways in which this definition and model of flow can be incorporated into current theories of knowledge, performance and social networks. This study extends Quinn’s work into the teaching profession.

Continued research suggests that collective flow experiences may increase the learning that happens as people interact in organizations. For example, people who successfully bridge differences in race and gender (Davidson & James, 2006) in networks (Obstfeld, 2005) and in knowledge domains (Hardagon & Sutton, 1997) are often adept at using knowledge in a number of domains (Obstfeld, 2005, p. 124) to help communicate in ways that are high performing. “Research on knowledge, performance, motivation, learning, and social interaction all offer important insights to our understanding of organizational behavior…how people perform knowledge work and how it can be managed” (Quinn, 2005, p. 638). Quinn’s model and the supporting research are convincing, but the nature of flow among teachers is an empirical question and there are two rival explanations.

Hypotheses on the Nature of Flow for Teachers

The preceding review of the literature led to the development of two competing hypotheses for describing and measuring the nature of flow experiences for teachers. These are not original hypotheses (Marsh & Jackson, 2000; Quinn, 2005), but neither has been tested using public school teachers. In essence the test is one of rival hypotheses to
determine which flow theory better explains flow in public school teachers. The first hypothesis is the Marsh-Jackson model supported by Csikszentmihalyi’s conceptual theory of flow is stated as follows:

**Hypothesis 1**: Flow is a second-order factor consisting of nine first-order factors:

1) challenges and skill that are high and in balance, 2) clear goals, 3) clear feedback, 4) concentration, 5) the merging of action and awareness, 6) a sense of control, 7) an autotelic experience, 8) the loss of self-consciousness, and 9) the transformation of time.
Figure 2.1: The Jackson Model. Flow is a holistic, subjective experience encompassing all nine of Csikszentmihalyi’s originally identified elements of flow as measure in which people report performing their best.
The second hypothesis is the Quinn model of flow and is stated as:

**Hypothesis 2**: Flow is a first-order factor—the experience of merging one’s situation awareness with the automatic application of activity-relevant knowledge and skills— with antecedents that include 1) challenges and skills that are high and in balance, 2) clear goals, 3) concentration, and 4) clear feedback, and with consequences that include a sense of control and an autotelic experience. Figure 2 depicts Quinn’s model of flow. In this model Quinn identifies the interrelatedness of the Csikszentmihalyi’s factors of flow.

![Diagram of the Quinn Model](image)

**Figure 2.2**: The Quinn Model. Flow conceived as a causal model.

In this study the two competing flow models were tested in an attempt to determine which model offered a better explanatory model of flow in teachers.
Academic Optimism

“One of the most important challenges for educational researchers is to identify properties of schools that make a real difference in academic achievement and that, unlike socioeconomic status, are within the control of school leaders” (McGuigan & Hoy, 2006, p. 2). Previous research pertaining to what matters in identifying characteristics associated with student achievement, have indicated that socioeconomic factors have a strong association with student achievement. While this strongly associated factor is one over which schools have no control, there are other characteristics that have recently been identified as having positive and significant association with student achievement, and are within the control of school leadership.

Hoy, Tarter and Woolfolk Hoy (2006) have identified a new construct found to have made a significant contribution to student achievement after controlling for demographic variables and previous achievement. This new construct is called Academic Optimism. Hoy, Tarter and Woolfolk Hoy found strongly supported relations among three sources on a single latent construct. Academic Optimism is a latent construct that draws on three different streams of theory and research: Collective efficacy, trust, and academic emphasis. Hoy (2006) identified, collective efficacy as a concept that originated from Bandura’s work (1997) in social cognitive theory; trust as having emerged as an important concept in Coleman’s (1990) analysis of social interaction; and academic emphasis as having evolved from Hoy and his colleagues’ research on the organizational health of schools with theoretical underpinnings from Parson, Bales, and
Shils (1953). Based on significant factor loadings findings through structural equation modeling, Hoy et al. conclude that “bringing these three steams of research together provides a richer and yet more direct explanation of how schools enhance student learning” (p. 440). They maintain that academic emphasis, collective efficacy, and faculty trust are tightly woven together and appear to reinforce one another.

Academic emphasis

Academic emphasis is the first of three components of Academic Optimism that relates to student achievement. It refers to the extent to which a school is driven by a quest for academic excellence and academic achievement. In such, there are high, yet achievable goals set for students; the learning environment is orderly and serious; students are motivated to work hard, and they respect academic achievement (Hoy & Miskel, 2005; Hoy, Tarter, & Kottkamp, 1991). This line of inquiry originated out of the work of Lee and Bryk (1989) who bright-lined the importance of academic emphasis and student achievement. Academic emphasis and achievement were positively related at both the middle school and high school levels, even after controlling for socioeconomic factors (Hoy & Hannum, 1997; Hoy & Sabo, 1998; Hoy, Tarter, & Bliss, 1990). The same findings were consistent “at the elementary school level controlling for SES, school size, student race, and gender… Goddard, Sweetland, and Hoy (2000) found that academic emphasis was an important element in explaining achievement in both mathematics and reading” (Hoy, Tarter, Hoy, 2006, p. 427). They concluded that elementary schools with
strong academic emphases positively affect achievement for poor and minority students (p. 427).

Collective Efficacy

Collective efficacy originated from Bandura’s (1986, 1997) Social Cognitive Theory. He defined self-efficacy as an individual’s belief about her capacity to organize and execute actions required to produce a given level of attainment (Bandura, 1997). Hoy, Tarter & Woolfolk Hoy understood efficacy beliefs to be central mechanisms in human agency, the intentional pursuit of a course of action (2006, p. 428). Efficacy beliefs affect the choices individuals and collective individuals make about action. Based on previous research, Hoy and colleagues (2006) found positive associations between student achievement and three kinds of efficacy beliefs: self-efficacy beliefs of students (Pajares, 1994, 1997), self-efficacy beliefs of teachers (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998), and teachers’ collective efficacy beliefs about the school (Goddard, Hoy & Woolfolk Hoy, 2000). Relevant to this study is the collective efficacy beliefs of as it relates to academic performance.

Bandura (1993) was the first to demonstrate the existing relationship between a sense of collective efficacy and academic school performance. He found that schools that had a strong sense of collective efficacy flourished, while those with poor collective efficacy declined in academic performance or showed little academic gain. Goddard, Hoy, and Woolfolk Hoy (2000) and Hoy, Sweetland, and Smith (2002) supported and continued this line of inquiry using collective efficacy as the central variable. They
found that collective efficacy was the key variable in explaining student achievement and proved to be a stronger determinant than either SES or academic emphasis. Hoy and colleagues (2006) also concluded that “school norms supporting academic achievement and collective efficacy are especially important in motivating achievement among both teachers and students, but academic emphasis is most forceful when collective efficacy is strong: academic emphasis works through collective efficacy” (p. 428).

The research of Goddard, LoGerfo, and Hoy (2004) found through structural equation modeling, that collective efficacy explained student achievement in reading, writing, and social studies regardless of minority student enrollment, urbanicity, SES, school size, or earlier achievement. The research involving collective efficacy has consistently demonstrated the power of positive efficacy judgments in human learning, motivation, and achievement in many diverse areas, including diet alteration, smoking cessation, sports performance, political participation and academic achievement (Bandura, 1997; Goddard, Hoy & Woolfolk Hoy, 2004).

**Faculty Trust in Parents and Students**

Faculty trust in parents and students is the third property related to student achievement. Hoy et al. (2006) believed that “faculty trust in parents and students is a collective school property in the same fashion as collective efficacy and academic emphasis” (p. 429). While one may initially believe these to be separate concepts, factor analyses have consistently demonstrated they are not separate (Goddard, Tschannen-Moran & Hoy, 2001; Hoy & Tschannen-Moran, 1999) and Bryk and Schneider (2002) argued that
teacher-student trust in elementary schools operates primarily through teacher-parent trust.

Following an extensive review of the literature, Hoy and Tschannen-Moran (2003) defined trust as a willingness to be vulnerable to another party based on the confidence that that party is benevolent, reliable, competent, honest, and open. The subsequent research showed that all five facets of trust in schools vary together to form an integrated construct of faculty trust in schools at the elementary (Hoy & Tschannen-Moran, 1999, 2003) or secondary (Smith, Hoy & Sweetland, 2001) levels. They concluded that faculty trust of students and parents enhances student achievement.

Hoy and colleagues suggest cooperation and trust should set the stage for effective student learning as a line of logic in achievement. One of the studies to support this logic was Goddard et al. (2001). Using a multilevel model, Goddard and colleagues demonstrated a direct and significant relationship between faculty trust in clients (students and parents) and higher student achievement after controlling for SES. They found faculty trust to be a key property in enabling school structures that worked effectively to overcome some of the disadvantages associated with low SES. Another study conducted by Hoy (2002) examined the trust-achievement relationship in secondary schools where he found support that faculty trust in parents and students was positively related to student achievement after controlling for socioeconomic factors. Hoy (2006) theorized that trusting others is “a fundamental aspect of human learning because learning is typically a cooperative process, and distrust makes cooperation virtually
impossible” (p. 430). The final study was conducted by Bryk and Schneider (2002) as they examined predictors of school improvement. It was a 3-year longitudinal study conducted in 12 Chicago elementary schools. Using hierarchical linear modeling, survey and achievement data, as well as in-depth interviews, Bryk and Schneider found that relational trust was a prime source of school improvement. The research in total supports the conclusion that faculty trust of student and parents produces schools with marked gains in student learning and schools with weak trust relationships showed no improvement leading to the shared conclusion that faculty trust of students and parents enhances student achievement.

The three major components of academic optimism are dependent upon one another and function in a transactional manner. As the three properties concur in this triadic relationship, they create a culture of academic optimism. “Faculty trust in parents and students encourages a sense of collective efficacy and collective efficacy reinforces and enhances trust. Similarly when faculty trusts parents, teachers can insist on higher academic standards with confidence that parents will not undermine them, and high academic standards in turn reinforce faculty trust. Finally when the faculty believes it has the capability to organize and execute actions that will have positive effects on student achievement, academic achievement is emphasized, and academic emphasis in turn reinforces a strong sense of collective efficacy” (Hoy, Tarter, & Woolfolk Hoy, 2006, p. 431).
Hoy and colleagues (2006) identified the conception of academic optimism to include cognitive, affective (emotional) and behavioral dimensions: Collective efficacy - a group belief, is cognitive; Faculty trust in parents and students is an affective response; and academic emphasis requires a push for particular behaviors (Hoy et al., 2006). They conclude that “collective efficacy reflects the thoughts and beliefs of the group; faculty trust adds an affective dimension, and academic emphasis captures the behavioral enactment of efficacy and trust” (p. 14).

Although academic optimism is a new concept, relatively early in research development, it is composed of three components that have been well researched. It bears an appealingly addition to the previous research on effective schools. Purkey and Smith (1983) and Scheerens and Bosker (1997) identified some significant factors related to student achievement, such as clear goals, high expectations, parental support and involvement and collaborative planning. The findings in the initial research on academic optimism are not only consistent with earlier research, but additionally, offer some explanation about how some of these factors influence teachers’ beliefs that lead to student achievement. The studies on academic optimism are particularly attractive because they emphasize the potential of schools to overcome the power of socioeconomic factors that impair student achievement. Finally, the idea that academic optimism can be learned is of optimal appeal. With regard to development and reform, it means that any school has the potential to impact student achievement in a significant and positive way.
A Hypothesis on the Nature of Academic Optimism of Teachers

Hoy and colleagues (2006) identified collective efficacy, faculty trust in parents and students and academic emphasis as three dimensions of a single, latent construct. The dimensions represent beliefs of the faculty that the conditions for student achievement exist, and give rise to a general optimism that students can and should achieve academic gains. McGuigan (2005) stated that, “The dimensions of academic optimism are factors that shape the normative environment of schools (p. 82). These strong school norms provide control over the actions of all teachers, because the group sanctions those teachers who do not conform to the prevailing norms (Coleman, 1990). Because these dimensions represent beliefs of the faculty as a collective and are linked to the actions of the faculty to facilitate a culture of general optimism, it is logically predictable that the same could be true of individual teachers’ beliefs about their ability to bring about desired student outcomes (efficacy); trusting relationships with their students and parents (trust); and a high priority for academic tasks (academic emphasis) form the underlying construct of academic optimism as a characteristic of individual teachers.

The studies of academic optimism have been found to work well at the collective level. This study will test to see if the second-order latent construct works well at the individual teacher level. Hypothesis 3 is summarized in Figure 2.3.
**Hypothesis 3:** Academic optimism of individual teachers is a second order factor consisting of three first order factors: trust, efficacy and academic emphasis.

![Diagram](image)

Figure 2.3: Hypothesized Nature of Individual Academic Optimism

**General Life Optimism**

Seligman (2005) indicated positive psychology at the subjective level to be about positive subjective experiences: well-being and satisfaction; flow, joy, sensual pleasures and happiness; and the acquisition of knowledge about the future-optimism, hope and faith (Seligman, 2005). At the individual level, he said “it is about positive personal traits – the capacity for love and vocation, courage, interpersonal skill, aesthetic sensibility, perseverance, forgiveness, originality, future mindedness, high talent and wisdom” (p. 3).
Writers of optimism can be traced back to Voltaire’s (1759) Candide. Candide’s teacher Dr. Pangloss, espoused the belief that every trial and misfortune besets us for a purpose and that purpose is our ultimate good believing that this (world) is the best of all possible worlds. Voltaire’s Candide along with Porter’s (1913) Pollyanna, who celebrated misfortunes befalling her self and others, have suggested connotations of naïveté and denial of factual events in the face of optimism. In recent years, optimism has been conceptualized and assessed in a variety of ways linking it to positive mood, good morale, perseverance, effective problem solving, achievement, popularity, good health, long life and freedom from trauma. The purpose of this study of optimism is to review what is known about optimism as an explanatory style, that is, how people habitually explain the causes of events. As such, the role of optimism in positive psychology is delineated.

Peterson and Chang (2003) recognized optimism as an inherent feature of all humans defined in one of two ways. Optimism earlier defined by Tiger (1979) to be a “mood or attitude associated with an expectation about the social or material future with which the evaluator regards as socially desirable, to his [or her] advantage or for his [or her] pleasure” (Peterson, 2000, p. 44). Carver and Scheier (2002) saw optimism to be one’s positive expectation for the future, and optimists as “people who expect to have positive outcomes, even when things are hard” (p. 233).

As a personal disposition, optimism refers to the tendency to believe that one will generally experience good outcomes in life and avoid bad. In 1985, Scheier and Carver
developed the Life Orientation Test (LOT) as a measure of dispositional optimism. Using the LOT they explored the possibility that optimism, as a personality characteristic, had the ways in which people governed their behaviors and actions. Andersson (1996) reviewed 56 studies using the LOT and found that optimism is highly and significantly associated with measures of coping and stress, reports of psychological symptoms such as depression, and self-reports of negative affect. This review and the subsequent LOT measurement instrument have made optimism a measurable personal characteristic.

The focus of positive psychologists is in the study human strengths and attitudes and how these influence beliefs and effectiveness. Optimism has been found to be one general disposition that strongly influences outcomes. The current study examines the construct “academic optimism,” bringing together teachers’ beliefs about behaviors, personal factors and environmental factors positively related to student achievement. Bridging dispositional optimisms, to optimistic teachers and ultimately to academic optimism – “a teachers belief that she can make a difference in the academic performance of students by emphasizing academics and learning, by trusting parents and students to cooperate in the process, and by believing in her ability to overcome difficulties and react to failure with resilience and perseverance” (Woolfolk Hoy, Hoy and Kurz, 2008, pp. 4-5). It seemed reasonable to expect that a general disposition to be optimistic should be related positively to the more specific construct of academic optimism; thus the following hypothesis is proposed.
Hypothesis 4: There is a positive relationship between a teacher’s general optimism and academic optimism.

Hypothesis on the Correlation between Academic Optimism and Flow of Teachers

A secondary purpose of this study is to examine possible psychological correlates of the flow construct in relation to the academic optimism construct. Flow is an optimal psychological state described by Csikszentmihalyi (1975, 1990, 1993). When in flow a person becomes totally involved in an activity and undergoes a number of positive experiences. Jackson and Roberts (1992) hypothesized that flow is the psychological process underlying peak performance and they found correlational support for this ideas. The flow dimensions include challenge-skill balance, action-awareness merging, goal clarity, unambiguous feedback, complete concentration, a sense of control, loss of self-consciousness, transformation of time and an autotelic experience as a result of being in flow.

The models of flow tested by Quinn explored the effects of job and task types using data from the experiences of engineers, scientists, and technicians – all skilled professionals whose work involves clear, challenging goals. They reported performing well and enjoying their work when able to concentrate and believed flow to be both a consequential and desirable part of their work. As such, and with clear and challenging goals inherent in the work of classroom teachers, this study seeks to find and apply the relevant dimensions as they relate to academic achievement.
One of the most important contributions educational researchers can make to the field is to identify properties of schools and qualities of individual teachers that make a real difference in academic achievement. Unlike socioeconomic status, which has already been shown to significantly impact academic achievement, the search for factors that are within the control of school leadership and/or the individual teacher are of intrigue. Characteristics do exist in accounting for academic achievement beyond socioeconomic status. Hoy and colleagues (Hoy & Miskel, 2005; Hoy, Tarter, & Woolfolk Hoy, 2006) identified a new construct, academic optimism and its component to explain student achievement while controlling for socioeconomic status, previous achievement, and urbanicity. They found through structural equation modeling, that academic optimism made a significant contribution to student achievement. Hoy et al. (2006) said that, “three organizational properties that seem to make a difference in student achievement are: the academic emphasis of the school, the collective efficacy of the faculty, and the faculty’s trust in parents and students” (p. 426). They go on to say that “these three properties are tightly woven and reinforce one another” (p. 426).

Academic optimism has been examined as an organizational variable (Hoy, Tarter, and Woolfolk Hoy, 2006) and been found to be a positive and significant force in academic achievement. Kurz (2006) explored individual teachers’ sense of academic optimism comprised of teachers’ sense of efficacy, teachers’ trust in students and parents, and teachers’ sense of academic emphasis. She said that the “teachers’ sense of academic optimism is a self-referent, positive belief about the capacity to teach all students, to form
trusting relationships with students and parents, and to prioritize academic tasks” (Kurz, 2006, p. 109). Academic optimism of teachers is a single latent construct that also is reflective of an individual’s psychological state as described by Hoy and colleagues.

Quinn (2005) noted that “flow is a subjective, temporary experience, based on a socialized subjectivity (Bourdieu & Wacquant, 1992) in which people learn their perspectives through repeated practice and interactions with relevant others in their community of practice (Barnes, 2001). Flow, then, as the experience of making the most appropriate responses a person can to the situation as he or she understands it, is the best a person can perform, given his or her understanding at that particular time” (pp. 616-617). Experiencing flow is complex and situational specific. The definition of flow proposed by Quinn seems similar to other related constructs such as self-efficacy. “Self-efficacy is the ‘conviction’ that one will be able to “successfully execute the behavior required to produce particular outcomes” (Bandura, 1977, p. 193). Because both constructs involve perceptions about performing, as well as acting on one’s belief that they can execute the relationship is apparent. He goes on to suggest that flow is related to insight – “the recognition or restructuring of a key feature of a problem that allows a solution to be found” (MacGregor, Ormerod, & Chronicle, 2001, p. 176). And that the autotelic experience is similar, if not identical to intrinsic motivation “doing an activity for the inherent satisfaction of the activity itself (Ryan & Deci, 2000) and it is similar to reflection in action, the process of “noticing how you have been performing and how well it has been working on the basis of those thoughts and observations changing the way
you have been doing it (Schon, 1983, p. 55). Quinn measured flow as a single construct because it allowed people to report their experiences of how they understand and view their circumstances. His unit of analysis was not individuals, but individual experiences.

This study sought to apply this concept to the work of classroom teachers. Because flow and academic optimism are both latent construct variable and given the relational similarities of Flow and other psychological constructs, as well as the similarities in the nature of the work studied through Quinn’s knowledge workers to the nature of the work of teachers, and guided by the belief that flow is both a consequential and desirable part of their work, logically motivated this inquiry. I relate the dimensions of flow with those that are based on Hoy’s theoretical model of academic optimism.

**Hypothesis 5:** Flow and academic optimism of individual teachers are positively related.

**Enabling School Bureaucracies**

Organizational research presents two conflicting views of the human condition as an outcome of bureaucracy. The views depict a negative and positive consequence of bureaucracy. Adler and Borys (1996) identify the negative as a coercive formalization and the positive as enabling. “According to the negative view, the bureaucratic form of organization alienates, fosters dissatisfaction, stifles creativity, and de-motivates employees. The positive view maintains that bureaucracy provides needed guidance, clarifies responsibility, reduces role stress, and helps individuals feel and be more effective” (Adler and Borys, 1996; Hoy and Miskel, 2005). Building upon Adler and
Borys’ understanding of bureaucracy, Hoy and Sweetland (2000, 2001) considered enabling and hindering formalization while examining the structure of schools. They determined a close relationship between formalization (a system of rules and regulations) and centralization (hierarchy of authority) in schools. Conceptually, in the case of schools, organizational structure was not found by Hoy and Miskel (2005) to be either enabling or hindering, but better described on a continuum from enabling to hindering. “When the rules and procedures are enabling so is the hierarchy and vice versa” (p. 103). Formalization and centralization serve as the fundamental features of structure that define the two extremes of this continuum (Hoy, 2003).

Schools are bureaucracies. Characteristically they are structures with a hierarchy of authority, division of labor, impersonality, objective standards, technical competence and rules and regulations. As such, they are capable of attaining the highest degree of administrative efficiency (Weber, 1947). With respect to the two salient aspects of bureaucratic organization, formalization (formal rules and procedures) and centralization (hierarchy of authority), enabling structures offer positive consequences while preventing negative consequences. Enabling formalization assists employees with solutions to problems in their work. The rules and procedures are flexible guidelines that reflect “best practices” and help subordinates deal with surprises and crises (Adler & Borys, 1996). Enabling centralization of authority (the locus of control for organizational decision making) or the degree to which employees participate in decision making in enabling structures helps employees solve problems rather than obstructing their work (Hoy &
Sweetland, 2001, p. 300). In enabling structures, people feel confident and able to exercise power in their professional roles. Hoy and Sweetland (2001) said, “these structures are flexible, cooperative, and collaborative rather than rigid, autocratic, and controlling” (p. 300).

Hoy and Miskel (2005) describe an enabling school structure as a hierarchy that helps rather than hinders and a system of rules and regulations that guide problem solving rather than punishes failure. Contrastingly, a hindering schools structure is a hierarchy that impedes with a system of rules and regulations that is coercive (p. 103). Research in schools (Hoy and Sweetland, 2000, 2002; Hoy, 2003; Sinden, Hoy, and Sweetland, 2003; Sinden, Hoy, and Sweetland, 2004) is beginning to show that enabling school structures significantly enhance the administration and operation of schools. Hoy (2002) believed that bureaucratic structures could be detrimental to participants and publics, but also noted “bureaucracies can increase satisfaction (Michaels et al, 1988), support innovation (Damanpour, 1991; Craig, 1995), reduce role conflict (Senatra, 1980) as well as diminish alienation in organizations including public schools (Moeller & Charters, 1966; Jackson & Schuler, 1985). Sinden et al recognized that administration and structure are inextricably bound and agreed with Anderson (1974) that there are three relevant reasons to study the nature of school structures. They believed administrative structure to be a variable with manipulability, “if understood could change to better serve teachers and students; the interest in schools as organizations has increased; and the structure of schools may be related to student achievement” (Sinden, Hoy & Sweetland, p. 462).
They called student achievement the “sine qua non of schools” and argued that the study of school structure may provide information about what may produce better conditions for student achievement.

Just as changing from the traditional focus on pathologies related to psychology toward a more positive psychology, changing our focus from regimented coercive aspects of school structures toward enabling aspects of school structures serves to prevent bureaucratic pathologies that include alienation, over conformity, unresponsiveness, and relentlessness (Hoy & Sweetland, 2000) - each of which is pervasive in coercive formalization and hindering school structures and each of which, negatively impacts trust, efficacy, cooperation, creativity and ultimately student learning. Based on previous research, Hoy and Sweetland (2001) identified structural configurations of enabling schools that led to tentative generalizations regarding both structure and principal behavior. For example, in general, enabling schools were smaller than hindering ones; had flatter structures, more representative governance, open - communication, and authority was anchored in expertise. Teacher empowerment and shared decision - making were found to be greater in enabling schools. The principals were more reflective and mindful, more transparent (open and authentic) and treated teachers with greater autonomy and professionalism.

**Enabling School Structure Defined**

A review of the literature yields general agreement among authors and researchers that primary characteristics of enabling school structures include: decentralization,
flexible relationships that encourage problem solving, participation, explicit communication, and trust (Adler, 1994; Adler & Borys, 1996; Adler, Goldoftas, & Levine, 1998; Hoy & Sweetland, 2000, 2001). Because enabling school structures refers to a kind of structure associated with the hierarchy of bureaucracy, it cannot be simply defined but rather better described in degree. Hoy and Sweetland (2001) describe the prototype of an enabling school structure as a hierarchy that “helps rather than hinders and a system of rules and regulations that guide problem solving rather than punishes failure” (p. 5). The go on to say that in enabling school structures, “principals and teachers work cooperatively across recognized authority boundaries helping one another while retaining their organizational roles. Administrators use their power and authority to buffer teachers and design structures that facilitate teaching and learning. Rules and regulations are flexible guides for problem solving rather than rigid routines that must be obeyed” (Geist & Hoy, 2004, p. 5).

**Hypotheses on the Perceived Relationship between Enabling Structures and Flow and Enabling Structures and Academic Optimism**

Previous quantitative research suggests that each of the variables used in this study may be directly or indirectly associated with increased levels of performance and student achievement. Enabling bureaucracies describe the extent to which the structure of an organization (school) enables the work of a teacher. The concept of flow details the psychological underpinnings involved in the experience of a peak performance. Flow is the result of as many as nine elements occurring as part of the individual’s experience.
The construct academic optimism at the individual teacher level represents the general confidence the teacher has that conditions exist for students to thrive. Academic optimism measured through the dimensions of efficacy, trust and academic emphasis.

Enabling bureaucracy as a concept relates to the management hierarchy, rules, process and procedures of the school (Hoy & Sweetland, 2000). This construct is rooted in business organizational research conducted by Adler and Borys (1996) who attempted to point out the features of bureaucracy that enabled organizations to function effectively and those that hindered capable functioning (Adler, 1999; Adler, 1996; Adler & Borys, 1996). Building on this foundation, Hoy and Sweetland (2000) applied the construct of enabling bureaucracy specifically to schools. They found that enabling bureaucracies in schools manifested themselves through shared authority within established roles, two way communication, seeing problems as opportunities, respecting differences, engendering trust, learning from mistakes and welcoming the unexpected. Enabling bureaucracy has also been shown to be associated with trust in the principal, absence of role conflict, truth telling (Hoy & Sweetland, 2001), teacher sense of power, authentic interpersonal relationships among teachers and open communication between teacher and principal (Sweetland, 2001). With a host of positively related occurrences characteristic of enabling bureaucracy, it is predicted that there is some association with enabling bureaucracy and those positively related attributes of flow and academic optimism. In an effort to elucidate unique common characteristics, this study tests the theory in which enabling bureaucracy is associated with flow and with academic optimism.
Hypothesis 6: Teacher’s individual perception of enabling school structures and teacher flow are positively related.

Hypothesis 7: Individual perception of enabling school structures and academic optimism of teachers are positively related to each other.

Summary

In this chapter, I reviewed the literature for the major concepts of the study and then developed rationales and hypotheses, which guided the empirical phase of the research. In particular, the nature and measurement of both flow and individual academic optimism were considered. Rival models of the flow construct were described and contrasted. Based on the theory of collective academic optimism, a latent concept of individual academic optimism was proposed. Next, I turned to a set of exploratory hypotheses to examine the interrelationships between flow, academic optimism, general optimism, and perceptions of enabling school structures. These characteristics are of interest because they are to some degree within the control of school personnel, administrators and teachers, and could provide practical opportunities, and useful information toward school improvement.
CHAPTER 3

METHODOLOGY

This chapter provides an explanation of the methodology used to answer the research questions. The sample, data collection procedures, and research survey instrumentation, including the pilot study, are outlined. Finally, the chapter includes an explanation of the statistical methods used to analyze the data.

Sample

The sample for this study consisted of 260 elementary school teachers from 14 schools in Ohio school districts. The full-time, elementary school teachers came from three (rural, suburban or urban) settings within the state of Ohio. Included were 58 rural elementary school teachers, 112 suburban elementary school teachers and 90 urban schoolteachers, all of who held elementary school licensure. Although the sample in this study is not random, an attempt was made to select a reasonably representative cross section of elementary schools and teachers from the central Ohio area. The sample population is similar to elementary school teachers in the state of Ohio in terms of gender, age, sex, and years of experience, educational level and type of school district. In description, the typical teacher respondent was a Caucasian woman between the ages of 31 and 40. She had a Masters degree and between 6 and 10 years of experience.
See Table 3.1 for a comparison of these demographic characteristics of the sample in relation to the state teacher profile. Even with these similarities, care should be taken in generalizing beyond the scope of this study because the current sample is relatively small.

<table>
<thead>
<tr>
<th></th>
<th>Sample Profile</th>
<th>ODE Profile</th>
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<tbody>
<tr>
<td><strong>Race</strong></td>
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<tr>
<td>Caucasian</td>
<td>92.30%</td>
<td>92.19%</td>
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<tr>
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<td>0.30%</td>
</tr>
<tr>
<td>African American</td>
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<td>6.67%</td>
</tr>
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<td>Hispanic</td>
<td>1.20%</td>
<td>0.74%</td>
</tr>
<tr>
<td>American Indian</td>
<td>0%</td>
<td>0.07%</td>
</tr>
<tr>
<td>Multiracial</td>
<td>0.40%</td>
<td>0.03%</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
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<td></td>
</tr>
<tr>
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<td>88.87%</td>
</tr>
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<td>Male</td>
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<td>11.13%</td>
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<tr>
<td><strong>Experience</strong></td>
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<td></td>
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<td>6-10 years *</td>
<td>21.50%</td>
<td>20.37%</td>
</tr>
<tr>
<td>11-15 years</td>
<td>16.20%</td>
<td>14.66%</td>
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<tr>
<td>21-25 years</td>
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<td>26+ years</td>
<td>18.50%</td>
<td>16.16%</td>
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<tr>
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<td>41.35%</td>
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<tr>
<td>Masters</td>
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<td>57.85%</td>
</tr>
<tr>
<td>Doctorate</td>
<td>0.40%</td>
<td>0.29%</td>
</tr>
</tbody>
</table>

Table 3.1: Sample Profile comparison to Ohio Department of Education teacher profile

*Sample percentage is higher than that of ODE teacher profile percentage.
Data Collection

Teachers from schools in this sample were asked to voluntarily participate in the survey; all responses were completely anonymous and no school or teacher was identified in the report and analysis of this research.

School superintendents from districts in this sample were contacted soliciting permission for schools in their district to participate in this study. Then the researcher contacted the principal of each school either by phone or in person to request teacher participation in the data collection. Once granted informed consent, teachers were asked to voluntarily participate in the study. Data were collected during regularly scheduled faculty meetings. Teachers were ensured of the anonymity of their responses and encouraged to simply give their candid views on the questions asked. There were no identifiers linked to the subjects so that any disclosure of the participant responses could not reasonably place them at risk, liability or damage to their financial standing, employability or reputation. The researcher briefly described the purpose of the study, guaranteed the anonymity of their responses and gave directions for completing the measures of the research. Finally, the researcher collected the research measurement instrument. Virtually all (but three) teachers completed usable questionnaires. A few teachers were absent, but no attempt was made to request their participation. 260 responses were received for a return rate of 98.8%. 

- 105 –
**Measures**

The major variables of this study included the following: flow (challenge-skill balance, goal clarity, feedback clarity, merging of awareness and application, concentration, sense of control, autotelic experience, loss of self-consciousness and the transformation of time), academic optimism (teacher efficacy, academic emphasis, and teacher trust), dispositional optimism, and perceptions of enabling school structure. Each of these variables and their elements are described below in terms of their measurement, validity, and reliability.

**Dispositional optimism**

Dispositional optimism is a general disposition of individuals as it relates to expectation, perception, thoughts and feelings that individuals have in response to life events. Much of the research on dispositional optimism has used the Life Orientation Scale (LOT; Scheier & Carver, 1985; Terrill, et al., 2002), which has established reliability and validity. The latest version of the LOT scale is the short form with 6 items (Scheier, Carver & Bridges, 1994). This short version correlates in the .90’s with a longer version (Sheier et al., 1994).

The short form was used in this research. Each of the items was measured along a 5-point Likert-type scale from 1 (“strongly disagree”) to 5 (“strongly agree”). The items include: “In uncertain times, I usually expect the best,” “If something can go wrong for me, it will,” “I’m always optimistic about my future,” “I hardly ever expect things to go my way,” “I rarely count on good things happening to me,” “Overall, I expect more good things to happen to me than bad.”
Reliability for the LOT scale has been consistently in the $\alpha = .72 - .83$ range (Scheier & Carver, 1985; Carver & Gaines, 1987; Woolfolk Hoy, Hoy & Kurz, 2008). In the current study the alpha coefficient was .79. Validity of the LOT scale has been supported in a number of studies. The convergent and discriminant validity of the LOT scale has been demonstrated in a multi-trait, multi-method study by Terrill and her colleagues (Terrill, et al., 2002). Andersson’s meta-analytic review of 56 studies using LOT found that optimism is highly related to measures of coping and stress, reports of psychological symptoms such as depression, and self-reports of negative affect.

**Enabling School Structure**

Enabling structure was measured using the Enabling School Structure Scale (ESS) developed by Hoy and Sweetland (2001). The measure indicates the extent to which school structure is perceived as enabling rather than hindering the teaching and learning in the school. A short form of the scale was used in the current study and consists of 12 5-point Likert items. The responses ranged from 1 (“strongly disagree”) to 5 (“strongly agree”) and include such items as “The administrative hierarchy obstructs student achievement” (score reversed), “In this school red tape is a problem” (score reversed), “Administrative rules help rather than hinder” and “The administrators in this school use their authority to enable teachers to do their job.” A complete list of the items are set forth in appendix 1, Table 3.4.

The reliability of the ESS has been found to be consistently high with alpha coefficients above .9. (Hoy & Sweetland, 2001; Sweetland & Hoy, 2000). In the current
study the alpha coefficient was .92. Validity of the measure has been supported in several factor analytic studies (Hoy & Sweetland, 2001; Sweetland & Hoy, 2000).

**Flow**

Flow was measured in this study by the 40 items developed by Jackson and Marsh (1996) and Quinn (2005). The items describe thoughts and feelings individuals have experienced during a flow event. All of the flow items were assessed along a 7-point Likert-type scale. The responses ranged from 1 (“strongly disagree”) to 7 (“strongly agree”). Examples of the items included the following: “I was challenged, but I believed my skills would allow me to meet the challenge”; “I could sense why the decisions I made were correct”; and “My attention was focused entirely on what I was doing.” A complete list of the flow items are set forth in appendix 2, Table 3.5.

These 40 items measured nine elements of the flow experience: challenge-skill balance ($\alpha = .80$), goal clarity ($\alpha = .84$), unambiguous feedback ($\alpha = .85$), merging of awareness and application ($\alpha = .84$), concentration ($\alpha = .82$), sense of control ($\alpha = .86$), autotelic experience ($\alpha = .81$), loss of self-consciousness ($\alpha = .81$), and transformation of time ($\alpha = .82$). These alpha coefficients reported by Jackson and Marsh (1996) in a confirmatory analysis of the measure. Reliability support was also provided by Quinn (2005); all of the coefficients of reliability for the Quinn study were above .7 as they also were in the current study: challenge-skill balance ($\alpha = .74$), goal clarity ($\alpha = .81$), unambiguous feedback ($\alpha = .76$), merging of awareness and application ($\alpha = .86$), concentration ($\alpha = .73$), sense of control ($\alpha = .79$), autotelic experience ($\alpha = .85$), loss of self-consciousness ($\alpha = .83$), and transformation of time ($\alpha = .75$).
Validity of the measure was also supported in a series of factor analytic studies (Jackson & Marsh, 1996; Marsh & Jackson, 1999; Quinn, 2005). The confirmatory factor analysis approach was the chief method used to examine the validity of the constructs; all of the studies consistently supported the construct validity of the flow measure.

Academic Optimism

Academic optimism of teachers was measured using three sub-tests, teacher self-efficacy, teacher’s trust in parents and students, and the academic emphasis of teachers. Most of the work on academic optimism has been done at the school level; that is, the construct is defined as a collective variable. In the current study, however, academic optimism is conceived as an individual characteristic of the teacher.

Teacher’s sense of efficacy. Teacher’s self-efficacy beliefs were measured using a short form of the Teacher Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001). The total measure consists of 12 items, with each measured along a nine point continuum with anchors at 1 –“nothing,” 3 –“very little,” 5 –“some influence,” 7 –“quite a bit,” 9 –“a great deal”; the higher the score, the greater the teacher’s sense of self-efficacy. These 12 items form three sub-scales for teacher sense of efficacy: one for instructional strategy, one for classroom management, and finally one for student engagement. For efficacy for instructional strategy an example item was “How well can you implement alternative teaching strategies in your classroom?” An efficacy for classroom management sample item was, “How much can you do to get students to follow classroom rules?” Finally, an example for efficacy for student engagement, was
“How much can you do to help your students value school work?” All teacher efficacy items are delineated in appendix 3, Table 3.6.

In previous research, reliabilities for the full scale ranged from .92 to .95 and for the sub-scales from .86 to .90 (Tschannen-Moran & Woolfolk Hoy, 2001; Woolfolk Hoy, Hoy & Kurz, in press). The construct validity of the TSES was supported by Tschannen-Moran and Woolfolk Hoy (2001).

**Individual academic optimism and teacher trust.** Only one study to date (Woolfolk Hoy, Hoy & Kurz, 2008) used academic optimism at the individual teacher level. The results of that study were encouraging; however, two of the component measures, academic emphasis and trust were in need of refinement. Hence, I conducted a pilot study to improve the measurement properties of both teacher academic emphasis and teacher trust in parents and students. The final items for academic optimism and teacher trust in parents and students are also found in appendix 3, table 3.5. With respect to those measures that loaded highest on an exploratory factor analysis relative to this study there were three items (see Appendix 4, Table 3.7) used to measure teacher efficacy yielding an alpha coefficient of .73, four items used to measure academic emphasis with an alpha coefficient of .71 (see Appendix 4, Table 3.7), and four items used to measure trust in students and parents (alpha = .79) (Appendix 4, Table 3.7)
In previous research on individual academic optimism (Kurz 2006; Woolfolk Hoy, Hoy & Kurz 2008), the concept was defined as a second order construct composed of academic emphasis, teacher sense of efficacy, and teacher trust in parents and students. One weakness of the earlier research was the low reliability of the measure of academic emphasis (alpha = .60). The measure of teacher trust in parents and students had a reliability of .83. It was decided to conduct a pilot study to see if we could improve the measures of academic emphasis and trust in parents and students.

Item Generation

A panel of three individuals, two professors and a PhD student, generated additional items for the two measures. After reviewing the conceptual underpinnings for the two concepts, the researchers independently generated Likert-type items to measure each concept. Then the panel met and discussed each item and agreed to include only items in which there was unanimity that the item was a valid indicator of the concept.

Initially 30 items were identified to measure academic emphasis, and teacher trust in parents and students. Of the total 30 items, 18 were new items added to 12 that were items previously used by Kurz. All panel members agreed that the 12 new items represented the two concepts to be measured. There were then, 19 items used to measure academic emphasis and 11 items measured trust in parents and students.
Sample

In order to test the factor structure and reliability of the new measures, a sample of 72 elementary teachers who were taking educational classes at the University of Texas in San Antonio, University of Alabama, and Ohio State University were asked to respond to the 30 items. All responses were anonymous and voluntary. The sample was primarily an opportunity sample that we used to examine the factor structure of the concepts and to refine the reliability of the measures.

Factor Analysis of the Academic Emphasis Items

The items were grouped into two sets: one to measure academic emphasis and the second set to measure trust in parents and students. Then a principal axis factor analysis was run on the academic emphasis set of items. The purpose of the analysis was to improve the reliability of the measure and to eliminate those items that were not strong indicators of the concept. We assumed one strong dimension would emerge with high factor loadings. In order to make for a parsimonious solution, we established the following criteria:

1. A minimum loading of .50 was required unless there was a strong conceptual reason to include the item.
2. Simple structure was the goal; all items had to have high loadings on one and only one factor.

We first analyzed all the items related to academic emphasis and were surprised to learn that seven failed to meet the criteria, including three items that loaded more highly on other factors. A further examination of the items suggested that those that
measured behavior were different than those that measured expectations. Because the concept of academic emphasis refers to a behavioral enactment of academic optimism, all of the expectation items were eliminated. This left us with eight indicators of academic emphasis, which were factor analyzed again.

This next iteration of the factor analysis of academic emphasis items yielded a single factor with an eigenvalue greater than one. As anticipated all eight items loaded strongly on one and only one factor; this factor explained 54 percent of the variance. Six of the eight loadings were greater than .7. The other two items with loadings of .42 and .39 were included in the scale because they were original items identified by Kurtz (2006). In addition, we tested the reliability of this scale and found that it had an alpha coefficient of .87. We summarize the results of the factor analysis and reliability test in Table 3.2. Thus, the measure of academic emphasis to be used in this study is comprised of the eight items identified in our final factor analysis. The eight items that form a reliable measure include:

1. (10) I press my student to achieve academically
2. (24) I press my students to do thoughtful work
3. (20) I encourage my students to really think through their answers
4. (15) I give my students challenging work
5. (26) I ask students to explain how they get their answers
6. (11) I don’t accept shoddy work from my students
7. (22) My classroom is orderly and serious
8. (27) My students do not neglect their homework.
The second set of items was used to measure trust in parents and students. A principal axis factor analysis was run on the trust items. The purpose of the analysis was to again improve the reliability of the measure and to eliminate those items that were not strong indicators of the concept. We assumed one strong dimension would emerge with high factor loadings. We used the same criteria for this analysis as we did for academic emphasis—simple structure and a .5 minimum loading unless there was a compelling conceptual reason to retain a given item.

We first analyzed all the items related to teacher trust of parents and students (11 items) and surprisingly learned that two factors emerged, not one. Trust in parents and trust in students usually load on the same factor (Kurz, 2006). This was not the case for

Table 3.2 – Academic Emphasis

Factor Matrix: Alpha Reliability Statistic = .87

**Factor Analysis of the Trust Items**

The second set of items was used to measure trust in parents and students. A principal axis factor analysis was run on the trust items. The purpose of the analysis was to again improve the reliability of the measure and to eliminate those items that were not strong indicators of the concept. We assumed one strong dimension would emerge with high factor loadings. We used the same criteria for this analysis as we did for academic emphasis—simple structure and a .5 minimum loading unless there was a compelling conceptual reason to retain a given item.

We first analyzed all the items related to teacher trust of parents and students (11 items) and surprisingly learned that two factors emerged, not one. Trust in parents and trust in students usually load on the same factor (Kurz, 2006). This was not the case for
this data set. Data were re-analyzed using principal axis factoring with a two-factor varimax rotation. Two strong factors emerged that accounted for 63.64 percent of the variance. The first factor describes teacher trust in parents and the second teacher trust in students. The results of the factor analysis and reliability tests are in Table 3.3.

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</table>

| Eigenvalue | 5.481 | 2.245 |
| Cum. Variance | 42.219 | 63.64 |

Table 3.3: Trust (Rotated) Factor Matrix

Alpha Reliability Statistic for factor 1 = .87

Alpha Reliability Statistic for factor 2 = .86

Thus, two measures of teacher trust were identified: teacher trust in parents (factor 1), which is comprised of the seven items, and teacher trust in students (factor 2), which is comprised of four items. The seven items that form a reliable measure ($\alpha = .87$) for teacher trust in parents are as follows:
1. (18) I can count on parents for help.
2. (13) I can count on parent support.
3. (14) I believe what parents tell me.
4. (06) My parents can be trusted to make fair decisions.
5. (19) My students’ parents are reliable in their commitment.
6. (28) I think most of my students’ parents do a good job raising their children.
7. (04) I trust the parents of my students.

The four items that form a reliable measure (α = .86) for teacher trust in students are as follows:

1. (08) I trust my students.
2. (09) I believe my students are competent learners.
3. (17) I have confidence in my students.
4. (12) I believe what students tell me.

Academic optimism was measured as a second order factor consisting of the highest component loadings for academic emphasis, trust of students and parents and teacher efficacy. Another factor analysis using the study sample data provided three of the highest loading measurement items for teacher efficacy (see appendix 4, Table 3.6). The three items used to measure individual teacher sense of efficacy yielding an alpha level of .73 included: “How much can you do to get students to believe they can do well in schoolwork? ”; “To what extent can you craft good questions for your students? ”; and “How much can you do to get children to follow classroom rules?” Academic emphasis
was measured using the study sample data and produced four items. The items that loaded the highest on an exploratory factor analysis yielded an alpha of .71. The four items included: “I ask students to explain how they get their answers”; “I press my students to achieve academically”; “I give my students challenging work”; and “I don’t accept shoddy work from my students.” The four items used to measure trust in students and parents yielding an alpha of .79 were: “I trust the parents of my students”; “I trust my students”; “I have confidence in my students”; and “I can count on parent support.”

Analysis

The unit of analysis for this investigation was at the individual level. Teacher survey questionnaires containing items to assess flow, academic optimism, general life optimism and enabling bureaucracy were scored to produce individual measures of each of these variables. Data analysis included several phases. First, structural equation modeling was used to confirm the nature and meaning of teacher flow. Then the two competing theoretical models were tested – Quinn’s multiple dimension model (2005) and Jackson and Marsh’s uni-dimensional model (1996). I followed with a confirmatory factor analysis to test the nature of teacher’s individual academic optimism. Finally, the relationships between teacher flow and academic optimism; general life optimism and academic optimism; enabling structures and flow; and enabling structures and academic optimism were explored as well as the correlates for each construct.

**Hypothesis 1**: Flow is a second-order factor consisting of nine first-order factors:

1) challenges and skill that are high and in balance, 2) clear goals, 3) clear feedback, 4) concentration, 5) the merging of action and
awareness, 6) a sense of control, 7) an autotelic experience, 8) the loss of self-consciousness, and 9) the transformation of time.

**Hypothesis 2**: Flow is a first-order factor-the experience of merging one’s situation awareness with the automatic application of activity-relevant knowledge and skills – with antecedents that include 1) challenges and skills that are high and in balance, 2) clear goals, 3) concentration, and 4) clear feedback, and with consequences that include a sense of control and an autotelic experience. Figure 2.2 depicts Quinn’s model of flow. In this model Quinn identifies the interrelatedness of the Csikszentmihalyi’s factors of flow into antecedents (goal clarity, challenge skill balance, concentration, feedback) of flow, the defining measures of flow (the merging of awareness and application) and the consequences of flow (sense of control and autotelic experience).

**Hypothesis 3**: Academic optimism of individual teachers is a second order factor consisting of three first order factors: trust, efficacy and academic emphasis.

**Hypothesis 4**: There is a positive relationship between a teacher’s general optimism and academic optimism.

**Hypothesis 5**: Flow and academic optimism of individual teachers are positively related.
**Hypothesis 6:** Teacher’s individual perception of enabling school structures and teacher flow are positively related.

**Hypothesis 7:** Individual perception of enabling school structures and academic optimism of teachers are positively related to each other.
CHAPTER 4

RESULTS AND PRESENTATION OF DATA

This chapter sets forth the results of the data analysis for 260 elementary teachers, who were typical of elementary teachers in Ohio. The chapter begins with a summary of the descriptive statistics for each of the major variables in the study including the minimum, maximum, mean and standard deviation statistic for each. The results of exploratory factor analysis, structural equation modeling, zero-order correlations are also described in this chapter.

Description and Correlations of the Variables

Enabling structures, academic emphasis, trust of students and parents, teacher efficacy, general life optimism, and all of the individual components of flow, including challenge skill balance, goal clarity, feedback clarity, concentration, control, loss of self-consciousness, time transformation, and autotelic experience were each measured by questionnaire using Likert-type items. Mean scores for each item were calculated, and reverse scoring was used when applicable. In each case, the higher the score, the higher the level of the construct of study (see Table 4.1). All of the variables had reasonable ranges and standard deviations. Table 4.2 provides a correlation matrix of the major variables of the study.
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Table 4.1: Descriptive Statistics of the Major Variables
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Table 4.2: Correlations among the Major Variables

**Correlation Significant at p < .01 (2 tailed).**

*Correlation Significant at p < .05 (2 tailed).
Testing the Hypotheses

This section describes the statistical procedures and results for the testing of each of the seven hypotheses.

Hypothesis 1: Jackson’s Model of Flow

The first hypothesis is as follows: Flow is a second-order factor consisting of nine first-order factors: 1) challenges and skill that are high and in balance, 2) clear goals, 3) clear feedback, 4) concentration, 5) the merging of action and awareness, 6) a sense of control, 7) an autotelic experience, 8) the loss of self-consciousness, and 9) the transformation of time. In order to test the Jackson hypothesis, a confirmatory factor analysis, using LISREL (a quantitative test of theoretical models) was performed using the 260 elementary teacher responses. The first test yielded only marginal support; however, after some modifications, a second test yielded a good fit. The indicators for each variable and their means and standard deviations as well as the reliabilities for the variables are summarized in Table 4.3.
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<th>Variable</th>
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</tr>
<tr>
<td>&quot;The challenge and my skills were at an equally high level.&quot;</td>
<td>260</td>
<td>5.88</td>
<td>.823</td>
<td>.738</td>
</tr>
<tr>
<td>&quot;I felt I was competent enough to meet the high demands of the situation.&quot;</td>
<td>260</td>
<td>6.32</td>
<td>.640</td>
<td></td>
</tr>
<tr>
<td>&quot;My abilities matched the high challenge of the situation.&quot;</td>
<td>257</td>
<td>6.14</td>
<td>.662</td>
<td></td>
</tr>
<tr>
<td>2. Goal Clarity:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;My goals were clearly defined.&quot;</td>
<td>260</td>
<td>6.23</td>
<td>.714</td>
<td>.807</td>
</tr>
<tr>
<td>&quot;I knew what I wanted to achieve.&quot;</td>
<td>260</td>
<td>6.42</td>
<td>.593</td>
<td></td>
</tr>
<tr>
<td>&quot;I knew clearly what I wanted to do.&quot;</td>
<td>260</td>
<td>6.35</td>
<td>.618</td>
<td></td>
</tr>
<tr>
<td>3. Feedback Clarity:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;It was really clear to me that I was doing well.&quot;</td>
<td>257</td>
<td>6.04</td>
<td>.807</td>
<td>.758</td>
</tr>
<tr>
<td>&quot;I could tell by the way I was performing how well I was doing.&quot;</td>
<td>260</td>
<td>5.95</td>
<td>.846</td>
<td></td>
</tr>
<tr>
<td>&quot;My abilities matched the high challenge of the situation.&quot;</td>
<td>260</td>
<td>6.03</td>
<td>.711</td>
<td></td>
</tr>
<tr>
<td>4. Concentration:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;I was completely focused on the task at hand.&quot;</td>
<td>260</td>
<td>6.23</td>
<td>.807</td>
<td>.792</td>
</tr>
<tr>
<td>&quot;My attention was focused entirely on what I was doing.&quot;</td>
<td>260</td>
<td>6.03</td>
<td>.844</td>
<td></td>
</tr>
<tr>
<td>&quot;I had total concentration.&quot;</td>
<td>260</td>
<td>5.94</td>
<td>.810</td>
<td></td>
</tr>
<tr>
<td>5. Sense of Control:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;I felt in total control of my body.&quot;</td>
<td>259</td>
<td>6.03</td>
<td>.855</td>
<td>.787</td>
</tr>
<tr>
<td>&quot;I felt like I could control what I was doing.&quot;</td>
<td>260</td>
<td>6.14</td>
<td>.727</td>
<td></td>
</tr>
<tr>
<td>&quot;I felt in total control of what I was doing.&quot;</td>
<td>258</td>
<td>6.06</td>
<td>.764</td>
<td></td>
</tr>
<tr>
<td>6. Loss of Self Consciousness:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;I was not concerned with what others may have been thinking of me.&quot;</td>
<td>259</td>
<td>5.63</td>
<td>1.138</td>
<td>.827</td>
</tr>
<tr>
<td>&quot;I was not worried about my performance during the event.&quot;</td>
<td>260</td>
<td>5.60</td>
<td>1.370</td>
<td></td>
</tr>
<tr>
<td>&quot;I was not worried about what others may have been thinking of me.&quot;</td>
<td>260</td>
<td>5.62</td>
<td>1.299</td>
<td></td>
</tr>
<tr>
<td>7. Transformation of Time:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Time seemed to alter (either slowed down or speeded up).&quot;</td>
<td>256</td>
<td>5.46</td>
<td>1.334</td>
<td>.746</td>
</tr>
<tr>
<td>&quot;It felt like time stopped while I was performing.&quot;</td>
<td>258</td>
<td>4.65</td>
<td>1.596</td>
<td></td>
</tr>
<tr>
<td>&quot;The way time passed seemed to be different from normal.&quot;</td>
<td>257</td>
<td>5.14</td>
<td>1.390</td>
<td></td>
</tr>
<tr>
<td>8. Autotelic Experience:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;I found the experience extremely rewarding.&quot;</td>
<td>260</td>
<td>6.46</td>
<td>.665</td>
<td>.853</td>
</tr>
<tr>
<td>&quot;The experience left me feeling great.&quot;</td>
<td>260</td>
<td>6.37</td>
<td>.715</td>
<td></td>
</tr>
<tr>
<td>&quot;I really enjoyed the experience.&quot;</td>
<td>260</td>
<td>6.53</td>
<td>.592</td>
<td></td>
</tr>
<tr>
<td>9. Merging of awareness and application (J):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;I did things spontaneously and automatically without having to think&quot;</td>
<td>259</td>
<td>5.99</td>
<td>.982</td>
<td>.857</td>
</tr>
<tr>
<td>&quot;Things just seemed to be happening automatically.&quot;</td>
<td>259</td>
<td>5.96</td>
<td>.916</td>
<td></td>
</tr>
<tr>
<td>&quot;I performed automatically.&quot;</td>
<td>259</td>
<td>5.83</td>
<td>.952</td>
<td></td>
</tr>
<tr>
<td>&quot;I made the correct movements without thinking about trying to do so.&quot;</td>
<td>260</td>
<td>5.78</td>
<td>1.049</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3: Means, Standard Deviations, and Reliabilities of Survey Items for Flow
**Jackson Model, Test I.** In the first model, the degree to which the sample data fit the model was marginal. The goodness of fit indices reported for this analysis (Model I) include a $\chi^2$ (Chi-Square) test of statistical significance, with a $\chi^2$ value of 587.292 ($p=0.00$) with $df = 341$. Chi-Square in and of itself is not a good indicator of good model fit because it is so sensitive to sample size, usually significant with large $n$ and usually not significant (NS) with small $n$ and it is also sensitive to non-normality. The second goodness of fit statistic to consider was the Root Mean Square Error of Approximation (RMSEA) or standardized measure of $\chi^2$, which is relatively insensitive to $n$. Ideally, a good fit is indicated by a value less than .05 or at least less than .08. The value of the RMSEA for Model I was 0.0531, only slightly higher than a .05 and therefore, a reasonable fit. The non-normed fit index (NNFI), also called the Tucker Lewis Index (TLI), was the third goodness of fit statistic. A .95 or higher indicates a good model fit. The Model I NNFI score was a 0.972, which is excellent. The forth indicator was the Root Mean Square Residual (RMR) preferably falling below .05. In Model I, the RMR score was 0.0691 indicating only a marginally acceptable fit. The fifth index was the Standardized RMR or the SRMR, which is scaled from 0 to large positive values; a good fit is less than .05 and a reasonable fit less than .08. The SRMR was 0.0651, which is slightly above .05 but below .08; thus, the fit was only marginally acceptable. The sixth and seventh indices were the Goodness of Fit Index (GFI) and the Adjusted Goodness of Fit Index (AGFI) respectively. Both measures are scaled from 0 to 1 with an ideal value parameter above .95 or at least greater than .90. The GFI value was 0.859 and the AGFI for this model was 0.832; neither met the .90 threshold of reasonable fit.
Computation of these seven goodness of fit report indices for Model I produced only one measure indicating that the Model was a good fit for the data. Three of the seven criteria for Model I suggested a marginal fit for the data and three measures indicated that Model I was a poor fit. Because the first test of the hypothesis provided only a marginal fit at best, the modification indices that could theoretically be supported were used to improve model fit.

Jackson Model, Test II. The first model was modified in an attempt to improve fit. The modification indices suggested adding an error covariance for two action awareness items, two feedback clarity items, and two items measuring loss of self-consciousness. Since the pairs of items for these three factors are measurements of the same factors, their errors were set to correlate. Specifically, the error terms were set to correlate for Q23 and 24 ("I had total concentration." And "I felt in total control of my body.") as well as for Q20 and 28 ("My attention was focused entirely on what I was doing." And "I felt like I could control what I was doing"). Both pairs of questions measure concentration and control. The wording for these questions is similar in nature and in three instances actually use the word total or entirely. It is logical that the same respondent understood the words total or entirely to suggest a level of control. So the error terms were set to correlate based on similar wording. Also, concentration and control, feedback clarity and concentration items (Q4 and 5, and Q16 and 23) share similar terminology in the measurement question. Specifically Q4 and 16 ("It was really clear to me that I was doing well." And "I could tell by the way I was performing how well I was doing.") use the terms “doing well”, one with Q5 (“I was completely focused on the task at hand.”) and
the other with Q23 (“I had total concentration”). The words “completely focused” and “total concentration” again suggests similarity in the understanding of the measurement. It is reasonable that the wording once again is so similar that setting the error terms to correlate is justified.

Likewise, the factors goal clarity and autotelic experience shared similar wording, specifically in Q39 and 40 and again in Q38 and 40. Q38 and 39 ask the same question – “I knew clearly what I wanted to do,” and “I knew what I wanted to achieve.” Because they were both paired with Q40 in the modification index “I really enjoyed the experience” again suggested that the understanding of the same question is being responded to. For these theoretical reasons, the error terms for all of these questions were also set to correlate. Based on the fact that the individual measurement questions were set to correlate, there were four factor terms that were also set to correlate. Action-Awareness merging, loss of self consciousness, goal clarity and time transformation all were set to correlate for the reason of similarity of wording, suggesting they measure the same understanding.

Based on the modification indices and the theoretical reasons set forth, the Jackson’s flow model was retested with the suggested errors correlated (Model II). Using the same sample data, Model II yielded a much better result. All of the factor loadings were significant.

The goodness of fit indices reported for Model II included a $\chi^2$ (Chi-Square) test score of 410.169 (p=0.00) with $df = 322$. Although still significant, Chi square was smaller than it was for Model I. The Root Mean Square Error of Approximation for this
model (RMSEA) was 0.0327, which is within the parameters set forth for an excellent fit. The non-normed fit index (NNFI) or Tucker Lewis Index (TLI), was a 0.988, also suggesting good model fit. However, the Root Mean Square Residual (RMR) was 0.0521, only slightly higher than the < .05 parameter for a good fit. The Standardized RMR or the SRMR was 0.0494 and thus indicative of an excellent model fit. Finally, the Goodness of Fit Index (GFI) was 0.897, which is marginally acceptable, and the adjusted goodness of Fit Index (AGFI) was 0.871 again falling slightly below a .90.

In sum, the fit report indices for Model II produced three measures indicating a good fit for the data. Two other of the seven criteria yielded reasonable fit for the data, and two measures just missed acceptable levels. No other modifications improved the fit for Jacksons’ Flow Model. Thus there is good evidence that flow of individual teachers is a second-order factor consisting of nine first-order factors: 1) challenges and skill that are high and in balance, 2) clear goals, 3) clear feedback, 4) concentration, 5) the merging of action and awareness, 6) a sense of control, 7) an autotelic experience, 8) the loss of self-consciousness, and 9) the transformation of time. Figure 4.1 pictorially summarizes a confirmatory factor analysis of the model with factor loadings and Table 4.4 compares the goodness of fit statistics for the two models.
Figure 4.1: Jackson Flow Model. Significant at p < .01.
<table>
<thead>
<tr>
<th>Model fit statistic</th>
<th>Criteria</th>
<th>Model I</th>
<th>Model II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square ($\chi^2$) test</td>
<td>Non significance</td>
<td>587.292 (p = 0.00)</td>
<td>410.169 (p = 0.00)</td>
</tr>
<tr>
<td>Root Mean Square Error of Approximation (RMSEA)</td>
<td>&lt;.05</td>
<td>0.0531*</td>
<td>0.0327 **</td>
</tr>
<tr>
<td>Non-Normed Fit Index (NNFI) or Tucker Lewis Index (TLI)</td>
<td>&gt;.95</td>
<td>0.972 **</td>
<td>0.988 **</td>
</tr>
<tr>
<td>Root Mean Square Residual (RMR)</td>
<td>&lt;.05</td>
<td>0.0691 *</td>
<td>0.0521 *</td>
</tr>
<tr>
<td>Standardized RMR (SRMR)</td>
<td>&lt;.05</td>
<td>0.0651 *</td>
<td>0.0494 **</td>
</tr>
<tr>
<td>Goodness of Fit Index (GFI)</td>
<td>&gt;.95</td>
<td>0.859</td>
<td>0.897 *</td>
</tr>
<tr>
<td>Adjusted Goodness of Fit Index (AGFI)</td>
<td>&gt;.95</td>
<td>0.832</td>
<td>0.871</td>
</tr>
</tbody>
</table>

Table 4.4: Comparison of the Fit Statistics for the Two Tests of the Jackson Model

** Excellent fit

* Marginal fit
Hypothesis 2: Quinn’s Model of Flow—A Rival Hypothesis

The second hypothesis is as follows: *Flow is a first-order factor-the experience of merging one’s situation awareness with the automatic application of activity-relevant knowledge and skills – with antecedents that include 1) challenges and skills that are high and in balance, 2) clear goals, 3) concentration, and 4) clear feedback, and with consequences that include a sense of control and an autotelic experience.* Figure 4.2 depicts Quinn’s model of flow. In this model Quinn identifies the interrelatedness of the Csikszentmihalyi factors of flow into antecedents (goal clarity, challenge skill balance, concentration, feedback) of flow, the defining measures of flow (the merging of awareness and application) and the consequences of flow (sense of control and autotelic experience). A structural equation modeling analysis was performed to test whether or not Quinn’s competing model of flow was a better fit for individual teachers than the Jackson Model. In Quinn’s theoretical model, flow is defined as a first-order factor, which merges one’s situation awareness with the automatic application of activity relevant knowledge and skill.

*Quinn Model, Test I.* The degree to which the sample data fit the first model was not very good. The goodness of fit indices reported for this analysis (Model I) included a $\chi^2$ (Chi-Square) of 747.26 ($p=0.00$) with $df = 338$. The high, significant chi-square value was not indicative of a good fit. The Root Mean Square Error of Approximation (RMSEA) or standardized measure of $\gamma^2$ was 0.0688, a value that is higher than .05 but lower than .08 therefore, a marginally good fit. The non-normed fit index (NNFI) or Tucker Lewis Index (TLI) was a 0.96, which does signify good fit. The Root Mean
Square Residual (RMR) was 0.074 indicating an unacceptable fit. The Standardized RMR or the SRMR was 0.097, an unacceptable fit. The Goodness of Fit Index (GFI) and the Adjusted Goodness of Fit Index (AGFI) were 0.827 and 0.793, neither of which indicates good fit. In sum, only one of the seven goodness indices for Model I suggested a good fit, and one was a marginal fit; consequently, an attempt was made to modify the model to improve the fit.

Quinn Model, Test II. The modification indices suggested adding an error covariance for two sets of action awareness items and two concentration items. Based on the fact that the pairs of items for both of these factors are measurements of the same factor, their errors were set to correlate. The modification indices suggested several pairs of measurement items that were the same as those found in hypothesis 1. For the same theoretical reasons stated in Hypothesis 1, Model II, the error terms were set to correlate for Q21 and 10, Q15 and 4, Q24 and 23, Q5 and 4, Q 23 and 16, Q40 and 39, Q10 and 21 and Q38 and 39.

In addition to the individual questions set to correlate, there were errors in collectives (factors) that were set to correlate. Specifically, in three instances flow was suggested to be allowed to correlate with control, autotelic experience and loss of self control respectively. When an individual is in flow there is a strong sense of control and enjoyment that allows for the loss of self-consciousness. To be more specific, the lack of control and the increase of self-consciousness induce anxiety, which diminishes the enjoyment of an experience. These variables are psychologically, closely related enough to justify letting their errors correlate. Likewise, there were three instances when
concentration was paired with control, loss of self-consciousness and feedback clarity in the suggested modification indices. When an individual does not feel in control of their situation, or the experience increases self-consciousness they are unable to concentration. Without clarity of feedback one is unable to discern whether or not they are making correct choices and decisions that move them toward the intended goal. The task becomes uninteresting and concentration wanes. Although there were several more modifications suggested, only those modifications that could be theoretically justified were used in subsequent analyses.

Based on the modification indices and the theoretical reasons set forth, Quinn’s flow model was retested (Model II). Using the same sample data, Model II yielded a better result. The standardized weights for the paths from goal clarity to feedback clarity, from goal clarity to concentration, from concentration to flow were not significant, but all of the other standardized weights for the remaining paths were found to be significant. The goodness of fit indices reported for Model II included a \( \chi^2 \) (Chi-Square) test score of 485.46 (p=0.00) with \( df = 321 \). Although still significant, it is lower than the reported \( \chi^2 \) from model 1, with the value of \( \chi^2 \) approaching the number of degrees of freedom. The Root Mean Square Error of Approximation for this model (RMSEA) was 0.045, which is within the parameters set forth for an excellent fit. The Tucker Lewis Index (TLI) was a 0.98, which is high and indicates good fit. The Root Mean Square Residual (RMR), however, was 0.058, a marginal fit. Similarly, the Standardized RMR or the SRMR was 0.063, a marginal fit as best. Finally, the Goodness of Fit Index (GFI) and the Adjusted
Goodness of Fit Index (AGFI) were 0.88 and 0.85 respectively, below the standards accepted for good fit.

In sum, the seven goodness of fit indices for Model II produced only two measures indicating good fit for the data. Another two of the indices suggested Model II was a marginal fit for the data, but three indices suggested poor fit. Additional path modifications to improve could not be theoretically justified; hence, Hypothesis II received only limited support. The results for this hypothesis test are summarized in Figure 4.2 and Table 4.5.

Figure 4.2 Summary of the Test of Quinn’s Flow Model.

*Significant at p < .01.
<table>
<thead>
<tr>
<th>Model fit statistic</th>
<th>Criteria</th>
<th>Model I</th>
<th>Model II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square ($\chi^2$) test</td>
<td>Non significance</td>
<td>747.26 (p &lt; .0001)</td>
<td>485.46 (p &lt; .0001)</td>
</tr>
<tr>
<td>Root Mean Square Error of Approximation (RMSEA)</td>
<td>&lt;.05</td>
<td>.0688 *</td>
<td>.045 **</td>
</tr>
<tr>
<td>Non-Normed Fit Index (NNFI) or Tucker Lewis Index (TLI)</td>
<td>&gt;.95</td>
<td>.96 **</td>
<td>.98 **</td>
</tr>
<tr>
<td>Root Mean Square Residual (RMR)</td>
<td>&lt;.05</td>
<td>.074</td>
<td>.058 *</td>
</tr>
<tr>
<td>Standardized RMR (SRMR)</td>
<td>&lt;.05</td>
<td>.097</td>
<td>.063 *</td>
</tr>
<tr>
<td>Goodness of Fit Index (GFI)</td>
<td>&gt;.95</td>
<td>.827</td>
<td>.88</td>
</tr>
<tr>
<td>Adjusted Goodness of Fit Index (AGFI)</td>
<td>&gt;.95</td>
<td>.793</td>
<td>.85</td>
</tr>
</tbody>
</table>

Table 4.5: Comparison of the Fit Statistics for the two tests of the Quinn Model

** Excellent fit.
* Marginal fit

Hypothesis 3: Academic Optimism

The third hypothesis is as follows: Academic optimism of individual teachers is a latent second order construct composed of trust, efficacy and academic emphasis. A confirmatory factor analysis was performed to test whether academic optimism was in fact a second order factor composed of trust, efficacy and academic emphasis. The indicators and their means and standard deviations as well as the reliabilities for each variable are described in Table 4.6.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs.</th>
<th>Mean</th>
<th>S.D.</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Academic Emphasis:</td>
<td></td>
<td></td>
<td></td>
<td>.713</td>
</tr>
<tr>
<td>“I ask students to explain how they get their answers.”</td>
<td>260</td>
<td>4.49</td>
<td>.624</td>
<td></td>
</tr>
<tr>
<td>“I press my students to achieve academically.”</td>
<td>258</td>
<td>4.54</td>
<td>.599</td>
<td></td>
</tr>
<tr>
<td>“I give my students challenging work.”</td>
<td>258</td>
<td>4.40</td>
<td>.564</td>
<td></td>
</tr>
<tr>
<td>“I don’t accept shoddy work from my students.”</td>
<td>259</td>
<td>4.26</td>
<td>.763</td>
<td></td>
</tr>
<tr>
<td>2. Trust in Students and Parents:</td>
<td></td>
<td></td>
<td></td>
<td>.793</td>
</tr>
<tr>
<td>“I trust the parents of my students.”</td>
<td>260</td>
<td>3.54</td>
<td>.889</td>
<td></td>
</tr>
<tr>
<td>“I have confidence in my students.”</td>
<td>259</td>
<td>4.38</td>
<td>.690</td>
<td></td>
</tr>
<tr>
<td>“I can count on parent support.”</td>
<td>259</td>
<td>3.50</td>
<td>.954</td>
<td></td>
</tr>
<tr>
<td>“I trust my students.”</td>
<td>260</td>
<td>4.03</td>
<td>.700</td>
<td></td>
</tr>
<tr>
<td>3. Teacher Efficacy:</td>
<td></td>
<td></td>
<td></td>
<td>.730</td>
</tr>
<tr>
<td>“How much can you do to get students to believe they can do well in school work?”</td>
<td>259</td>
<td>7.59</td>
<td>1.125</td>
<td></td>
</tr>
<tr>
<td>“To what extent can you craft good questions for your students?”</td>
<td>257</td>
<td>7.61</td>
<td>1.074</td>
<td></td>
</tr>
<tr>
<td>“How much can you do to get children to follow classroom rules?”</td>
<td>256</td>
<td>7.86</td>
<td>.965</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.6: Means, Standard Deviations, and Reliabilities of Survey Items for Academic Optimism

Test I. The three first-order factors were used to define the second-order factor, individual academic optimism of teachers. The first test demonstrated that the model showed that data fit was marginal at best. The goodness of fit indices reported for this analysis (Model 1) include a $\chi^2$ (Chi-Square) test of statistical significance with a value of 126.489 (p=0.00) with df = 41. The second goodness of fit statistic, Root Mean Square Error of Approximation (RMSEA) or standardized measure of $\chi^2$, was 0.0917. The non-normed fit index (NNFI, or Tucker Lewis Index (TLI) as it is often called, was .914, which is only marginally acceptable. The Root Mean Square Residual (RMR) was 0.0371, suggesting acceptable fit. The Standardized RMR or the SRMR was 0.0583,
which is slightly above .05 criterion of good fit. The Goodness of Fit Index (GFI) was 0.916, which suggests reasonable fit, but the AGFI was only 0.865, which is below the acceptable standard of good fit.

In sum, three of the seven criteria indicated that Model I was a marginal fit for the data and three measures indicated that Model I was a poor fit for the data of this study. Because the first test provided only a marginal model fit at best, the modification indices were used to refine the model.

**Test II.** The modification indices suggested the addition of error covariances for four trust items, two academic emphasis items, and one efficacy item. In search of a better fit, the confirmatory factory analysis was run again letting errors of these items correlate with one another. Each of the items measuring trust was determined by the same respondent so it seemed logical that the errors in the measures would correlate. Likewise, error terms of two academic emphasis items were set to correlate for the same reason. Specifically, “I don’t accept shoddy work from my students” and “I press my students to achieve academically” theoretically measured teacher academic press and high expectation for student performance demonstration; their errors were set to correlate. Two other items, “I don’t accept shoddy work from my students” and “‘How much can you do to get children to follow classroom rules’” were set to correlate because they were measured by the same respondent and had similar wording. The items appear to be measuring the same high level of expectations, one directed at student work habits and the other, at student behavioral habits. The last two items for which the error terms were
correlated were “I trust my students” - a trust item and an academic emphasis item, “I give my students challenging work”.

The second test provided much better results. All of the factor loadings were significant and the goodness of fit indices were strong. In particular, the goodness of fit for the second test included a $\chi^2$ (Chi-Square) test score of 38.118 ($p=0.329$) with $df = 35$, clearly not significant and therefore indicative of a good model fit. The Root Mean Square Error of Approximation (RMSEA) was 0.0176, which is within the parameters set forth for a good fit. The non-normed fit index (NNFI) was a 0.996, which is high and indicative of good model fit. Likewise the Root Mean Square Residual (RMR) was 0.0219, again indicating a good fit. Similarly, the SRMR demonstrated good fit with a value of 0.0331. Finally, both the Goodness of Fit Index (GFI) and the Adjusted Goodness of Fit Index (AGFI) were 0.974 and 0.951 respectively, offering more evidence of a good fit for Model II. In summary, with modifications, the second confirmatory analysis yielded an excellent model fit for the data in this study. Hypothesis 3 was supported (see Figure 4.3 and Table 4.7). Academic optimism of individual teachers is a latent second order construct composed of trust efficacy and academic emphasis.
Figure 4.3: Confirmatory Factor Analysis For Academic Optimism

*Significant at p < .01 (2-tailed).
<table>
<thead>
<tr>
<th>Model fit statistic</th>
<th>Criteria</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square ($\chi^2$) test</td>
<td>Non significance</td>
<td>126.489 (p=0.00)</td>
<td>38.118 (p=0.329)**</td>
</tr>
<tr>
<td>Root Mean Square Error of Approximation (RMSEA)</td>
<td>&lt;.05</td>
<td>0.0917</td>
<td>0.0176 **</td>
</tr>
<tr>
<td>Non-Normed Fit Index (NNFI) or Tucker Lewis Index (TLI)</td>
<td>&gt;.95</td>
<td>0.914 *</td>
<td>0.996 **</td>
</tr>
<tr>
<td>Root Mean Square Residual (RMR)</td>
<td>&lt;.05</td>
<td>0.0371 **</td>
<td>0.0219 **</td>
</tr>
<tr>
<td>Standardized RMR (SRMR)</td>
<td>&lt;.05</td>
<td>0.0583 *</td>
<td>0.0331 **</td>
</tr>
<tr>
<td>Goodness of Fit Index (GFI)</td>
<td>&gt;.95</td>
<td>0.916 *</td>
<td>0.974 **</td>
</tr>
<tr>
<td>Adjusted Goodness of Fit Index (AGFI)</td>
<td>&gt;.95</td>
<td>0.865</td>
<td>0.951 **</td>
</tr>
</tbody>
</table>

Table 4.7: A Comparison of Fit Statistics for the Two Tests of the Academic Optimism

** Excellent fit
* Marginal fit

*Hypothesis 4: General Life Optimism and Academic Optimism*

There is a positive relationship between a teacher’s general optimism and academic optimism. To test this relationship, a simple correlation was computed and the results supported the hypothesis. It was found that the greater the teacher’s sense of optimism, the stronger the degree of academic optimism ($r = .501$, $p < .01$). When controlling for enabling structure and flow, the partial correlation between life optimism and academic optimism, as expected, was significant ($r_{1.23} = .372$, $p < .01$).
Hypothesis 5: Flow and Academic Optimism

Flow and academic optimism of individual teachers are positively related. To test this relationship, a simple correlation was computed and the results support the hypothesis; the greater a teacher’s sense of flow the greater the degree of academic optimism ($r = .428, p < .01$). Again, when controlling for enabling structure and life optimism, the partial correlation, as expected, was significant ($r_{1.23} = .324, p < .01$).

Hypothesis 6: Enabling School Structures and Flow

Teacher’s individual perception of enabling school structures and teacher flow are positively related. To test this relationship, a simple correlation was computed and the results support the hypothesis; the more enabling a school structure, the greater the degree of teacher flow ($r = .143, p < .05$). However, when controlling for academic optimism and general life optimism however, the partial correlation was not significant ($r_{1.23} = -.015, p > .05$).

Hypothesis 7: Enabling School Structures and Academic Optimism

Individual perception of enabling school structures and academic optimism of teachers are positively related to each other. To test this relationship, a simple correlation was computed and the results support this hypothesis; the more enabling a school structure is, the greater a teacher’s degree of academic optimism ($r = .298, p < .01$). When controlling for general life optimism and flow, the partial correlation, as
expected, was also significant ($r_{1.23} = .154, p < .013$). The correlations for these three hypotheses are summarized in Table 4.8.

<table>
<thead>
<tr>
<th></th>
<th>AO</th>
<th>ES</th>
<th>LOT</th>
<th>Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>AO</td>
<td>1.000</td>
<td>0.298***</td>
<td>0.501***</td>
<td>0.428***</td>
</tr>
<tr>
<td>ES</td>
<td>0.298***</td>
<td>1.000</td>
<td>0.339***</td>
<td>0.143*</td>
</tr>
<tr>
<td>LOT</td>
<td>0.501***</td>
<td>0.339***</td>
<td>1.000</td>
<td>0.323**</td>
</tr>
<tr>
<td>Flow</td>
<td>0.428***</td>
<td>0.143*</td>
<td>0.323**</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Table 4.8 Correlations of Academic Optimism (AO), Enabling Structure (ES), General Personal Optimism (LOT), and Flow

**Correlation is significant at p < .01 (2-tailed).

* Correlation is significant at p < .05 (2-tailed).

Exploration of Academic Optimism and Flow.

After the relationships between the predicted variables were examined, two further exploratory analyses were performed. Multiple regression analysis was used to explore the best predictors of first academic optimism and then flow. Table 4.9 displays the regression results for the OLS regression for academic optimism on general life optimism, flow, and enabling structures. Enabling structure, life optimism and flow all have a significant and positive effect on academic optimism. The single best predictor of academic optimism is general life optimism (beta = 0.361, p < .01), followed by flow...
(beta = 0.293, p < .01) and enabling school structure (beta = 0.134, p < .01). Each of the variables had a significant influence on academic optimism controlling for all of the other variables. Together 34% of the variance in academic optimism was explained. The results are summarized in Table 4.9.

<table>
<thead>
<tr>
<th>Beta</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>.361*</td>
</tr>
<tr>
<td>LOT</td>
<td>.293*</td>
</tr>
<tr>
<td>FLOW</td>
<td>.134*</td>
</tr>
<tr>
<td>ES</td>
<td>.338*</td>
</tr>
<tr>
<td>R²(adjusted)</td>
<td>.338*</td>
</tr>
<tr>
<td>S.E.E.</td>
<td>.23217</td>
</tr>
<tr>
<td>N</td>
<td>260</td>
</tr>
</tbody>
</table>

Table 4.9: Multiple Regression Results for Academic Optimism

*Significant at p < .05 (1-tailed).

Table 4.10 displays the regression results for the OLS regression for flow on academic optimism, general life optimism and enabling structure. Both academic optimism and life optimism have a significant and positive effect on flow, while enabling structure has non-significant effect on flow. The single best predictor of flow is academic optimism (beta = 0.358, p < .01) followed by general life optimism (beta = 0.149, p < .01). Both variables had a significant influence on flow controlling for all other variables. Enabling structure (beta = -0.014) was the only variable that did not have a significant influence on flow while controlling for the other two variables. This regression analysis explained 19% of the variance in flow.
Table 4.10: Multiple Regression Results for Flow

<table>
<thead>
<tr>
<th></th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td></td>
</tr>
<tr>
<td>AO</td>
<td>.358*</td>
</tr>
<tr>
<td>LOT</td>
<td>.149*</td>
</tr>
<tr>
<td>ES</td>
<td>-.014</td>
</tr>
<tr>
<td>R2(adjusted)</td>
<td>.190*</td>
</tr>
<tr>
<td>S.E.E.</td>
<td>.34459</td>
</tr>
<tr>
<td>N</td>
<td>260</td>
</tr>
</tbody>
</table>

*Significant at p < .05 (1-tailed).

Summary

The sample used in this study was delineated and the result from the seven tested hypotheses were detailed in this chapter. Each of the models tested received support. With seven out of the seven fit indices indicative of a strong fit, the academic optimism hypothesis model was the most strongly supported. The second most strongly supported model was the Jackson flow model which yielded five of the seven fit indices evidencing a very good fit, followed by the Quinn model with four of the seven fit indices indicating a good fit. The correlational hypotheses among the major variables of the study were also supported. Finally, exploratory multiple regression analysis indicated the major variables of the study were good predictors of both academic optimism and flow; about a third of the variance was explained for academic optimism and about a fifth of the variance was explained for flow by the predictor variables.
CHAPTER 5
DISCUSSION OF RESULTS

In this chapter the findings of the study are discussed. First, a brief overview of the major findings is presented. Next, the findings are discussed in terms of the current research and theory and tentative conclusions are drawn. Finally, an agenda for further research is proposed.

Major Findings

The major findings of the study are summarized as follows:

1. The Jackson Model (1998) was found to be a better explanation of flow of elementary teachers than the Quinn Model (2006). For elementary teachers, flow is best conceived as a second-order factor composed of nine first-order factors: 1) challenges and skill that are high and in balance, 2) clear goals, 3) clear feedback, 4) concentration, 5) the merging of action and awareness, 6) a sense of control, 7) an autotelic experience, 8) the loss self-consciousness, and 9) the transformation of time.

2. The model of academic optimism proposed by (Hoy, et al., 2007) was supported through confirmatory factor analysis. Individual teacher academic optimism is a second order factor composed of three first order constructs: a
teacher’s sense of efficacy, teacher’s trust in parents, and teacher’s academic emphasis.

3. As predicted, there was a positive relationship between a teacher’s general optimism (life optimism) and academic optimism; the greater the teacher’s life optimism, the greater the academic optimism.

4. As predicted, teacher sense of flow and academic optimism were positively correlated. The greater a teacher’s sense of flow, the greater the degree of academic optimism. Even when controlling for enabling structure and life optimism, the partial correlation, as expected, was significant.

5. The prediction that the more a teacher perceived the school structure as enabling, the greater the degree of teacher flow, was more complicated. The relationship was supported as a simple correlation, but the relationship was not supported when academic optimism and general life optimism were controlled, that is, the partial correlation was not supported.

6. As predicted, the more a teacher perceived the school structure as enabling, the greater the teacher’s sense of academic optimism, even controlling for general life optimism and flow.

7. An exploratory analysis of multiple predictors for teacher sense of academic optimism was performed. General life optimism, flow, and teacher perception of enabling school structure all made significant contributions to the explanation of a teacher’s sense of academic optimism.
8. Finally, an exploratory analysis of multiple predictors for teacher sense of flow was also examined. Only academic optimism and general life optimism made significant contributions to the explanation of a teacher’s sense of flow.

Discussion of Results

The discussion of the results is organized by the results from testing the hypotheses.

Rival Hypotheses: The Jackson Model and the Quinn Model

The first two hypotheses tested two competing conceptions of the nature of flow. Csikszentmihalyi’s Flow theory has been a useful construct for explaining the behavior of people who love their work and their play (Quinn, 2005). The first model (Jackson Model) is consistent with Csikszentmihalyi’s (1975) definition of flow as a holistic experience consisting of nine elements. The second model (Quinn Model) defines flow as the merging of awareness and application, which is predicted by four antecedents and has three consequences.

Quinn (2005) argued that this holistic model neglected to specify which of the nine or if all nine indicators were necessary for a flow experience. He further argued that because there is no agreed upon definition of flow and no consistent approach to modeling relationships between the elements of the flow experience that there is a need to differentiate or explain how the flow state is different from its indicators suggesting that there is a much needed causal explanation of flow. The third argument Quinn (2005) posited was that quantitative research on flow in work contexts was rare, and “none focused on knowledge work” (p. 613). Understanding that the most recent research
focused on sports and leisure meant that the description of flow did not lend itself to intellectual activity, but was “constrained by the language of physical activity” (p. 613). In an effort to integrate flow into theory relevant for knowledge work, Quinn understood that it needed to be defined for knowledge work and the element relationships explained.

The question for this study was which of these explanations of flow was better for elementary teachers. Hypothesis one and two addressed this question. Because the respondents were teachers, the engineer specific measures for “action-awareness merging” were replaced with Jackson’s original measures, which were conceptually more consistent with teaching and had a greater degree of reliability. The data for teachers fit Jackson’s model of flow better than Quinn’s. The data provided strong support that flow of individual teachers is a second-order factor consisting of nine first-order factors, whereas Quinn’s model of flow conceived of as a first-order factor with antecedents and consequences received only limited support for individual teachers. The Jackson Model is a much better explanation of the flow of elementary teachers than the Quinn Model.

For elementary teachers, flow is a holistic concept with nine aspects (challenge-skill balance, goal clarity, concentration, feedback clarity, awareness, sense of control, autotelic experience, transformation of time, and the loss of self-consciousness). Quinn’s analysis of the nature of flow, however, is instructive and gives insight into our understanding of the dynamics. The process of flow for teachers is much more seamless, holistic, and integrated than Quinn (2005) describes.

Given the results of this analysis, a tentative picture of the dynamics of flow in teachers can be sketched based on both Quinn’s (2005) and Csikszentmihalyi’s (1975)
explanation of flow. Flow is a high performance experience that likely improves performance when people are engaged in difficult but specific goals because difficult goals motivate them to exert extra effort and specific goals focus attention to the task at hand (Locke & Latham, 1990). Similarly goal clarity should have a positive impact on a person’s ability to concentrate because goals direct attention, which enables an individual to identify appropriate cues to focus on. Without clarity about these cues individuals are prone to get overwhelmed and distracted by cues that are irrelevant to the task (Miller, 1978).

The balance between challenges and skills needed to meet those challenges are also likely to be positively related to concentration. Individuals exert more effort to achieve challenging goals but only when those goals are attainable (Locke & Latham, 1990). If the goals are unrealistic or extremely easy, then people are prone to give up, lose focus, or get bored.

Clear goals facilitate useful feedback because they provide a frame against which a person can evaluate the feedback (Westley, 1990). Such effort is similar to the high vigilance shown by people in mindful organizations, which consciously seek to find and respond to cues that could threaten the achievement of an organization’s objectives (Weick & Sutcliffe, 2001). Although feedback clarity, goal clarity and concentration all contribute to flow, flow itself should also increase goal clarity because goals and objectives help to define the activity and people need to define events clearly if they are to have situation awareness (Endsley, 1995).
Simultaneously as the process of flow is enacted, people experience a sense of control over their performance, an enjoyment of the activity (autotelic experience), a loss of self-consciousness, and a transformation of time in that particular activity (teachers lose track of time). An individual’s sense of control increases with flow because sense of flow increases confidence in an individual’s ability to perform an activity (Wood & Bandura, 1989). In addition, the enjoyment people find in an activity is inextricably related to their experience of flow. This explanation of flow is drawn largely from Quinn’s theorizing; however, the process is much more holistic and integrated than Quinn believes. For teachers, the flow process is simultaneous, seamless, and holistic.

**Individual Teacher Academic Optimism**

This study is only the second to examine academic optimism at the teacher level (Woolfolk Hoy, Hoy, & Kurz, 2007). Academic optimism in schools is a contemporary construct identified by Hoy, Tarter and Woolfolk Hoy (2006) comprised of the collective properties of academic emphasis, collective efficacy and trust working together to create a positive academic environment; it is one of the few organizational characteristics that influence student achievement when socioeconomic status and previous achievement are controlled. The construct is a latent collective property of schools, which has been linked to school achievement in a number of studies (Hoy, Tarter, & Woolfolk Hoy, 2006; McGuigan & Hoy, 2006; Hoy & Smith, 2007), and it has been used as a measure of the culture of schools (Hoy & Miskel, 2008).

The current study, however, explored individual teachers’ sense of academic optimism. Building upon the work at the collective level, individual teacher academic
optimism has only recently been considered. At the individual level, academic optimism is “comprised of a teachers’ sense of efficacy, trust in parents and students, and academic emphasis; teachers’ sense of academic optimism is a self-referent, positive belief about the capacity to teach all students, to form trusting relationships with students and parents, and to prioritize academic tasks” (Kurz, 2006). Academic optimism of school also includes cognitive, affective and behavioral components merging into a single general construct. Efficacy is a belief, and therefore cognitive. Trust is an affective response, and academic emphasis is the cognitive press for particular behaviors in schools (Woolfolk Hoy, Hoy, & Kurz, 2007). All three elements of academic optimism have transactional relations with one another as they interact to form a culture in schools. Using a similar framework, this study shifted orientation from the school to the individual teacher.

The present analysis goes beyond the earlier analysis of individual teacher academic optimism (Woolfolk Hoy, Hoy, & Kurz, 2007) in that each of the measures were refined, and then a confirmatory factor analysis of the construct was performed, which identified teacher academic optimism as a second-order factor comprised of three first-order factors: sense of teacher efficacy, trust in parents and students, and individual teacher academic emphasis. The findings also support teacher’s sense of trust in both students and parents as one concept; however, teacher trust in parents consistently loaded higher than teacher trust in students, which supported Bryk and Schneider’s (2002) claim that teacher-student trust in elementary schools operates primarily through teacher-parent trust. This refinement of the construct and its measure gives researchers valid and reliable tools to study the construct and its antecedents and consequences.
General Life Optimism and Academic Optimism

Academic optimism is a special set of beliefs only modestly related to an individual’s personal disposition toward optimism (Scheier & Carver, 1992). One of the reasons for studying optimism is to consider how people habitually explain the causes of events in their life. The role of optimism in positive psychology has been recognized as an inherent feature of all humans (Peterson & Chang, 2003). Defined in one of two ways; either by mood or attitude (Tiger, 1979), or by expectations for the future (Carver & Scheier, 2002), optimism as a personal disposition, refers to the belief one has relative to their experiences and outcomes.

As was hypothesized, the interrelationship between academic optimism and general life optimism was significant. A general disposition to be optimistic was expected to relate to academic optimism, but academic optimism is a much more specific concept. Hence, the moderate relationship between academic and general life optimism provided predictive validity for the construct of academic optimism developed in this study.

Flow and Academic Optimism

As predicted, flow and academic optimism were found to be positively correlated; the higher the academic optimism, the greater the flow. Flow is a natural consequence of optimism, but the relationship between the two is likely to be reciprocal. That is, although academic optimism influences flow, it is also likely that flow reinforces optimism. Flow as conceived in this study is related to self-efficacy and thus to academic optimism, because these constructs describe behaviors that are both productive and enjoyable (autotelic). As positive psychological concepts, the similarities are clear. Both constructs...
involve perceptions about performing well. Moreover, autotelic experience is similar, if not identical to intrinsic motivation “doing an activity for the inherent satisfaction of the activity itself” (Ryan & Deci, 2000).

Although there are differences, the similarities explain the moderate relation between the two constructs. The definition of flow as a useful construct for explaining the behavior of people who love their work (Quinn, 2005, p. 612) bears a striking resemblance to the conception of academic optimism’s positive beliefs that evoke purposeful and productive behaviors.

*Enabling School Structure, Academic Optimism, and Flow*

In this study, individual teacher perception of enabling school structure was found to facilitate the development of teacher academic optimism. Although not as strong as other predictors of academic optimism, it was a significant nonetheless. Perception of enabling structure, however, was not related to flow, when academic optimism and life optimism were controlled. Apparently, academic and general optimism are the predictors of flow in this study, not perception of enabling structure. Perhaps enabling structure works through the optimism concepts to facilitate flow, but it did not have a direct relationship to flow.

The exploratory multiple regressions revealed essentially the same set of relations. Academic optimism and general life optimism were significant predictors of flow and enabling structure was not. In predicting academic optimism, however, all three variables were significant predictors. The predictor variables explained about one third of
the variance for academic optimism, but for flow only about 20% was explained, in large part, because enabling structure was not related to flow.

Future Research

This is the first known study to examine the nature of flow experiences among school classroom teachers. Moreover, it is only the second study to map the construct of individual academic optimism for teachers. This study contributes important theoretical and empirical findings for future scholarship in administration, teacher education, and educational psychology. In particular, the results from the study confirmed and refined academic optimism at the individual level as a measurable construct that may be a force for student achievement just as school academic optimism was found to be (Hoy, Tarter, & Woolfolk Hoy, 2006). The research also contributes to the definition and understanding of teacher flow. Both constructs should help build strategies for improving the instruction and academic success of all students. The two new concepts of teacher flow and teacher academic optimism are heuristic; for example, consider the following list of research possibilities:

1. This study used data collected from a set of elementary schools within central Ohio. Would the results found in this study be replicated with middle school and high school teachers?

2. In an effort to get a good cross section of teachers, the data collected in this study came from teachers in urban, suburban and rural settings. Would the urbanicity of the teacher sample make a difference in individual teacher flow or academic optimism?
3. To what extent is shared decision making related to teacher flow or the academic optimism of teachers? To what extent is teacher commitment related to teacher flow or individual academic optimism?

4. Is organizational climate related to flow and academic optimism? For example, to what extent is the openness of the school climate related to teacher flow or the academic optimism of teachers? How might adding school climate to the model generate greater understanding for creating environments that facilitate teacher flow or individual academic optimism?

5. Is the leadership style of the principal related to developing either flow or academic optimism? For example, is transformational leadership of the principal related to teacher flow or academic optimism?

6. Do political power games impede the development of academic optimism?

7. To what extent is intrinsic motivation a necessary condition for flow and academic optimism?

8. Is academic optimism related to a particular style of teaching? For example, are constructivist teachers more optimistic than teachers who engage in direct teaching? Is flow related to a lecture style of teaching more than a participatory style?

9. Does the model of flow tested in this study need to be refined and made more teacher-specific?

10. Hoy and colleagues (2006) have studied and found that collective academic optimism made a significant contribution to student achievement after
controlling for demographic variables and previous achievement (p. 425).

Now that the concept of individual academic optimism has been refined and confirmed as a result of this study, does individual academic optimism or teacher flow have the same significant contribution to student achievement after controlling for demographic variables and previous achievement?

Although these hypotheses were not tested, a number of them can be combined to form a more complete model; in fact, one of the contributions of this research may be its ability to generate more complex models of student achievement. Consider the model proposed in the following diagram:
The model suggests that both flow and academic optimism have a direct influence on student achievement and that enabling structure, openness of classroom climate, and general life optimism contribute to academic optimism whereas the openness of classroom climate and general life optimism influences flow. To be sure, this is just an example in need of refinement and testing, but it does illustrate they utility of these new constructs describing teacher beliefs and behavior.
Conclusion

This research developed two new constructs for the study of teachers: teacher flow and individual academic optimism. Confirmatory factor analysis demonstrated the factor structure of both constructs. The Jackson holistic model of flow fit the data for individual teachers better than the Quinn model. For the first time, a confirmatory factor analysis demonstrated the nature and meaning of academic optimism of individual teachers; teacher academic optimism is a second-order construct consisting of teacher sense of efficacy, teacher trust in parents and students, and teacher sense of academic emphasis. The three basic elements of academic optimism operate in the same way at the individual level as they do at the collective level. Flow and academic optimism were, as expected, related positively to each other. General life optimism, as predicted, was positively related to academic optimisms, but they are clearly different concepts. Finally, the results suggest that enabling school structure facilitates the development of individual teacher academic optimism but does not seem to have the same significant effect for teacher flow.
LIST OF REFERENCES


No Child Left Behind Act, Public Law No. 107-110 (2002).


