THE INFLUENCE OF ENVIRONMENTAL AND PERSONAL VARIABLES OF MOTIVATION ON CREATIVITY

By

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ON CREATIVITY

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TABLE OF CONTENTS

Chapter Page

I. INTRODUCTION 1

Statement of the Problems 6
Purpose of the Present Study 7
Conceptual Framework 8
Definition of Terms 8
.....

II. REVIEW OF LITERATURE 10

Definition of Creativity 10
Four P's approaches to the studies of creativity 13
The product approach to creativity 15
Ideation as Creativity 16
Motivation and Creativity 17
Effect of motivational variables on creativity 17
Effect of social environment on creativity 19
Effect of parents, teachers, and school on creativity 20
Achievement Goal Orientations 21
Achievement Goal Orientations and Creativity 23
Achievement Goal Structure 26
Self-Determination Theory 28
Parents' autonomy support 30
Self-determination theory and achievement goal orientations 31
Self-determination theory and creativity 31
Parents' motivating styles and creativity 31
Teachers' motivating styles and creativity 32
Environmental Variables of the Motivational Theories: School and Parent 32

III. METHODOLOGY 37

Participants 37
Measure 38
Data Analysis 41

Chapter Page

IV. RESULTS 45

Preliminary Analyses 45
Measurement Models 45
Full Structural Models 57
SEM of School influence on ideational behaviors 57
SEM of Parental influence on ideational behaviors 62

V. DISCUSSION 66

Students' Personal Achievement Goals Predicting Ideational Behaviors 67

Student Perception of Environmental Goal Orientations Predicting Ideational Behaviors 69

Student Perception of Environmental Autonomy Support Predicting Ideational Behaviors 71

Limitations of Present Study 73
Suggestions for Future Studies 74

REFERENCES 76

APPENDICES 90

LIST OF TABLES

Table Page

Table 1 Descriptive Statistics for Measured Variables.....46

Table 2 Correlation among Latent Variables in School Influence on Ideational Behaviors.....55

Table 3 Correlation among Latent Variables in Parental Influence on Ideational Behaviors.....56

Table 4 Standardized and Unstandardized Coefficients of the Structural Equation Modeling of School Influence on Ideational Behaviors.....61

Table 5 Standardized and Unstandardized Coefficients of the Structural Equation Modeling of Parental Influence on Ideational Behaviors.....65

LIST OF FIGURES

Figure Page

Figure 1 CFA of Ideational Behaviors 48

Figure 2 CFA of Achievement Goal Orientations 49

Figure 3 CFA of School Goal Structures 50

Figure 4 CFA of Instructor Autonomy 50

Figure 5 CFA of Parental Goal Orientations 51

Figure 6 CFA o fParental Autonomy 52

Figure 7 Measurement Model of School Influence on Ideational Behaviors 53

Figure 8 Measurement Model of Parental Influence on Ideational Behaviors 54

Figure 9 Structural Equation Model of School Influence on Ideational Behaviors 60

Figure 10 Structural Equation Model of Parental Influence on Ideational Behaviors 64

CHAPTER I

INTRODUCTION

Today's life is so complicated and complex. The new information boom and the innovative technological advances for modern convenience are occurring more often. The world is becoming more complex and changing more rapidly, and creativity is more important now than ever before because creativity is a useful and effective answer to changes. It is necessary to encourage individuals to cultivate their creativity as preparation for the future which might have more difficulties and more challenges. Creativity plays an important role in many fields whose benefits are numerous and clear for individuals and society, especially it is considered as a prominent curricular goal in education.

Guilford (1950) stressed the need for research focused on discovering and nurturing the "creative promise in our children" (p. 445) in his presidential address to the American Psychological Association was titled "Creativity." Many significant advances in the research of creativity have occurred, and a number of excellent studies of creative talents and creative persons have been published. Various trends have been identified in the creativity research in terms of the definition of creativity and its conceptual components. Some researchers portray creativity as an inherent force or static capability (Azadegan, Bush, & Dooley, 2008; Kostova, 2007). To these researchers, creativity is related to the experiences, the works, or the personalities

of amazing creative individuals like Picasso, da Vinci, or Einstein. However, many other researchers deny creativity as static trait, instead acknowledge it as having vast opportunities to be improved (Makel, 2009; Petrowski, 2000; Tan & Low, 2002; Torrance, 1993).

Inconsistent definitions of the creativity construct (Parkhurst, 1999) have obfuscated the selection of appropriate assessments of creativity. However, a recent review of the creativity literature concluded that it seems to have reached a general agreement that creativity involves "the production of novel, useful products" (Mumford, 2003, p.107). The novel and useful products as creativity are what can come from all sorts of human endeavors regardless if they are tangible or intangible.

Ideas can be "the products of original, divergent, and even creative thinking" (Runco, Plucker, & Lim, 2001, p394). The generation of original and useful ideas in a way of defining creativity is based on ideation (Paulus & Nijstad, 2003). Ideation can be one important universal component of creativity. Ideas are produced by everyone unlike exemplary creative products produced by professionals, and thus ideation is especially useful for understanding everyday creativity (Beghetto & Kaufman, 2007). Creative ideation reflects how individual uses appreciate ideas, and it can be a universal component of creativity, in that creativity at all levels involves ideation (Runco, Plucker, & Lim, 2001).

When original ideas are considered as creativity, the judgment about creativity is considered reliable and objective. Ideation meets the criteria that products or outcomes of creativity must have observable products (Hennessey, 1994; Lindauer, 1993; Runco, 1989). When ideation is considered as creativity, creativity has the virtue of objectivity in its measurement because ideas are understood in terms of the assessment of creative product. Additionally, ideation can be something novel and appropriate to improve everyday life.

In the present study, creativity will be defined as ideation that are novel or original and appropriate or useful as defined by a particular socio-cultural context (Plucker, Beghetto, & Dow,

2004; Sternberg, Lubart, Kaufman, & Pretz, 2005). How can we cultivate the ideation in order to prepare individuals for the challenging future? When considered ideation as something founded in everyone, not just the gifted or highly intelligent person, and cultivated in various age group, not in children, the most efficient way to cultivate people's ideation is motivating them to be creative in their everyday life as well as in specific context. Therefore, it is crucial to explore what motivational theory or variables can explain ideational behaviors and improve them. Ideation in the present study means behaviors to reflect the individual's use of, appropriation of, and skill with ideas.

Achievement goals are generally acknowledged as significant constructs to understand behaviors in educational settings (Dweck, 1986; Nicholls, 1984). Goal theories of motivation view behaviors as purposeful, intentional, and directed toward the attainment of certain goals (Pintrich & Schunk 2002), and they focus on the types of goals individuals pursue in achievement situations. Achievement goal theory emphasizes individuals' intentions or reasons for engaging, choosing, and persisting at different learning activities.

Early research on achievement goal theory had identified two different achievement goal orientations: mastery and performance goal orientations (Dweck & Elliot, 1983; Ames, 1992; Meece, Anderman, & Anderman, 2006). Mastery goal orientation is defined in terms of a focus on the development of competence and on learning new skills and knowledge. Individuals with mastery goal orientation derive satisfaction from the inherent qualities of the task such as its interest and challenge. By contrast, a performance goal orientation is defined in terms of a focus on the demonstration of competence relative to others and on performing ability. The dimension of "competence" formed the basis of an approach-avoidance dimension, and this became a later addition to the achievement goal theory. In addition, achievement goal research has distinguished between two valences of competence in terms of whether its focus is approaching a positive possibility (i.e., success) or avoiding a negative possibility (i.e., failure) (Elliot & Church 1997,

Elliot & Harackiewicz 1996). Combining the mastery-performance and approach-avoidance distinctions leads to four different achievement goal orientations: mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance. The 2 × 2 achievement goal framework makes achievement goal theory rest on a stronger foundation to interpret empirical results of achievement goal research straightforwardly and confidently (Elliot & Murayama, 2008). The present study is applied to the 2 × 2 achievement goal framework to identify the effect of students' achievement goal orientations on their creativity in academic setting.

Although creativity has some stable aspects, it has been presented as a state subject to be influenced by the social environment. Creativity can be cultivated by a combination of interacting individual and environmental resources leading to the production of valuable solutions (Mouchiroud & Bernoussi, 2008). Individual factors of creativity are emphasized as significant attributions of creative behaviors, and the prevalence of environmental factors in the likelihood of creative behaviors is considered crucial (Csikszentmihalyi & Figurski,1982). This is even more true for the product approach to the studies of creativity, in which creativity is defined as the ability to produce novel or original and appropriate or useful products in a particular socio-cultural context (Plucker, Beghetto, & Dow, 2004; Sternberg, Lubart, Kaufman, & Pretz, 2005). Some of the earliest studies have addressed important theoretical conception of creativity in interactions with parents, peer groups, and teachers (Meusburger, Funkr, & Wunder, 2009). Ideation reflects individuals' behaviors to generate ideas, the products of original and useful thinking (Runco et al., 2001), and a better understanding of ideation will be arisen when the sources of influence of ideation is considred in both personal and environmental sides together.

The motivational variables that can affect ideational behaviors, achievement goal orientations need to be investigated their personal and environmental factors together as well in order to explore more accurately the relationships between achievement goal theory and ideational behaviors in the framework of a combination of personal and environmental variables

of achievement goal theory. Achievement goal theorists have proposed that both individual differences and situational factors influence on the type of achievement goals individuals adopt. School and classroom goal structures are generally viewed as precursors of students' personal goal orientations, which are thought to have a more proximal influence on motivation and achievement patterns (Greene, Miller, Crowson, Duke, & Akey, 2004, Roeser, Midgley, & Urdan, 1996, Urdan 2004). Parental influence on personal achievement goal orientations has gained significance. Parent may focus on different type of goals for their children; they may stress demonstrating ability for high grades of their children's, or they may emphasize developing new skills or understanding of materials for children's improvement (Gonida, Kiosseoglou, & Voulala, 2007).

In the present study, environmental influence on ideation will be examined by two sources of influence: parental influence and school influence Students' goal orientations and ideational behaviors can be influenced by how students perceive their parents' goal orientations and motivating styles. Perceived school goal structures have been linked with students' motivation and performance outcomes (Meece et al., 2006). Also, students' perception of school goal structure were significantly correlated with students' personal goal orientations (Finsterwald, Ziegler, & Dresel, 2009; Lyke, J. A. & Kelaher Young, A. J., 2006). School goal structure in the present study means how college students perceive school goal structure through the classes that they have taken in a college. As well, teachers' motivating styles indicate students' perception of motivating styles of teachers that students have experienced.

Another motivational theory that has received attention is Self-Determination Theory (SDT: Deci & Ryan, 1981). Self-determination theory posits that all individuals have natural, innate, and constructive inclinations to develop a more unified self (Ryan & Deci, 2002). It has been suggested that individual achievement motivation is related to their underlying needs, especially the need for autonomy (Grolnick, 2002; Grolnick, Deci, & Ryan, 1997). Elliot and his

colleagues (2002) argued that individuals' needs not only lead directly to behavior but also lead to the adoption of goals to channel the dispositional desires in a more concrete direction in the self-regulatory process (Cury, Elliot, Sarrazin, Da Fonseca, & Rufo, 2002). Considering the relationship between achievement goal orientations and self-determination theory, it is necessary to examine self-determination theory as another motivational construct in order to better explain the influence of motivational variables on ideational behaviors.

Statement of the Problem

Studies have typically focused how achievement goal orientation and self-determination theory influence educational outcomes (Locke & Latham, 2004; Pirich, 2003; Urdan & Giancarlo, 2001). Little research has explored how they are related to ideation. Even though many investigations have been conducted in educational settings, recent educational literature reveals surprisingly few direct investigations of creativity in the classroom (Sternberg, 2008).

Furthermore, very little research has addressed the relationship of self-determination theory and achievement goal orientation theory to ideation. Explicitly, there is a need to examine the effect of students' perceptions of parental goal orientations and motivating style, teacher motivating style, and school goal structures on ideational behaviors through students' achievement goal orientations . In addition, the majority of the studies of achievement goal orientations and self-determination theory have been conducted with elementary and secondary school students, and more research is needed to determine whether the findings are applicable to college students.

A general approach to enhance creativity is to create social environment that is conclusive to creativity (Amabile, 1996; Koslow, Sasser, & Riordan, 2006; West & Ford, 2001). This study explored how personal and environmental variables of motivation predict ideational behaviors. The theories of motivation affecting ideational behaviors are achievement goal

orientation theory and self-determination theory, and their influences on ideational behaviors were investigated considering both personal and environmental influences. Considering the relationships between personal and environmental variables in the framework of achievement goal orientation theory and self-determination theory, the environment which can predict ideation behaviors is school and parent settings.

Purpose of the Present Study

The purpose of the present study was to explore the relationships among personal and environmental variables of motivation and ideational behaviors within the frameworks of achievement goal orientation theory and self-determination theory. The relationships between personal goal orientations, environmental goal structures and motivating style, and ideational behaviors will illustrate a better understanding or answers of following questions: 1) How personal achievement goal orientations and environmental goal structures and motivating style (i.e. students perceptions of school goal structures, student perceptions of parental goal orientations, student perception of instructor autonomy support, and student perception of parental autonomy support) predict students ideational behaviors? 2) How environmental goal structures and motivating style predict ideational behaviors through the mediating effects of personal achievement goal orientations.

In addition, to identify personal goal orientations, parent goal orientations and motivating variables, school goal structures, and teacher motivating styles examined in a single framework was incorporating both influences on ideation in terms of school or parents variables of motivation. This study connected the two perspectives of motivational variables, achievement goal orientations and self-determination theory, to predict ideational behaviors in two different settings, school and parent.

Conceptual Framework

The conceptual framework for the present study shows the relationships among ideational behaviors, personal achievement goal orientations, and perceived environmental goal orientations/structures and motivating style in two different situations. Students' personal goal orientations, mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance, have explained how students' academic behaviors are different with different goal orientation in achievement setting. As well, four personal achievement goal orientations were investigated to explain their influences on ideational behaviors in academic setting. Students' perceptions of environmental motivation variables were considered as another influences on students' ideational behavior. In addition, perceived environmental motivation variables in school and parent settings were investigated to show their influences on ideational behaviors and on personal achievement goal orientations. The environmental variables of motivation were students' perceptions of parental goal orientations and motivating styles (autonomy-support) and students' perceptions of school goal structures and instructors' motivating styles (autonomy-support).

Definition of Terms

For the purposes of the present study, key terms and constructs are defined as follows:

Ideational behaviors. Ideation is the creativity of the present study. Ideation is defined as creative ideation as Ideational Behavior: IB, "behavior that clearly reflects the individual's use of, appreciation of, and skill with ideas" (Runco et al., 2001. p394). Ideation was assessed by the Runco Ideational Behavior Scale: RIBS (Runco, et al., 2001).

Achievement goal orientations. Four goal orientations was adopted for the present study: Mastery-approach, mastery-avoidance, performance approach, and performance avoidance goal orientations. These goal orientations was assessed using the Patterns of Adaptive Learning Survey (Midgley et al., 2000).

***Mastery-approach goal orientation*.** The goal is to show a desire to develop competence and increase skills and knowledge for understanding through effortful learning.

Mastery-avoidance goal orientation. The goal represent striving to avoid losing their skills or abilities.

Performance-approach goal orientation. The goal is based on a desire to demonstrate abilities in order to gain favorable judgments of one's competence in the sight of others.

Performance-avoidance goal orientation. The goal means a desire to avoid negative judgments of competence in relation to others.

Student perception of school goal structure. According to how individual student perceive school goal structure, school goal structure can be identified school mastery goal structure and school performance goal structure.

Parent goal orientations. According to how individual student perceive their parents' goal orientation, parent goal orientations can be identified parent mastery goal and parent performance goal.

Parental autonomy support and instructor autonomy support. in the self-determination theory, parents and instructors exhibit two types of motivating styles, autonomy-support and controlling. Both motivating styles in the present study represent the variables that will be measured by the Perception of Autonomy Support and Control Questionnaire: PAS (Robbins, 1994). Autonomy support refers to the active support of the child's capacity to be self-initiating and autonomous (Ryan, Deci, Grolnick, & La Guardia, 2006).

CHAPTER II

LITURATURE REVIEW

Creativity

A great deal of research has focused on creativity in the past 20 years. The studies of creativity has been conducted the relevant traits, capacities, influences, and products, and various aspects and approaches of creativity has been performed. This variety enabled each field of inquiry to provide new definitions and insights of creativity. The definitions of creativity seemed to be diverse as many as the number of scholars or researchers who had studied in the field of creativity.

Most definitions of creativity contain the key adjectives: “creativity is the ability to come up with ideas or artifacts that are new surprising and valuable” (Boden, 2004, p. 1). New, original, and valuable ideas or products are certainly scarce in their initial stage and are therefore confined to a small proportion of people and places. As soon as a creative idea or product has been accepted by much of the population, as soon as it disseminates to a large number of places, it ceases to be considered novel or surprising. The definition of creativity therefore implies scarcity, which is the opposite of ubiquity. Many psychologists, however, have argued that creativity is an all-pervasive phenomenon of human nature. All people constantly need and apply creativity to solve their everyday problems (Funke , 2000; Simonton, 2000).

One should therefore distinguish between psychological creativity and historical creativity. Psychological creativity engages coming up with a surprising and valuable idea, which occurs to a person as a new one regardless of how many other people have had that idea before. Historical creativity means that no one else has had the idea before, and it has arisen for the first time in human history. Both types of creativity interact with their environment and result from environmental stimuli or variables (Boden, 1994, 2004).A distinction between psychological and historical creativity or between everyday problem-solving and outstanding achievements is necessary in order to avoid misunderstandings.

It is mentioned that True human creativity has involved novelty, value, appropriateness to context, and unpredictability in terms of antecedent knowledge, available recipes, existing rules, and environmental stimuli (D'Agostino, 1984). Therefore, the performance created by true human creativity is defined as "products, ideas, or procedures that satisfy two conditions: (1) they are novel or original and (2) they are potentially relevant for, or useful to, an organization" (Oldham and Cummings, 1996, p. 608). Similarly, Shalley, Gilson, and Blum (2000, p. 215) stated that "creativity involves the production, conceptualization, or development of novel and useful ideas, processes, or procedures by an individual or by a group of individuals working together." This definition of creativity is applied to the field of management. Creativity is considered as the generation of a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system (Woodman, Sawyer, and Griffin (1993, p. 293). The novel of a work or idea in a definition of creativity doesn't mean just being different from what preceded it, but the existence of some merit or value in being different.

It is an important fact that most definitions of creativity include a relation to a context, environment, organization, group, or field. It is claimed that the appropriateness of creative products, 'the internal connection' between the products and the background that the products emerge, is one of the most striking features about creative products. (Briskman, 1980, p. 98).

Stein (1953) suggests that "creative work is a novel work that is accepted as tenable or useful or satisfying". Other researchers also focus on the importance of individual aspects considering contextual or environmental aspects in defining creativity. Ford (1996) defined creativity as "a domain-specific, subjective judgment of the novelty and value of an outcome of a particular action" (p. 1115). He mentioned that the judgment about the novelty and value of a product cannot be measured independent of social-construction processes within a field.

Creativity does not just play a role in the arts, invention, and innovation, but is a part of our everyday lives. Creativity is useful to be applied each day to many aspects of our lives (Runco & Richards, 1997). Creativity has a duality to be a kind of problem solving and a reaction and can also be proactive (Runco, 2004). The duality of creativity can be apparent in the different perspectives on creativity.

Four P's approaches to the studies of creativity. Creativity has apparent benefits for individuals and society as a whole, but the relative paucity of research is disproportionate to the importance of creativity (Runco, 2004). There is no single agreement on the definition of creativity that in itself makes the study and measurement of creativity difficult and complex (Besemer & O'Quin, 1993; Batey & Furnham, 2006). Many factors of creativity contribute to its development, expression, and products (Basadur & Hausdorf, 1996). There are some classification for these factors. A popular classification of these factors is personal (such as cognitive, motivational, and attitudinal), social, and environmental (Runco, 1993). Another popular structure the "Four Ps", product, person, press, and process (Rhodes, 1961; 1987). Most research of creativity focuses on one of these four categories. These four factors can stand alone, but they operate almost always as a synthesis of two or more simultaneously by their nature (Runco, 2004).

The person category in studying creativity is identified personal characteristics of creative persons. For example, these may reflect personality, and there has been copious research on the traits that characterize creative persons. Personality research frequently includes intrinsic motivation as a core characteristic of creative persons.

The focus on process is apparent in the research conducted on divergent thinking and problem solving, at least when the problem at hand is open-ended (Martindale & Hasenfus 1978; Runco 1991). Divergent thinking has long been credited with being an important aspect of creative thinking and problem-solving processes (Guilford, 1967; Meadow, Parnes, & Reese, 1959; Parnes & Meadow, 1959, 1960). Some researchers in the field of creative thinking and problem solving use conceptual process models that involve both divergent and convergent thinking. Rickards (1994) identified models that consider both divergent and convergent thinking in multiple phases called complete processes of creative problem solving (cf. Basadur, Graen, & Green, 1982; Isaksen & Treffinger, 1985; Osborn, 1963; Parnes, Noller, & Biondi, 1977; Treffinger, Isaksen, & Dorval, 1994). The studies of creativity in the process approach may be less personal and more behavioral. Creative ideas originate with an individual, and may then influence a particular field. Eventually creative ideas may even have an impact on the more general domain (Csikszentmihalyi, 2003).

The concept of press is used in the creativity literature to describe pressures on the creative process or on creative persons. The focus on press in the studies of creativity refered to the relationship of human beings and their environment (Rhodes, 1961; 1987). Much of the research on press focuses on social dynamics (Albert, 1983; Amabile, 1990), Amabile & Gryskiewicz, 1989; Harrington, 1990). Press is not, however, entirely social nor even a part of objective experience. There are two types of pressure: alpha and beta pressures. The former pressures reflect the more objective aspects of press, and the latter the individual's interpretation of some contextual pressure (Murray 1938).

The product approach to creativity focuses on outcomes and those things that result from the creative process. The assumption here is that studies of products (e.g., publications, paintings, poems, designs) are highly objective, and therefore amenable to the scientific method. Briskrnan (1980), Jackson and Messick (1964), and O'Quin and Besemer (1989), for example, focused on understanding the product of creative efforts.

The most complete picture of any one of the 4Ps can be best viewed when considering the influence on it by one or more of the others. With that said however, a close look at each of them individually will perhaps promote a better understanding of what they are. It will also give a clearer vision of why they are considered a viable framework for studying creativity.

The product approach to creativity. Although many researchers and theorists have defined creativity in terms of many different perspectives, they seem to have reached a general agreement on creativity as "the production of novel, useful products" (Mumford, 2003, p. 147). In the product approach, creativity is defined as the ability to produce products that are novel or original and appropriate or useful as defined by a particular sociocultural context (Plucker, Beghetto, & Dow, 2004; Sternberg, Lubart, Kaufman, & Pretz, 2005). Products can be easily quantified and judgments about products can be quite reliable, and the product approach on creativity has the clear virtue of objectivity. The products of creativity may be ideas, publications, or works which can come from any and all sorts of human endeavor regardless if they are tangible or intangible.

However, the product approach has several limitations. It does not apply well to children and nonprofessionals, for example, and any claims about the mechanisms that actually underlie creative work are entirely inferential (Runco, 1989; Runco, McCarthy,& Svensen, 1994). Furthermore, the discriminant validity of judges' ratings of creativity is debatable, at least within specific domains (Lindauer, 1990, 1991). In addition, in research emphasizing products as

creativity, the products are all-important. Very little is said about the actual origins of the products and the mechanisms used to create the products (Runco, Plucker, & Lim, 2000).

To take account of the difficulties of a product-oriented approach to creativity assessment, Runco at al. (2001) suggested the Runco Ideational Behavior Scale (RIBS) as an alternative measure. Their primary contention was that "ideas can be treated as the products of original, divergent, and even creative thinking" (p.394).

Ideation as Creativity. From the perspective of the RIBS ideas are seen as common products related to creativity across domains and created by everyone. Therefore ideas are suitable for understanding normally-distributed trait or "everyday" creativity (Runco & Richards, 1998). Runco, Plucker and Lim (2001) suggested creative ideation or ideational behavior to be a universal component of creativity, in that creativity at all levels involves ideation. Runco et al. (2001) defined creative ideation as "behavior that clearly reflects the individual's use of, appreciation of, and skill with ideas" (p.394).

Ideas are that the underlying mechanisms have been described convincingly Guilford's (1967) Structure of Intellect model and Mednick's (1962) associative theory. Two theories describe how ideas are generated, how ideas are connected to one another, and what influences ideation. The recognition of underlying mechanisms is in direct contrast to most research on products (Runco, et al., 2001). In addition, ideas do not share the limitations that characterize many of the product analyses noted previously. The ideas of children and nonprofessionals can be examined, and their originality (and flexibility) can be objectively determined.

The voluminous literature on creativity tests have shown that objective judgments of the originality of ideas can be obtained and tend to be reliable (Hocevar, 1981; Runco & Albert, 1985). Runco et al. (2001) developed the RIBS to provide a self-report measure of an individual's ideation. Ideation constitutes the divergent aspect of creative problem-solving process. Ideation is

the generation of options, different points of view, and perceptions of facts and ideas without any critical judgment or analysis (Basadur & Hausdorf, 1996).

Runco (1991, 1999) claimed that divergent thinking represents an estimate of the potential for creative thought. Divergent thinking, however, is not the predictor of outstanding creative ability in the natural environment but the estimate of the potential for creative thought (Hong & Milgram, 1991; Runco, 1993). Therefore, the development of useful original ideas, ideation can be defined as creativity (Paulus & Nijstad, 2003).

Focusing on the creativity of young students, Cremin and collaborators (2006) reported findings of a 12-month-long investigation of children's "possibility thinking" and their teachers' pedagogical practices that foster this important component of creative behavior.

Claxton and colleagues (2006) made the argument that British schools must move from "allowing" creativity to developing creativity in the classroom.

Motivation and Creativity

In this section, the motivational variables associated to creativity will be addressed. The environments related to creativity in terms of motivation are parents, school, and instructors (or teachers).

Effect of motivational variables on creativity. The literature on individual creativity indicates that motivation is an important construct (Collins & Amabile, 1999; Eisenberger & Shanock, 2003; Batey & Furnham, 2008). A popular contention is that motivation conforms to two types; intrinsic and extrinsic (Amabile, Hill, Hennessey, & Tighe, 1994; Judge, Higgins, Thoresen, & Barrick, 1999; Judge & Larsen, 2001). Intrinsic motivation is defined as the drive to do something for the sheer enjoyment, interest, and personal challenge of the task itself rather than for some external goal. Intrinsic motivation is conducive to creativity. Research showed that

intrinsic motivation is absolutely required for high levels of creativity (Chen, Hung-Hui, & Ya-Yun, 2009); Dewett 2007; Shin & Zhou, 2003)

Extrinsic motivation, however, relates to the external reinforcement of behavior. Intrinsic and extrinsic motivations were believed to interact in a sort of hydraulic fashion.

High levels of extrinsic motivation were thought to preclude high levels of intrinsic motivation; as extrinsic motivators and constraints were imposed, intrinsic motivation (and creativity) would necessarily decrease. Researchers have determined that a variety of extrinsic constraints and extrinsic motivators can undermine intrinsic motivation and creativity, including expected reward, expected evaluation, surveillance, competition, and restricted choice (Amabile 1996; Hennessey 2003).

However, rewards can actually enhance intrinsic motivation and creativity when they confirm competence, provide useful information in a supportive way, or enable people to do something that they were already intrinsically motivated to do. These boosting effects are most likely to occur when initial levels of intrinsic motivation are already strong (Amabile 1993).

Personality research frequently includes intrinsic motivation as a core characteristic of creative persons. In actuality, motivation may be tied to states and drives as well as to personality, but it does make sense that creative persons tend to follow intrinsic interests, and that tasks that are intrinsically motivated tend to be free from the evaluations and constraints that can inhibit creativity (Amabile 2003, Stohs 1992). Certainly, creative efforts are sometimes extrinsically motivated (Rubenson&Runco 1992, 1995). Amabile (2003) demonstrated experimentally how certain kinds of extrinsic factors (e.g., evaluation) could inhibit creative thinking.

Amabile & Gryskiewicz (1989) and later Witt & Beorkrem (1989) identified the following “situational influences on creativity”: freedom, autonomy, good role models and resources (including time), encouragement specifically for originality, freedom from criticism,

and “norms in which innovation is prized and failure not fatal” (Witt & Beorkrem, pp. 31–32). Some influences are potential but not necessarily, inhibitors of creativity. These include a lack of respect (specifically for originality), red tape, constraint, lack of autonomy and resources, inappropriate norms, project management, feedback, time pressure, competition, and unrealistic expectations. These do not necessarily inhibit creativity; they are potential inhibitors.

Competition is a good example of how these may differ, for competition may both stimulate and inhibit creative work (Watson 1968). However, its impact depends on the individual’s interpretation. The same may hold true for resources, at least in the sense that creative insights may sometimes absolutely require resources, but sometimes result from paucity (“Necessity is the mother of invention”).

Effect of social environment on creativity. Intrinsic motivators have been shown to have positive effects on cultivating creativity. Even expected rewards and other extrinsic motivators can easily increase creativity, which was seldom undermined in some studies (Cameron & Pierce 1994; Eisenberger & Cameron 1996, 1998). O’Hara&Sternberg (2001) specifically examined the effects of directives to “be creative.” Precise instructions to be creative, practical, or analytical resulted in college students demonstrating higher levels of performance in whichever of the three areas had been targeted. These findings suggest that results of the behaviorist studies demonstrate positive effects of instructions, rather than positive effects of expected rewards, on creativity (Joussemet & Koestner 1999).

The research about the effect of various variables on creativity has expanded to include a wide range of social environment influences In addition to the workplace, the other obvious setting for the real-world application of the social psychology of creativity literature is the classroom. It is essential that we come to a far deeper understanding of how teaching techniques, teacher behavior, and social relationships in schools affect the motivation and creativity of

students. A study carried out by Scott (1999) investigated attitudes held by elementary school teachers and college students about creative children. Results showed that teachers were significantly more likely than college students to rate creative children as more disruptive.

In summary, it appears that constraints and pressures in the work environment (except for one rare form of time pressure) are detrimental to creativity, whereas organization-wide supports, psychological safety, sufficient time, autonomy, developmental feedback, and creativity goals are facilitative.

Effect of parents, teachers, and school on creativity. VanGundy (1985) identified three categories that affect a group's creative climate. They are: internal, external and interpersonal relationships. Internal relates to one's personal perceptions of the external climate. The external are the factors, physical and other, that exist all around the person, product or process. Interpersonal relationships with others are self explanatory. Goran Ekvall of the Swedish Employment Security Council developed the following ten dimensions that are related to creative climate or environment, challenge and motivation; freedom; dynamism; trust and openness; idea time; playfulness and humor; conflict; idea support; debates; and risk-taking. All but one of these dimensions have a positive correlation to the creative climate. That is when they are present and supported then the climate or environment is more likely to enhance creativity. The one dimension that has a negative correlation to the creative climate is conflict. The more conflict there is the less possibility there is for the climate to enhance creativity.

Some recent research suggests that certain environmental designs for schools are conducive to creativity (Hasirci & Demirkan 2003). Although it would be best to design an environment on an individual-by-individual basis, all other things being equal, environments should allow independent work and allow easy access to resources. These findings align well with those in the organizational setting (Amabile 2003, Witt & Beorkrem 1989).

The impact of Teachers on creativity. Teachers can help students be creative by acknowledging the students' interests, beliefs, and values. Most teachers unintentionally dismissed students' creative expression of unique, novel, or unexpected ideas in their classroom, and only a few teachers supported students' creative expression (Runco, 2003; Sternberg, 2003). These unique ideas can cultivate creative thinking (Beghetto, 2007; Kennedy, 2005). It does not take a long time for students to experience curiosity, creativity and meaningful learning in school (Fried, 2005). It is possible to organize life in schools and classrooms in such a way that students not only have the opportunity to express their creativity, but systematically become more creative (Claxton, Edwards, & Scale-Constantinou, 2006). This can be done by stimulating students' imagination through particular techniques, working routines, and methods. Tighe, Picariello, and Amabile (2003) stated that teachers must take active steps to create a classroom environment where students feel safe for taking intellectual risks in expressing their creativeness. Teachers can do this by being open to students' responses, even if those responses are with little relevancy to the conversation or work (Tighe et al., 2003).

Ruscio & Amabile (1999) explored the impact of teachers' different instructional approaches on the creative problem solving of college students. Type of instruction influenced students' perceptions of the task, their behavior during the task, and their final solution to the structure problem. In a 2000 paper, Tan explored students' and teachers' perceptions of activities useful for fostering creativity and found that as students grow older, their views begin to more closely reflect those of their teachers (Tan &, Law, 2000, 2006)

Achievement Goal Orientations

Achievement goal orientation, one of the most prominent motivational theories, refers to the mind-set to motivate people when they pursue achievement tasks and to evaluate their success or failure in achieving the tasks (Ames, 1992; Dweck, 1986; Pintrich, 2000). Two goal

orientations have consistently emerged in achievement literature: mastery and performance goals. Mastery goals involve focusing on increasing one's knowledge, developing one's skill and mastering task. In contrast, performance goals represent a focus on demonstrating one's ability, exceeding normative standards of performance, and striving to outperform others (Ames, 1992; Elliot & Dweck, 1988).

Early goal orientation research has strongly supported the mastery goal perspective (e.g., Ames, 1992; Dweck, 1986), with mastery goals linked to a variety of adaptive achievement behaviors (such as persistence, challenge seeking, and positive attitudes towards learning) and performance goals to maladaptive behaviors (such as withdrawal, challenge-avoidance, and superficial learning strategies). However, other theorists have noted limitations of early goal research, and argued that optimal motivation may come through multiple goal pursuit (e.g., see Barron & Harackiewicz, 2001; Harackiewicz et al., 2002a; Pintrich, 2000). For example, one important development in achievement goal research has involved further refinement of mastery and performance goal measures, moving beyond two-factor achievement goal models that only distinguish between mastery and performance goals. Specifically, Elliot and his colleagues (e.g., Elliot & Church, 1997; Elliot & Harackiewicz, 1996) demonstrated the importance of a three-factor achievement goal model that, in addition to mastery goals, further differentiated two types of performance goals: performance-approach goals (where one's focus is to try to outperform others) and performance-avoidance goals (where one's focus is to avoid performing poorly compared to others). Research distinguishing between these two types of performance goals revealed that maladaptive outcomes were most associated with performance-avoidance goals, whereas a variety of adaptive outcomes were associated with performance-approach goals (see Elliot, 1999; Harackiewicz et al., 2002a; Rawsthorne & Elliot, 1999).

Research has identified a number of achievement-related patterns that are "set in motion" by different motivational goals (Elliot & Dweck 1988, p. 11). Much of this research indicates that

students show the most positive achievement patterns when they are focused on mastery goals. With this goal focus, students persist at difficult tasks (Elliot & Dweck 1988, Stipek & Kowalski 1989), report high levels of task involvement (Harackiewicz et al. 2000), report high levels of effort and persistence (Grant & Dweck 2003, Miller et al. 1996, Wolters 2004), and use learning strategies that enhance conceptual understanding and recall of information (Ames & Archer 1988; Elliot & McGregor 2001; Grant & Dweck 2003; Green & Miller 1996; Meece et al. 1988; Meece & Miller 2001; Nolen 1988, 2001; Nolen & Haladyna 1990; Wolters 2004). Mastery goals are also associated with positive perceptions of academic ability and self-efficacy (Meece et al. 1988, Midgley et al. 1998, Roeser et al. 1996, Wolters 2004).

Although performance and mastery goals are most commonly examined as separate goal orientations, evidence suggests that students hold multiple goals in classroom situations (Bouffard et al. 1995, Harackiewicz et al. 1998, Meece & Holt 1993, Pintrich 2000, Wentzel 1992). Research has further suggested that multiple combinations of goals (e.g., high mastery and high performance) may have different motivation and achievement outcomes. Current studies emphasize the need to acknowledge that learners may simultaneously adopt multiple goals that are relatively more or less adaptive for learning. However, it is still not clear what combination of goals is most adaptive for which group of students, achievement tasks, and learning contexts (Midgley et al. 2001).

Achievement Goal Orientations and Creativity

Vandewalle, et. al (2001) have shown that goal orientation is related to people's performance in challenging events, being mediated by effort, self-efficacy, and goal level. Mastery goal orientation has a positive relationship with these mediators, but avoidance goal orientation shows a negative relationship with them. People to produce a creative idea are attracted to complexity, be intuitive, have aesthetic sensitivity, tolerate ambiguity, be self-

confident, and be consistent in creative performance across different domains, which is also describing individuals with mastery goal orientation (Borlongan, 2008).

A mastery goal orientation is an internal mind-set that motivates an individual to develop his or her competence (Dweck, 1986, 2000; Dweck & Leggett, 1988; VandeWalle, Brown, Cron, & Slocum, 1999); therefore, it stands out as an important internal drive for enactive mastery. Individuals with a mastery orientation seek challenges that provide them with learning opportunities (Ames & Archer, 1988). Research suggests that a mastery orientation is conducive to the acquisition of knowledge and skills (e.g., Brett & VandeWalle, 1999; Kozlowski, Gully, Brown, Salas, Smith, & Nason, 2001). A mastery orientation has also been shown to enhance cross-cultural adjustment, which involves the acquisition of culturally novel skills and behaviors (Gong & Fan, 2006). Empirical evidence suggests that acquisition of knowledge and skills enhances creativity (e.g., Amabile & Gryskiewicz, 1987; Gardner, 1993; Hayes, 1989).

A number of other researchers in the Chinese literature have examined preferred thinking styles in teaching and their links to creativity in the schools (Zhang 2006). Kray and colleagues (2006) explored what they termed a "relational processing style" elicited by counterfactual mind-sets. More specifically, they asked study participants to compare reality to what might have been and in so doing encouraged them to consider relationships and associations among stimuli. They found that, although such mind-sets can be detrimental to novel idea generation, they can improve performance on creative association tasks Kray and colleagues (2006).

Amabile's (1996) componential model of creativity identifies three building blocks necessary for individual creativity: domain-relevant skills, creativity-relevant skills, and intrinsic task motivation. A learning goal orientation is particularly relevant in this regard, because it may be expected to relate to both skill acquisition and intrinsic motivation. Moreover, it may influence people's willingness to solicit and use feedback to improve their skills and creativity.

First, a learning orientation focuses individuals on the acquisition of new knowledge and the development of "deep-processing strategies" facilitating mastery of challenging tasks (Elliot & McGregor, 2001). The focus on skill development associated with a learning orientation implies an intrinsic interest in understanding and mastering task performance (Janssen & Van Yperen, 2004). This interest in the task itself—intrinsic motivation—leads to a deeper and more intensive engagement with the task, which often results in creativity (Amabile, 1996). Moreover, because a learning orientation is also associated with a preference for challenging and demanding tasks (VandeWalle, 1997), individuals with a stronger learning orientation may be expected to be more intrinsically motivated to seek out creative activities that by definition involve uncertain and untried approaches that possess a high likelihood of error or potential failure.

Second, a learning orientation may feed into creativity by engendering the development of domain relevant skills and creativity-relevant skills. These skills provide the essential background knowledge and basis for creativity (Amabile, 1996). Creativity concerns the development and generation of something new for which the requisite strategies often have yet to be learned (Janssen & Van Yperen, 2004; Zhou, 2003). In order to acquire such knowledge and skills, individuals must engage in a learning process. It is this learning process and the associated development of expertise that benefit from a strong learning orientation (Dweck, 1999).

Third, when obstacles are encountered, learning-oriented people tend to deal with these challenges by investing additional effort to develop and master new skills (Dweck, 1999; VandeWalle, Cron, & Slocum, 2001). Creativity is often required to resolve such problems. Learning-oriented employees are likely to cope effectively with both negative and positive f eedback by putting substantial effort into creative problem-solving activities to identify and apply the strategies needed to succeed (cf. Dweck, 1999). To our knowledge, although no published research has tested the relationship between learning orientation and creativity, Janssen and Van Yperen (2004) found that a learning orientation had a positive relationship to innovative behavior.

Although innovation includes other behaviors in addition to creativity (e.g., championing, promoting, and implementing ideas), we have no reason to believe that findings for creativity per se should diverge from Janssen and Van Yperen's findings.

Individuals with a performance goal orientation are primarily motivated by the external outcomes associated with performance. As previously outlined, a distinction can be made between performance-oriented individuals who are more concerned with achieving the outcomes of high performance (from here on, approach orientation) and those that are more concerned with avoiding the consequences of poor performance (from here on, avoidance orientation). Because both approach and avoidance-oriented individuals tend to define the effective accomplishment of a task primarily in terms of external evaluations—receiving rewards or avoiding criticism and negative feedback, respectively—their actions can best be understood by taking contextual cues into account. For this reason, the researcher does not propose main effects hypotheses for either an approach or avoidance orientation, but rather consider their effects according to the team learning context.

Achievement Goal Structures

Along with providing a framework for studying individual differences in student motivation, achievement goal theory is also useful for analyzing the influence of classroom environments on students' motivation and learning patterns. Research focused on the classroom has examined how teachers may create different goal structures in the classrooms through their use of various instructional, evaluation, and grouping strategies (Kaplan et al. 2002b). For example, some teachers are known to differ in their use of ability grouping or competitive grading practices, which can increase the salience of performance goals. Other teachers focus on skill development, mastery, and improvement, which can lead students to adopt a mastery orientation.

As described below, a variety of measures have been used to assess the goal structures of classrooms, including student questionnaires, teacher reports, and observations.

Meece (1991) combined survey and observational data to study differences in the goal structures of 10 elementary science classrooms. Using classroom means on student mastery goal ratings, classes were characterized as low or high mastery. Observational records were then analyzed to identify differences in teaching approaches. The results revealed that teachers of low- and high-mastery-oriented students differed in the degree to which they (a) promoted meaningful learning and understanding, (b) adapted instruction to the developmental levels and personal interests of their students, (c) established learning structures supportive of student autonomy and peer collaboration, and (d) emphasized the intrinsic value of learning. In a similar study, Patrick et al. (2001) used the PALS measures of classroom goal structures to identify 4 fifth-grade classrooms that were perceived by students as emphasizing either (a) high mastery and low performance, (b) high performance and low mastery, (c) both high mastery and performance, and (d) both low mastery and performance. Observational data were then used to compare the instructional practices of those teachers. Overall, there were a number of differences in practices between the high- and low-mastery-oriented classrooms and many fewer differences between the high- and low-performance classes. Two themes that distinguished the high- and low-mastery-oriented teachers were (a) differences in teachers' apparent implicit theories of how students learn, and (b) the interface between the social and affective climate of the classrooms with the academic dimension (see Anderman et al. 2002).

In another study, Turner and her colleagues (2002) used multiple methods to examine instructional variables related to students' use of avoidance strategies in mathematics. In this study, qualitative analyses of classroom discourse suggested that high-mastery/low-avoidance classrooms were characterized by instructional practices such as affording students the opportunity to demonstrate new abilities, providing motivational support for learning, and helping

students to understand complex topics. When combined with data on student outcomes, findings indicated that perceptions of a mastery goal structure were related to less frequent use of avoidance strategies.

Self-Determination Theory

Self-Determination Theory (SDT) delineated by Deci and Ryan (1981, 2002) is one of motivational theories, and the theory argues that individual innate tendency toward motivation, engagement, growth, and integrity would be supported only when specific social-contextual factors help one to meet the essential psychological human needs of autonomy, competence, and relatedness. According to this theory, depending on other specifiable environmental conditions that either support or hinder this fundamental process of human nature, there can be a wide range of developmental outcomes from a relatively active and integrative self to a passive, reactive, or alienated self. The theory suggests that when the social and environmental factors support and meet the essential human needs of autonomy, competence, and relatedness, individuals tend to integrate various phenomena resulting in engagement, mastery, and synthesis. By contrast, when the contextual factors thwart need fulfillment, an individual's integrating tendency will decrease along with motivation, growth, and well-being. Deci and Ryan (2002) contended that human psychological needs provide the source for describing characteristics of the environment that support versus hinder the organism's attempts to be active in each new situation, and in this way, self determination theory encompasses both an "organismic" and a "dialectical" framework for human growth and motivation.

According to Deci and Ryan, self-determination theory describes students' motivation not as a simple dichotomy but as several different types of intrinsically and extrinsically motivated approaches depending on different degrees of internalization. It has been supported that parents can promote children's autonomous, intrinsic, and more self-regulated forms of

motivation by increasing autonomy support and by minimizing their controlling behaviors that may lead to children's extrinsic and less self-regulated motivation (Grolnick et al., 1997). Ryan and Connell (1989) also reported that children who were high on the less self-determined forms of regulation were likely to be anxious about school and to blame themselves for failure. Children who were more self-determined in their regulation, however, were likely to report a high degree of enjoyment in school and proactive response to failure.

Self-determination theory specifies four types of extrinsic motivation that result from the process of internalization (Deci & Ryan, 1996; Ryan & Connell, 1989). The more fully a regulation has been internalized, the more it represents integration and thus provides the basis for self-determination and volitional behaving. The four types of extrinsic regulations are ordered along a continuum from being relatively controlled to relatively self-determined (external, introjected, identified and integrated regulation). External regulation is referred to behaviors that are controlled by external demands and pressures (Decci & Ryan, 1996; Ryan & Connell, 1989). This regulation represents the lowest level of internalization. Introjected regulation is controlled by demands inside the person, for example by self-esteem contingencies. Hence, both external and introjected regulation refer to controlled motivation, that is, doing an activity by obligation in order to obtain something positive or to avoid something negative outside the activity. Identified regulation denotes behaviors that are chosen because the individual identifies with the importance of the value or the activity. Integrated regulation represents the highest level of internalization where the individual identifies the values or the activities as an expression of one's self. Integrated regulation is also referred to be fully self-determined and, as such, is similar to intrinsic motivation. Therefore, both identified and integrated regulation represent autonomous or self-determined motivation that is, doing an externally regulated activity by choice in order to obtain something positive or avoid something negative outside the activity (Selart et al., 2008).

Parents' autonomy support. Autonomy support is one of the three key components of successful parenting (with the others being involvement and structure). When parents want to encourage children to do certain activities, there is autonomy support if the goal is to foster autonomous self-regulation rather than mere compliance. For interesting activities, all there is to do is to avoid controlling strategies and let the developmental process of intrinsic motivation flourish. In contrast, when the targeted tasks are not inherently enjoyable (e.g., clean-up, homework) and internalization needs to take place, supporting children's autonomy takes a more proactive form (Ryan, et al., 2006).

Autonomy support was operationalzed in terms of four ingredients: (1) providing rationale and explanation for behavioral requests; (2) recognizing the feelings and perspective of the child; (3) offering choices and encouraging initiative; (4) minimizing the use of controlling techniques. This operationalization was derived from the child psychologist Haim Ginott's method of empathic limit-setting (Ginott, 1969).

Self-determination theory and achievement goal orientations. Goal orientation and self-determination theories of motivation are derived from different perspectives, both perspectives have some commonalities such as describing student motivation in terms of different kinds rather than simply different amounts of motivation and focusing on contextual influences on student motivation (Urdan, 2000). In addition, Elliot and his colleagues (2002) not only made a distinction between needs and goals, but also attempted to connect the two constructs. They argued that individuals' needs not only lead directly to behavior but may also lead to the adoption of goals to channel the dispositional desires in a more concrete direction in the self-regulatory process.

Self-determination theory and creativity. The expectation of reward can sometimes increase levels of extrinsic motivation without having any negative impact on intrinsic motivation

or performance. Specifically, rewards undermine intrinsic motivation and creativity when they lead people to feel controlled by the situation—that is, when self-determination is undermined (see Deci & Ryan 2002, Ryan & Deci 2000).

Autonomy at the work leads employees to feel a degree of empowerment and has long been postulated as an important feature of the work environment, as it fostering creativity. The theoretical argument is that to the extent that employees feel a degree of ownership in and control over their work, they will be more intrinsically motivated and thus more likely to fully engage their cognitive processes in solving problems in the work (Alge, Ballinger, Tangirala, & Oakley, 2006).

Parents' motivating styles and creativity. Albert and Runco (1989) reported that the autonomy within a family, not just the number of siblings or family structure, could dramatically influence creativity. Very likely, family structure has an impact on development and creativity because it determines family processes. For example, larger families have more-authoritarian parents.

Teachers' motivating styles and creativity. Amabile and colleagues (2004) established that perceived team leader support is positively related to the peer-rated creativity of individuals working on creative projects in seven companies. Both positive and negative predictors of perceived leader support in terms of specific leader behaviors were revealed. Positive predictors included showing support for the person's actions or decisions, providing constructive feedback on the work, and recognizing good performance. Negative predictors included checking on assigned work too frequently, failing to disseminate needed information, and avoiding solving problems.

Farmer and colleagues (2003) found that individuals' creativity at work was highest when they both perceived themselves as creative employees and perceived their organizations as

valuing creative work. Madjar and colleagues (2002) found that the creative performance of employees was significantly related to support for creativity from both work (supervisors/coworkers) and nonwork (family/friends) sources. Positive mood mediated these relations.

Feedback, monitoring of work, and the evaluation of work are closely related and can have quite different effects on creativity, depending on how they are delivered. Zhou (2008) presented a summary of how feedback can affect creativity. She suggested that supervisors can affect employee creativity positively by (a) giving positive feedback whenever possible; (b) delivering both positive and negative feedback in an informational style (with the supervisor suggesting that the goal of the feedback is not to control the employee, but instead to help the employee develop creative capabilities and performance); (c) adopting a developmental orientation when giving feedback—giving employees valuable information that will enable them to learn, develop, and make improvements on the job, implying that they can constantly get better; and (d) focusing feedback on the task, not the person.

Environmental Variables of the Motivational Theories: School and Parent

Achievement goal orientation theory is a social-cognitive theory to examine motivation both in terms of classroom contexts and individual students' beliefs of their learning and performance (Maehr & Midgley, 1996; Midgley, 2002). Underlying goals that the individuals pursue in achievement settings were initially identified two goal orientations: mastery goals and performance goals (Ames, 1992; Elliot, 2005). A mastery goal referred to as learning goals, is defined in terms of a focus on that an individual is concerned with developing his or her competence or mastering a new skill. Mastery-oriented individuals are motivated to learn for intrinsic reasons such as interest and challenge, and satisfied with his or her self-improvement. In contrast, a performance goal represents a mind-set in which an individual is concerned with

demonstrating his or her competence relative to others. Individuals with a performance goal - oriented individuals feel a sense of accomplishment when they do better than others and surpass normative performance standards, and they strive to outperform others in a demonstration of their competence (Ames, 1992; Dweck & Leggett, 1988; Meece, Anderman, & Anderman, 2006).

Corresponding to personal goal orientations, researchers have focused on mastery and performance goal structures, predominantly in classrooms. Like students' personal achievement goal orientations, students' perceptions of their classroom goal structures have been linked with their motivation and performance outcomes (Meece, et al., 2006). Classroom goal structures represent the meanings of academic engagement and success within the contexts in which students be taught (Kaplan et al., 2002). In a mastery goal structured classroom, students' understanding and improvement are underlined, and mistake is considered as a natural part of the learning process. While, a performance goal structured classroom would be one in which the students need to concern a normative social comparison with others, and students try not to make a mistake to avoid looking incompetent (Ames, 1992; Midgley, 2002).

Students' perceptions of goal structures in their classroom have been linked with their motivation and performance outcomes. A mastery goal structure, the school setting emphasized understanding and improving skills or knowledge, and effort has been shown to be associated with achievement, adoption of effective learning strategies and students' positive feelings about self and school. Whereas a performance goal structure, the school environment focused on demonstrating high ability and competing for grades, was associated with deterioration of performance, impaired academic coping, disaffection from school, and diminished motivation (Ames & Archer, 1988; Anderman, 1999, 2003; Freeman & Anderman, 2005; Lyke, J. A. & Kelaher Young, A. J., 2006; Meece et al., 2006; Mucherah, 2008; Pintrich 2000; Urdan, Midgley, & Anderman, 1998).

Also, students' perception of classroom goal structure were significantly correlated with students' personal goal orientations (Finsterwald, Ziegler, & Dresel, 2009; Lyke, J. A. & Kelaher Young, A. J., 2006), and students' personal mastery goals and perceptions of mastery goal structures increased over time (Freeman & Anderman, 2005). Beside, test anxiety and well-being were also associated with classroom goal structure (Finsterwald et al., 2009).

The effect of educational computer games on attitudes toward mathematical learning were significantly more effective in cooperative goal structure than in competitive and individualistic structures showing the characters of performance structure (Ke, 2008). In addition, the learners in online settings represented stronger intrinsic motivation than those in traditional settings (Wighting, Jing, and Rovai, 2008).

A main focus on the studies of classroom goal structures has been to facilitate a mastery-oriented classroom, and many studies have shown that only classroom mastery goal structure is unequivocally positive for students (Patrick & Ryan, 2009). But, most studies demonstrating the effect of mastery goal structure of learning environment have been empirically supported in studies of elementary and middle school students (Anderman, 1999; Finsterwald et al., 2009; Ke, 2008). Therefore, our study examined the difference of university students' perception of classroom goal structures-mastery and performance goal structures-and sense of community in terms of gender and different delivery course format.

Harackiewicz and Sansone (1991) found that effects of goal orientations depend on the general context in which goals are pursued. The research of college students' achievement goal orientation showed that the students reported different interest of a course according to their achievement goal orientations and their perceptions of the classroom climate (Barron & Harackiewicz, 2003). Introductory college classes are a classroom environment in which performance-approach goals are particularly adaptive. These classes are taught as large lectures,

use multiple choice exams to evaluate students' learning, and assign grades based on normative curves, and competence is clearly defined in terms of relative ability and normative comparisons. Thus, a performance-approach goal orientation may be well matched to this type of context. Additionally, students' perception of classroom goal structure were significantly correlated with students' personal goal orientations (Finsterwald, Ziegler, & Dresel, 2009; Lyke, J. A. & Kelaher Young, A. J., 2006), and students' personal mastery goals and perceptions of mastery goal structures increased over time (Freeman & Anderman, 2005).

Parents' motivating styles have been described in terms of whether they are supportive of their children's autonomy in learning and work or whether they adopt a more controlling approach. The research on the relationship between goal orientation and SDT has showed that high perceived autonomy predicts mastery-approach goals, whereas low perceived autonomy relates to the adoption of mastery-avoidance goals (Elliot & McGregor, 2001).

The principles underlying SDT have proven highly applicable to classroom settings (Reeves, 2002). Achievement goal orientations have shown to be impacted by many of the same features of classroom contexts that are theoretically and empirically endorsed by SDT.

CHAPTER III

METHOD

This chapter describes the methods of the present study used to gather and analyze research data. First, participants, instruments, procedure for data collection are explained. Next, the methods to analyze data are described.

Participants

The participants of the study consisted of college students ranging from 18 to 25 at a university in the Midwest United States. The students in the target age group were considered easy to report how they perceive about their parents' behaviors or attitudes. It has not been a long period time since the students had lived with their parents. The students were asked to participate in this study with the approval of the university's Institutional Review Board.

The participants consisted of 1164 college students at a midwestern university. The majority of participants ranged in age from 18 to 25 (92.9%). The gender among the participants was female (59.2%). The majority of participants were white (81.6%). In academic classification, the participants were composed with freshmen (26.4%), sophomore (19.3%), junior (22.7%), and senior (31.6%) (See Appendix G).

Measures

Six scales were used to examine the variables of the present study. The Runco Ideation Behavior Scale (RIBS) was used to measure students' ideational behavior as creativity. Achievement goal orientations questionnaire-revised (AGQ-R) was used to measure students' personal achievement goal orientations. The Patterns of Adaptive Learning Survey (PALS) was used to assess students' perception of parental goal orientations, and the School Goal Dimension Questionnaire was utilized for students' perceptions of school goal structures. For students' perception of their parental autonomy support and instructor autonomy support as environmental motivating styles, the Perception of Autonomy Support and Control Questionnaire and the Learning Climate Questionnaire were utilized. All scales were revised a seven-point Likert-type scales.

The Runco Ideation Behavior Scale. The Runco Ideation Behavior Scale (RIBS; Runco, Plucker, & Lim, 2001) used to measure students' ideational behaviors. The RIBS was developed based on the belief of Guilford's (1967) comprehensive Structure Of Intellect (SOI) model. Ideas can be treated as the products of original, divergent, and creative thinking process (Guilford, 1967). It is a behavior scale that can be used as a criterion of creative ideation. Subjects are asked to rate the degree to which they think the items describe actual overt behavior that clearly reflects the individual's use of, appreciation of, and skill with ideas.

It consists of 23 self-report items requiring a response on a five-point Likert-type scale. The RIBS appears to be a sufficiently reliable instrument for use with groups and individuals. The internal consistency of the RIBS was Cronbach's alpha was .94. Item analysis indicated a discriminate validity ranging from .30 to .72. However, the construct validity of the RIBS did not provide clear evidence. Statistically, the existence of two factors appears to have been supported, but the theoretical distinction between the factors is difficult to determine. The lack of theory

suggesting two factors and the high correlation between them has suggested that a one-factor solution was judged to be more interpretable than a two-factor solution. Therefore, the one-factor structure should guide interpretation of RIBS results (Runco et al., 2001).

In the present study, the RIBS changed to a seven-point Likert-type scale, from one being "Not at all true" to seven being "Very true". Items include: "I come up with an idea or solution other people have never thought of," "I am able to think about things intensely for many hours," and "I often have trouble sleeping at night, because so many ideas keep popping into my head."

Achievement goal orientations questionnaire-revised (AGQ-R). Students' personal achievement goal orientations were measured by Goal orientation AGQ-R (Elliot & Murayama, 2008). The measure is composed of four subscales: mastery-approach goal orientation, mastery-avoidance goal orientation, performance-approach goal orientation, and performance-avoidance goal orientation. Each goal orientation has four items. Examples follow for each subscale: Mastery-approach goal is "My aim is to completely master the material presented in class." Mastery-avoidance goal is "My aim is to avoid learning less than I possibly could." Performance-approach goal is "My aim is to perform well relative to other students." Performance-avoidance goal is "My aim is to avoid doing worse than other students."

Cronbach reliability coefficients of the four subscales were α=.85, α=.89, α=.86, and α=.74 for mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance goal orientations, respectively.

Patterns of Adaptive Learning Survey (PALS). Students' perception of their parents' goal orientations measured by the Patterns of Adaptive Learning Survey (Midgley et al., 2000). Student perceptions of their parents' goal orientation for them measured by the adaptation that the researcher will make of Perceptions of Parents, Home Life, and Neighborhood from the PALS. The original scale measured only parental mastery and parental performance goal orientation with

11 items in all. The researcher will add five items to the scale to differentiate between performance-approach and performance-avoidance parental goal orientations, resulting in a total of 16 items. Examples follow for each subscale: One out of the six items in parent mastery goal is "My parents want me to understand my class work, not just memorize how to do it." One of the items of parent performance goal orientation is "My parents would like me to show others that I am good at class work." Cronbach reliability coefficients of both subscales were α=.86 for parental mastery goal orientation and α=.88 for parental performance goal orientation, respectively.

The School Goal Dimension Questionnaire. Students' perceptions of their school goal structure measured by the School Goal Dimension Questionnaire (Roeser, R.W., Midgley, C.M., & Urdan, T.C.,1996). The instrument consists of the two subscales: school mastery goal structure, school performance goal structure. One of six items in mastery goal structure is "In our class, how much you improve is really important." Performance goal structure has five items, and an example is "In our class, getting good grades is the main goal." Cronbach reliability coefficients of two subscales were α=.84 for both school mastery goal and performance goal structure.

The Perception of Autonomy Support and Control Questionnaire. Student perceptions of their parents' autonomy support motivating styles was measured by the Perception of Autonomy Support and Control Questionnaire: PAS (Robbins, 1994). The PAS is composed with nine items, and will be used to measure the degree to which adolescents report that their autonomy is supported by their parents. The scale is a seven-point Likert-type scale, from one being "Not at all true" to seven being "Very true." The examples of item are ''my parents listen to my opinion or perspective when I've got a problem,'' ''my parents aren't very sensitive to my needs (reverse item)''. To obtain the overall score, a mean of the 6 items was calculated, and a higher score indicates a greater perception that the child's autonomy is supported by the parent.

The internal reliabilities for the measure of parental autonomy-support was α= .90.

The Learning Climate Questionnaire. The Learning Climate Questionnaire (LCQ) was adapted by Williams and Deci (1996) from the Health-Care Climate Questionnaire (Williams, Grow, Freedman, Ryan, & Deci, 1996). This 15-item measure asks students about the degree to which their instructors support their autonomy To provide a conceptually similar scale to the PAS, a parallel teacher measure used consisting of an 6-item Teacher Autonomy-Support subscale, rated on the same 7-point Likert-type scales (Chirkov & Ryan, 2001). The alpha for autonomy-support was .90.

Procedure for Data Collection

Prior to data collection, approval from Institutional Review Board (Appendix H) was obtained. All faculties and instructors who taught a course during Fall semester 2011 at a midwestern university were asked for their permission to their students'voluntary participation to the survey. The faculties and instructors could choose either on-line or paper survey. The rate of response of faculties' and instructors'to give their permissions was 9.6 %. The total numbe r of subjects was 1241, and the number of subject via paper survey was 630 (50.8%). After data cleaning the subjects were 1225, and only undergraduate students among them were used for the present study as subjects.

Data Analysis

SPSS 18.0 was used to analyze the descriptive statistics, the bivariate correlation coefficients, and the internal consistency of the variables. As a primary data analysis method, structure equation modeling (SEM) used to find the relationship among the variables described in the theoretical framework for creativity as ideation in a college classroom. The M-plus 6.0 software used to estimate the incorporated framework (model) for the hypotheses. In order to

evaluate the goodness-of- fit of the hypothesized models and examine the mediating effect, the SEM with M-plus used (Anderson and Gerbing, 1988).

Structural equation model analysis. A structural equation model consists of two main parts: the structural model and the measurement model. While the structural models specify the relationships between latent variables, the measurement models specify the relationships of the latent variables to the observed variables. Measurement models are first specified: if the model fits, this indicates that the latent variables are measured validly and reliably by selected observed variables, and a structural model is to be specified (Loehlin, 1998).

The application of SEM generally requires five steps: model specification, identification, estimation, testing fit, and respecification. It begins with the specification of a model to be estimated. In the model specification, the magnitude and sign of parameters or constants are formulated and the parameters are designated as fixed or free. Testing model fit determines how adequately the model accounts for the data. Thus, the indices of model fit indicate the degree to which the pattern of fixed and freed parameters specified in a model is consistent with the pattern of variances and covariances from a set of observed data.

In the present study, the SEM analyses were conducted using Mplus 6.0 program (Muthén & Muthén, 2007) with maximum likelihood (ML) estimation procedures. ML is the most frequently used estimator because of its efficiency in larger samples and its consistent estimates (Klein, 2011). ML assumes basically the normality of exogenous variables and endogenous variables.

Before analysis of data, researchers must think about the practical issues of SEM: sample size, missing data, multivariate normality, and outliers. When researchers use SEM analysis, researchers frequently pass over the problem of sample size. Hair, Black, Babin, Anderson, and Tatham (2006) suggested that researchers must decide the sample size by considering the model

complexity and model characteristics, because covariance in SEM is very sensitive to sample size. If researchers find missing values, the input of missing values is effective, especially when deleting missing values is a serious problem. If the number of missing data is high and the data are missing at random, the Expectation Maximization (EM) method of data imputation must be used. If outliers distort information, outliers will be removed.

The most important assumption of SEM is multivariate normality. If measured variables are violated in univariate and multivariate normality, SEM results in incorrect outcomes. Researchers should check the normality through scrutinizing the skewness and kurtosis of the measured variables. All measured variables must be screened for outliers.

If researchers find significant skewness or kurtosis, the transformations or deleting of outliers should be considered. If the results found by analysis of the transformed data is same as the results using raw data, the original data are used. After transformation, if the data do not show normality, an estimation method of non-normality should be selected.

Fit statistics used in SEM analysis. SEM programs derive fit statistics from comparisons between the actual correlation matrix and the implied correlation matrix (which is created by using the solved path model based on the actual correlation matrix). The $\chi 2$ test determines if the actual and implied matrix are statistically different from one another (Keith, 2011). Thus, a significant $\chi 2$ is undesirable as it indicates that the model and the data are not consistent with one another. The $\chi 2$ statistic is related to sample size, such that models with very large samples may have a statistically significant $\chi 2$. That is, the larger sample size will cause the value of $\chi 2$ to be statistically significant even when the same models would not with smaller samples. So, $\chi 2$ and the degrees of freedom are expected to report, but are not used to justify the fit of the data to the model. Other fit statistics have been developed that overcome this problem.

Other available fit indices compare the fit of the existing model with that of the independence model (null model) which assumes zero population covariances among the observed variables (Kline, 2011). Two such indices are the comparative fit index (CFI) and the Tucker-Lewis index (TLI). If the average correlation between variables is not high, then the TLI and the CFI will not be very high.

Values for the CFI and the TLI may range from 0 to 1.0, with the values equal to or above .95 represent a good fit of the model to the data. However, above .90 has been considered a moderate fit. The root mean square error of approximation (RMSEA) is a measure of the discrepancy between the empirical data and the implied model per degree of freedom in the model. For this reason it is known as a parsimony-adjusted index (Kline, 2011). The value of RMSEA ≤ 0.05 is accepted to indicate a close approximate fit, whereas values between .05 and .08 indicate a moderate fit, and values greater than 1.0 indicate a poor fit (Kline, 2011). The standardized root mean square residual (SRMR) estimates model fit by averaging the difference between the actual and implied covariance matrix. Values below .08 suggest a good fit (Keith, 2011).

CHAPTER IV

RESULTS

This chapter presents the results of the data analysis in three sections. The first section presents preliminary and descriptive analyses of measured variables. The second section includes the results of measurement models and results of the full structural model follow.

Preliminary Analyses

Data screening. Kline (2011) suggested that the original data be inspected for violations of the assumptions of structural equation modeling (SEM). The results of the initial data screening were applicable to data used in SEM programs.

Sample size. SEM requires large sample size, which affects sampling error. Sample size can be referenced to the number of participants per an item in a survey. The general rule of thumb is 5-10 participants per item (Kline, 2011). The number of items of the present study was 69, and at least more than 345 was required as acceptable sample size. The number of participants of current study was 1164, and which was sufficient to reach a power for the model being examined in SEM analysis.

Univariate normality. The distribution of all variables was evaluated for univariate normality with skewness and kurtosis statistics. These values are provided in Table 4.1. The

highest absolute skewness value was .93 and the kurtosis value was 1.09. Based on Kline's (2011) suggestion absolute values of skewness larger than 3.0 and kurtosis larger than 10.0 indicate potential normality problems, and the assumption of univariate normality was met for all measured variables of present study.

Table 1

Descriptive Statistics for Measured Variables

Variable	Mean	SD	Skewness	Kurtosis
Ideational Behaviors	4.65	1.06	-.41	.14
Parental Mastery Goal	5.26	1.09	-.62	.49
Parental Performance Goal	4.84	1.26	-.38	.14
Parental Autonomy	5.37	1.21	-.83	.75
School Mastery Goal	4.78	1.16	-.28	-.05
School Performance Goal	3.72	1.28	.10	-.12
Instructor Autonomy	4.73	1.19	-.19	.04
Mastery-Approach Goal	5.41	1.18	-.79	.61
Mastery-Avoidance Goal	4.65	1.38	-.38	-.02
Performance-Approach Goal	5.24	1.31	-.93	1.09
Performance-Avoidance Goal	4.97	1.46	-.77	.33

Missing data. If it were the case that a data set had missing data, a covariance matrix could first be analyzed to obtain the modification indices necessary to base respecification of the model. The final model could then be re-run with raw data files using ML estimation, which accommodates missing data in the analysis without imputing missing values.

Multicollinearity. Kline (2011) advised that certain mathematical operations are not possible when intercorrelations among variables are too high (e.g., > .85). The results of the

correlations among the variables were statistically significant (see Table 4.3 and Table 4.5), but there were not any intercorrelations greater than .85 in predicted variables. The highest intercorrelation between the variables in the data set was between student performance-approach goal and student performance-avoidance goal variables ($r = .82$, $p < .001$).

Measurement Models

Before full structural model tests were performed, the measurement models were assessed to establish relationships among the observed variables and latent variables. Measurement models were analyzed with Confirmatory Factor Analysis (CFA).

Statistical software for SEM, Mplus 5.21, (Muthén & Muthén, 2009) estimated the confirmatory model using Maximum Likelihood (ML) estimation. At this stage of model building, correlations were allowed among all the variables in the model and all relationships were nondirectional, with the exception of the relationships between the latent variables (or factors) and their respective measured variables (or indicators). The confirmatory model was analyzed to determine how consistent it was in explaining the data, in other words, how well it 'fit.' Fit statistics generated from this model were also used as a basis of comparison for fit statistics generated in future model that incorporated theoretically meaningful respecifications of the model according to modification indices.

The values for the CFI and the TLI equal to or above .95 represent a good fit to the data, and above .90 has been considered a moderate fit. The value of RMSEA ≤ 0.05 is accepted to indicate a close approximate fit, whereas values between .05 and .08 indicate a moderate fit, and values greater than 1.0 indicate a poor fit. The value of SRMR below .08 suggests a good fit (Keith, 2011).

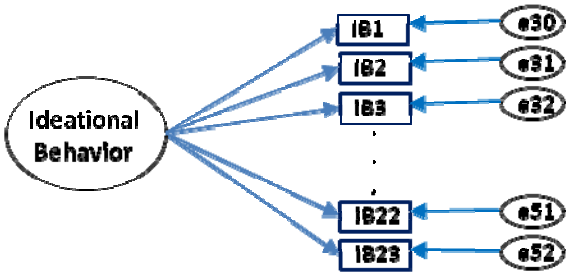
Ideational behavior. Results of the confirmatory factor analysis of the ideational behavior indicated that the measurement model for ideational behavior needed to be modified in

improved the model fit of ideational behavior to the data: χ^2 (df) = 1958.75 (229), $p < .001$, CFI = .87, RMSEA = .09, SRMR = .06.

The modifications of the model were conducted based on examination of the content of items in conjunction with statistical justification. For example, two items of ideational behavior questionnaire (RIBS) of the items showed not only high modification indexes in CFA but also a common component to perform problem solving or combining ideas in the way with originality: "I am able to think up answers to problems that haven't already been figured out" and "I am good at combining ideas in way that others have not tried." The common trait showed in two items made the model of ideational behaviors be modified by combining the modification indices of the two items. The modified model of ideational behaviors showed the good fit of the data: χ^2 (df) = 1219.68 (202), $p < .001$, CFI = .92, RMSEA = .07, SRMR = .05. Figure 1 shows the CFA of ideational behaviors and its fit indices.

Figure 1

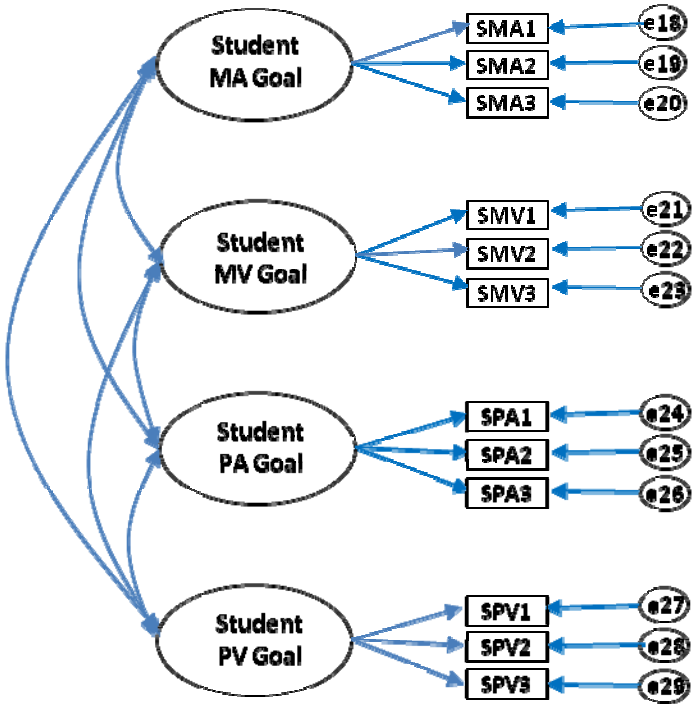
CFA of Ideational Behaviors



Achievement goal orientations. The CFA of achievement goal orientations was assessed. Figure 4.2 shows the CFA of achievement goal orientation measure and its fit indices. The measurement model of student achievement goal orientations provided a good fit to the data: χ^2 (df) = 391.78 (48), $p < .001$, CFI = .94, TLI = .92, RMSEA = .087, SRMR = .041.

Figure 2

CFA of Achievement Goal Orientations



School goal structure and instructor autonomy. Perceived school goal structure-school mastery goal and school performance goal-and perceived instructor autonomy are used as environmental motivational variables in the school setting. The CFA of Perceived school goal structure was assessed and Figure 3 shows its fit indices. The measurement model of perceived school goal structure provided a good fit to the data: χ^2 (df) = 262.92 (43), $p < .001$, CFI = .933, TLI = .914, RMSEA = .074, SRMR = .057.

The results of the CFA of perceived instructor autonomy showed the measurement model was a good fit to the date: χ^2 (df) = 239.45 (9), $p < .001$, CFI = .923, TLI = .872, RMSEA = .165, SRMR = .041 (See Figure 4).

Figure 3

CFA of School Goal Structures

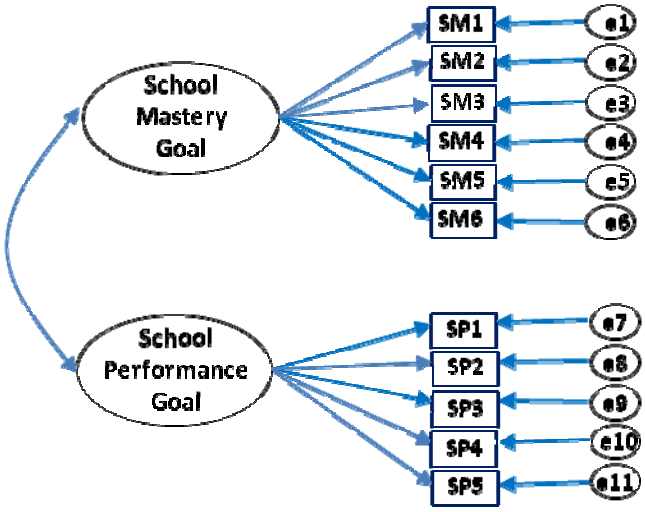
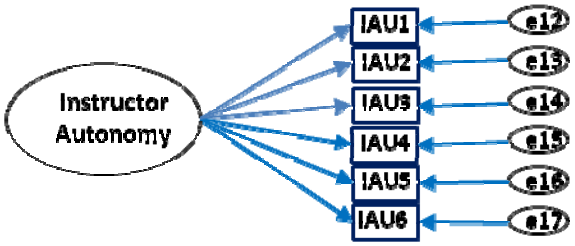


Figure 4

CFA of Instructor Autonomy

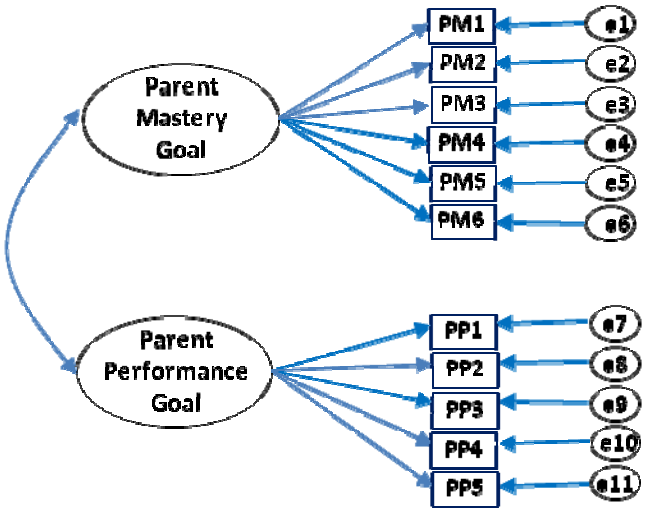


All factor loadings of each observed variable to underlying latent variables were significant ($p < .001$) and substantive with loadings larger than .33. All factor loadings had signs in the anticipated direction. Thus, based on the results of CFAs and the values of factor loadings, the measurement model specification of relations between observed variables and underlying latent variable seems reasonable.

Parental goal orientations and autonomy. Perceived parent goal orientations and perceived parent autonomy are environmental motivational variables in home setting for the present study. Perceived parent goal orientations have 2 factors, parent mastery goal and parent performance goal, which are composed of six and five items in the measurement model. The results of the initial CFA of perceived parent goal orientations as follows: χ^2 (df) = 508.83 (43), $p < .001$, CFI = .89, TLI = .86, RMSEA = .107, SRMR = .056, indicating that the measurement model of perceived parent goal was an appropriate fit to the data, but the modification of the model of perceived parent goal orientations was conducted for a better fit of the model to the data. Two items of parent mastery goal were correlated, which significantly: "My parents want my work to be challenging for me" "My parents would like me to do challenging class work, even if I make mistakes." Both items illustrated parents' wish their children to conduct a challenge work. Considering the common component included in the two items, it is rational that two items were correlated in the measurement model. The fit indices of parental goal orientations showed the measurement model of parent goal orientations were a good fit to the data: χ^2 (df) = 379.69 (42), $p < .001$, CFI = .920, TLI = .895, RMSEA = .093, SRMR = .059 (see Figure 5).

Figure 5

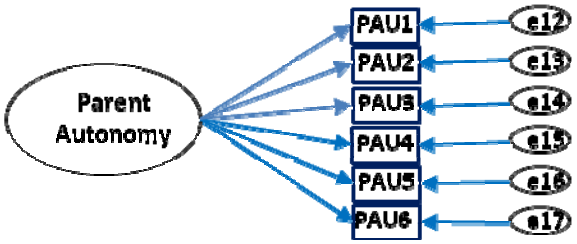
CFA of Parental Goal Orientations



The results of the initial CFA of perceived parent autonomy showed the measurement model was appropriately fit to the date: χ^2 (df) = 264.76 (9), $p < .001$, CFI = .894, TLI = .824, RMSEA = .174, SRMR = .058. But, the two items related to students' perception of parental respect of their children's opinions showed a high value of the model modification index: "My parents listen to my opinion or perspective when I've got a problem", and "My parents are usually willing to consider things from my point of view." When the two items were correlated, the fit indices of the measurement model of perceived parent autonomy showed a significantly better fit of the model to the data: χ^2 (df) = 155.47 (8), $p < .001$, CFI = .939, TLI = .886, RMSEA = .140, SRMR = .046 (See Figure 6).

Figure 6

CFA of Parental Autonomy



Measurement models. The present study had two measurement models for structural equation model: School Influence on Ideational Behaviors and Parental Influence on Ideational Behaviors (See Figure 7 and Figure 8). The results of the correlations among the latent variables of two measurement models were statistically significant (See table 2 and Table 3). The correlation between students performance-approach goal and performance-avoidance goal orientations revealed the most highly positive relationship (γ =.82, p <.001) in both models.

Figure 7

Measurement Model of School Influence on Ideational Behaviors

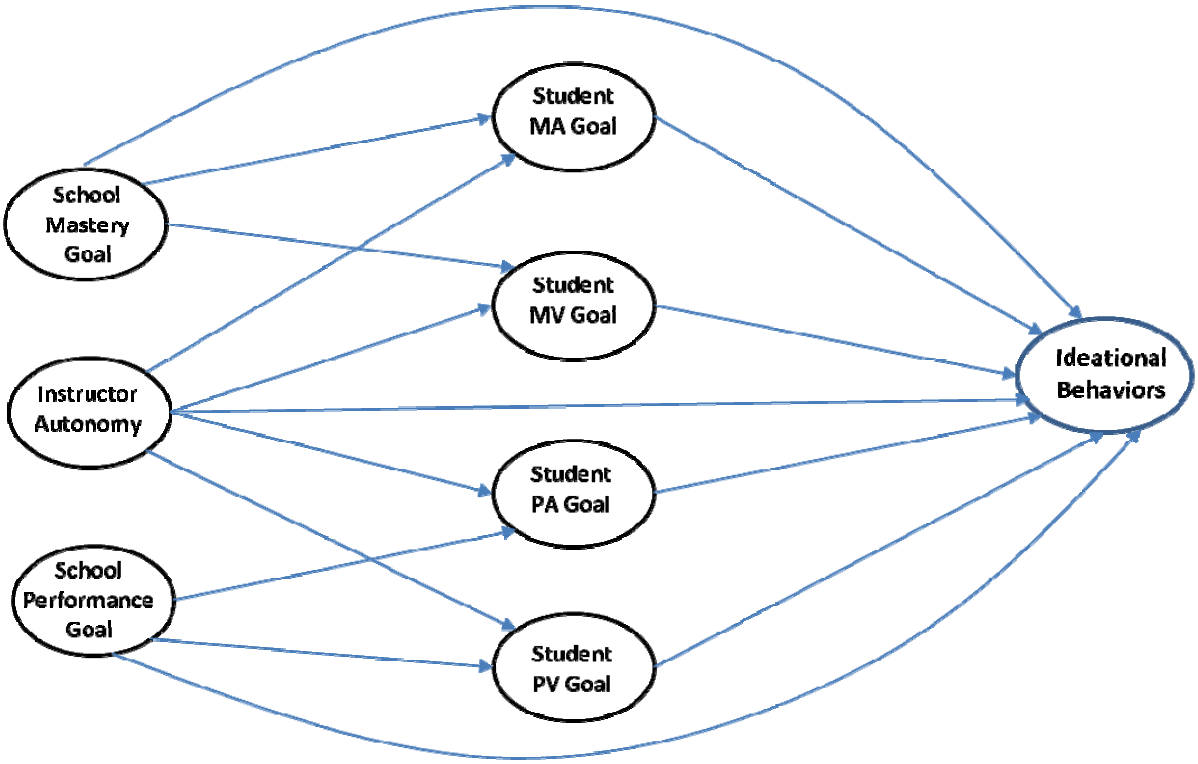


Figure 8

Measurement Model of Parental Influence on Ideational Behaviors

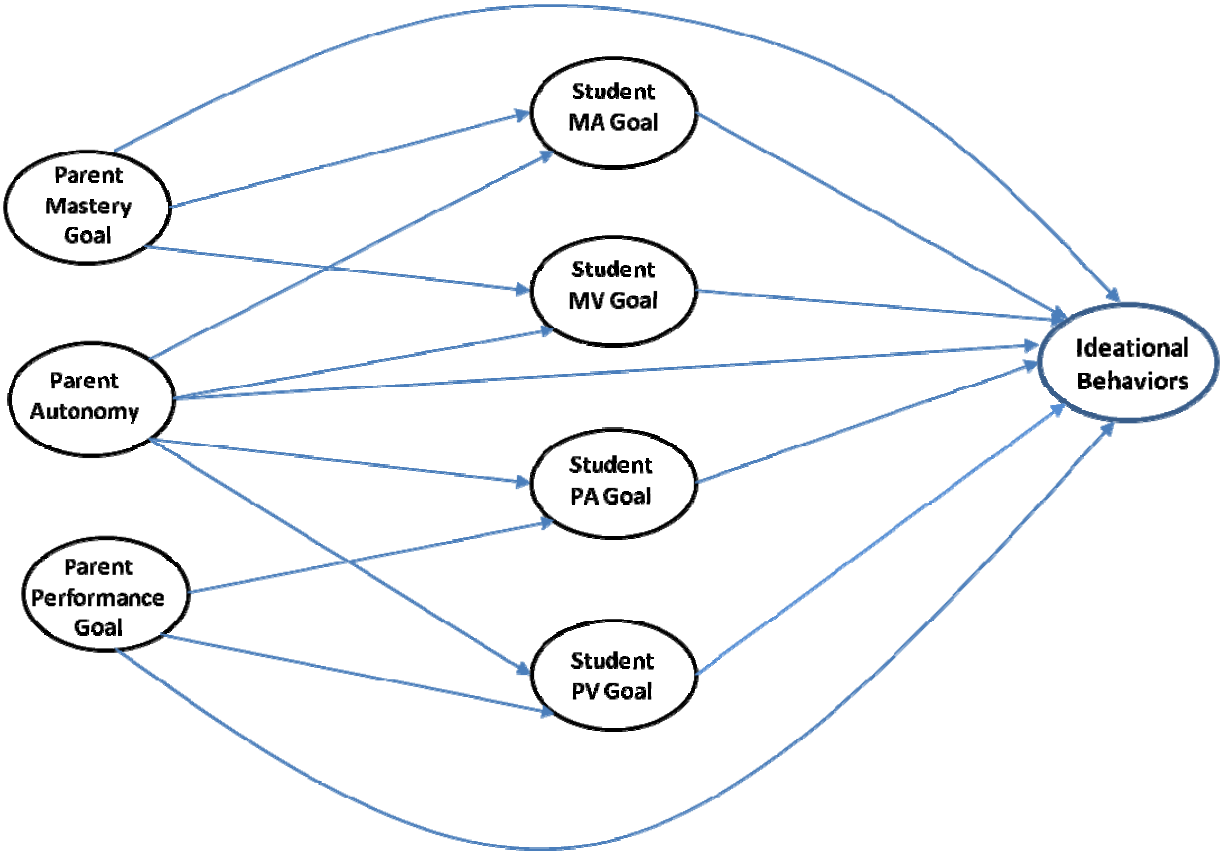


Table 2

Correlation among Latent Variables in School Influence on Ideational Behaviors

	1	2	3	4	5	6	7	8
School Variables								
1. School Mastery Goal		-.22**	.68**	.35**	.17**	.09**	.08**	.30**
2. School Performance Goal			-.22**	-.14**	.07*	.15**	.16**	-.01
3. Instructor Autonomy				.36**	.19**	.15**	.12**	.38**
Student Variables								
4. Mastery-Approach Goal					.42**	.28**	.22**	.49*
5. Mastery-Avoidance Goal						.29**	.36**	.30**
6. Performance-Approach Goal							.82**	.09**
7. Performance-Avoidance Goal								.06*
8. Intrinsic Motivation								

*$p < .05$; **$p < .01$

Table 3

Correlation among Latent Variables in Parent Influence on Ideational Behaviors

	1	2	3	4	5	6	7	8
Parent Variables								
1. Parental Mastery Goal		.50**	.41**	.42**	.22**	.24**	.19**	.29**
2. Parental Performance Goal			.06*	.19**	.16**	.40**	.38**	.08*
3. Parental Autonomy				.29**	.08**	.15**	.11**	.19**
Student Variables								
4. Mastery-Approach Goal					.42**	.28**	.22**	.49**
5. Mastery-Avoidance Goal						.29**	.36**	.30**
6. Performance-Approach Goal							.82**	.09**
7. Performance-Avoidance Goal								.06*
8. Intrinsic Motivation								

* $p < .05$; ** $p < .01$

Full Structural Models

The present study tests two full structural models examining the effects of environmental motivational variables (i.e., students' perceptions of school goal structures, instructor autonomy support, parental goal orientations, and parental autonomy support) on students' ideational behaviors through mediating effect of students' achievement goal orientations (i.e. mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance). The environmental motivational variables were considered in two different settings: parent and school. The measurement model of latent variables explained in the previous section had statistically significantly acceptable fit to the data. The full structural models of school and parental influence on ideational behaviors indicated fit to the data.

The full structural model of school influence on ideational behaviors explained 12% (R^2 = .12, $p < .001$), and the full structural model of parental influence on ideational behaviors explained 14% of the variance of ideational behaviors ($R^2 = .14$, $p < .001$). Both models a good fit to the data. The structural model of school influence on ideational behaviors showed significant statistical index as following: χ^2 (1222) = 3522.79, CFI = .913, TLI = .905, RMSEA = .045, SRMR = .046. Also, the structural model of parental influence on ideational behaviors showed significant statistical index as following: χ^2 (1220) = 3662.91, CFI = .909, TLI = .901, RMSEA = .046, SRMR = .046.

SEM of School influence on ideational behaviors. The relationships between the predictor variables and ideational behaviors in the SEM of school influence on ideational behaviors are shown in Figure1. The environmental variables of motivation in school setting include two perceived school goal structures, school mastery goal and school performance goal, and instructor autonomy. The personal variables of motivation contain four students' achievement goal orientations.

The effects of students' goal orientations and their perceptions of school goal structures and instructors' autonomy on students' ideational behaviors are shown in Table 1 by the standardized and the unstandardized coefficients.

Students' perceptions of school goal structures and instructor autonomy support. Students' perceptions of school goal structures had significant direct or indirect effects on students' ideational behaviors. Students' perceptions of instructor autonomy support did not show any significant direct effect on ideational behaviors, while the indirect effects on ideational behaviors were found.

Students' perception of school mastery goal had a significant direct effect on ideational behavior (β=.11, p < .05). The indirect effect of perceived school mastery goal structure on ideational behaviors was found through student mastery-approach goal (β=.03, p < .05).

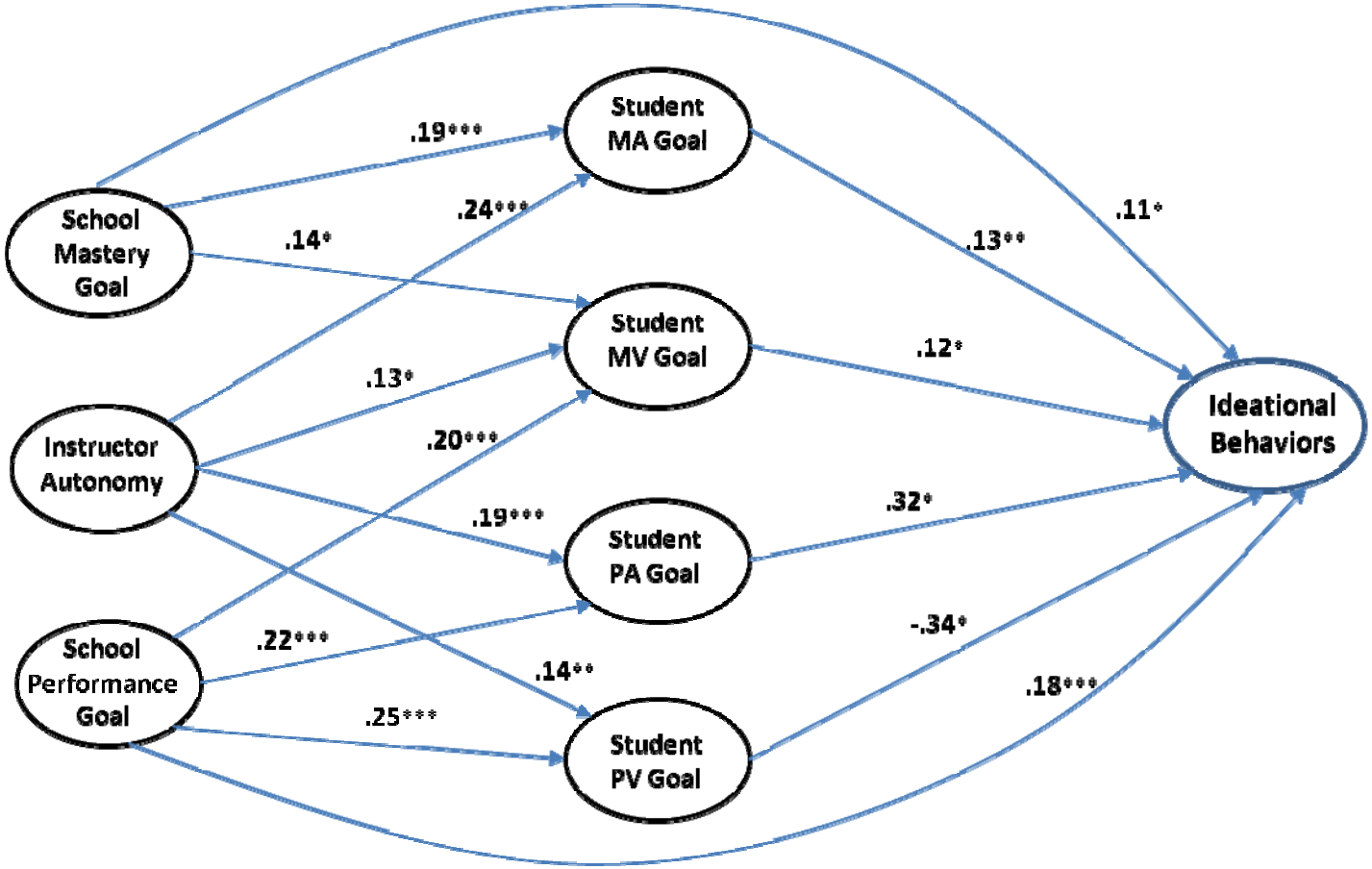
Students' perception of school performance goal was also positively related to ideational behaviors. The direct effect of Students' perception of school performance goal on ideational behaviors was statistically significant (β=.18, p < .001). The indirect effects of perceived performance goal structure were also significant through student achievement goals. One indirect effect was found through student mastery-avoidance goal (β=.02, p < .05), and the other indirect effects through student performance-approach goal (β=.07, p=.055) and through student performance-avoidance goal (β= -.08, p=.051).

Student perception of instructor autonomy support did not show any significant direct effect on ideational behaviors. Perceived instructor autonomy, however, showed significant indirect effects on ideational behaviors through student mastery-approach goal (β=.03, p < .05) and through student performance-approach goal (β= .06, p=.078).

Student achievement goal orientations. Students' achievement goal orientations in the SEM of school influence on ideational behaviors showed significant relationship with ideational behaviors. Two mastery goals were positively related to ideational behaviors. Mastery-approach goal (β=.13, p < .01) and mastery-avoidance goal (β=.12, p < .05) showed the significant direct effect on ideational behaviors (See Table 4. 1). Two performance goals had also significant relationships with ideational behaviors, but different performance goal had different direction of the relationship with ideational behaviors. Student performance-approach goal was positively related to ideational behavior (β=.32, p < .05). Student performance-avoidance goal, however, was negatively related to ideational behaviors (β= -.34, p < .05).

Figure 9

Structural Equation Model of School Influence on Ideational Behaviors



χ^2 (1222) = 3522.79 CFI = .913 TLI = .905 RMSEA = .045

MA=Mastery-Approach, MV=Mastery-Avoidance, PA=Performance-Approach, PV=Performance-Avoidance

Table 4

Standardized and Unstandardized Coefficients of the Structural Equation Modeling of School Influence on Ideational Behaviors

		Standardized (Unstandardized)								
Model		SM	SP	IAU	SMA	SMV	SPA	SPV	*SE*	R^2
Direct										
	SM									
	SP	-.27*** (-.33)								
	IAU	.64*** (.72)	-.14*** (.19)							
	SMA	.19*** (.21)		.24*** (.23)		.42*** (.52)	.28*** (.30)	.26*** (.33)	.03	.17***
	SMV	.14* (.18)	.20*** (.21)	.13* (.15)			.31*** (.44)	.40*** (.67)	.02	.07***
	SPA		.22*** (.20)	.19*** (.19)				.92*** (1.33)	.02	.08***
	SPV		.25*** (.27)	.14** (.16)					.02	.07***
	IB	.11* (.13)	.18*** (.17)		.13** (.15)	.12* (.10)	.32* (.33)	-.34* (-.29)	.03	.12***
Indirect										
	IB	.03*	.02*	.03*						
Total										
	IB	.15**	.18***	.11*						

*p < .05; **p < .01; ***p < .001

SM = School Mastery goal, SP = School Performance goal, IAU = Instructor Autonomy,
SMA = Student Mastery-Approach goal, SMV = Student Mastery-Avoidance goal,
SPA = Student Performance-Approach goal, SPV = Student Performance-Avoidance goal,
IB = student Ideational Behaviors

SEM of parental influence on ideational behaviors. The relationships between the predictor variables and ideational behaviors in the structural equation model of parental influence on effect are shown in Figure 2. The predictor variables of the present study are divided into environmental and personal motivational variables. The environmental motivational variables in the SEM of parental influence on ideational behaviors include students' perceptions of parental goal orientations, parent mastery goal and parent performance goal, and parent autonomy support. The personal motivational variables include students' achievement goal orientations.

The effects of students' goal orientations and their perceptions of parent goal orientations and autonomy support on students' ideational behaviors are shown in Table 4 by the standardized and the unstandardized coefficients.

Student Perception of parental goal orientations and autonomy support. Student perception of parental goal orientations showed significant direct or indirect effects on students' ideational behaviors. Student perceptions of parental autonomy support did not show any significant direct effect on ideational behaviors, while the significant indirect effects on ideational behaviors were found.

Student perception of parental mastery goal was positively related to ideational behaviors. As Table 4 shown, student perception of parental mastery goal had a significant direct effect on ideational behavior (β=.22, p < .01), but did not have any significant indirect effects.

Student perception of parental performance goal did not show any significant direct effects on ideational behaviors. Student perception of parental performance goal, however, demonstrated three significant indirect effects on ideational behaviors through students' achievement goal orientations. The indirect effect of student perception of parental performance goal through students' performance-approach goal was positive (β=.16, p < .05), but that through student performance-avoidance goal was negative (β= -.19, p < .05).

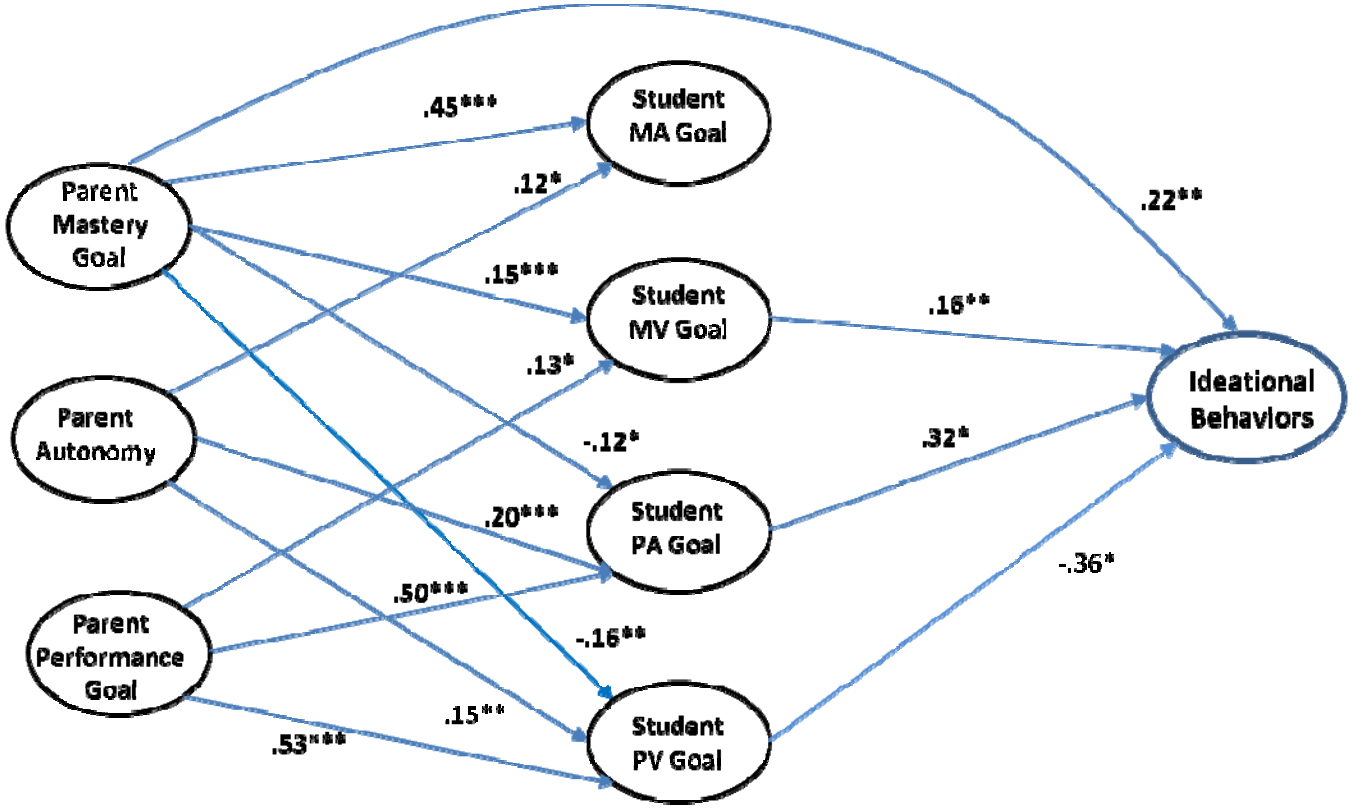
Student perception of parental autonomy support did not show any significant direct effect on ideational behaviors. Student perception of parental autonomy support, however, showed significant indirect effects on ideational behaviors through student performance-approach goal (β=.06, p=.070) and through student performance-avoidance goal (β= -.05, p=.071).

Student achievement goal orientations. Students' achievement goal orientations in the SEM of parental motivational variables had significant effects on ideational behaviors, except student mastery-approach goal. Student mastery-approach goal did not indicate any significant relationship with student ideational behaviors.

Student mastery-avoidance goal was positively related to ideational behaviors, and showed the significant direct effect on ideational behaviors (β=.16, p < .01) (See Table 4.4). Student performance-approach goal was also positively related to ideational behavior (β=.32, p < .05). Student performance-avoidance goal, however, was negatively related to ideational behaviors. Performance-avoidance goal had a significant direct effect on ideational behaviors (β = -.36, p < .05).

Figure 10

Structural Equation Model of Parental Influence on Ideational Behaviors



χ^2 (1220) = 3662.911 CFI = .909 TLI = .901 RMSEA = .046

MA=Mastery-Approach, MV=Mastery-Avoidance, PA=Performance-Approach, PV=Performance-Avoidance

Table 5

Standardized and Unstandardized Coefficients of the Structural Equation Modeling of Parental Influence on Ideational Behaviors

		Standardized (Unstandardized)								
Model		PM	PP	PAU	SMA	SMV	SPA	SPV	*SE*	R^2
Direct										
	PM									
	PP	.51*** (.45)								
	PAU	.50*** (.45)								
	SMA	.45*** (.58)		.12* (.11)		.42*** (.49)	.26*** (.24)	.25*** (.26)	.03	.25***
	SMV	.15* (.25)	.13* (.16)				.31*** (.41)	.41*** (.63)	.02	.06***
	SPA	-.12* (-.17)	.50*** (.53)	.20*** (.21)				.90*** (1.1)	.03	.22***
	SPV	-.16** (-.26)	.53*** (.65)	.15** (.18)					.03	.23***
	IB	.22** (.32)				.16** (.14)	.32* (.33)	-.36* (-.32)	.03	.14***
Indirect										
	IB		.16* (through SPA)							
			-.19* (through SPV)							
Total										
	IB	.28***								

*p < .05; **p < .01; ***p < .001

PM = Parent Mastery goal, PP = Parent Performance goal, PAU = Parent Autonomy,
SMA = Student Mastery-Approach goal, SMV = Student Mastery-Avoidance goal,
SPA = Student Performance-Approach goal, SPV = Student Performance-Avoidance goal,
IB = student Ideational Behaviors

CHAPTER V

DISCUSSION

This chapter consists of three sections. The results reported in the chapter 4 will be interpreted, and discussed in the first section. In the second section, the limitations of the present study and the suggestions for future studies will follow. Finally, theoretical and practical implications for creativity and motivation research will be discussed.

The present study aimed to investigate how parents and school environment in terms of goal orientation/structure and autonomy support affect college students' ideational behaviors through the mediation effect of students' personal achievement goal orientation. This study yielded the following primary findings.

First, students' ideational behaviors were affected by both students' personal goal orientations and their perceptions of school environment and parenting (e.g., student perception of school goal structures and autonomy support; student perception of parental goal orientations and autonomy support). Second, students' personal achievement goals were shaped by their perception of school and parental characteristics (e.g., student perception of school goal structures and autonomy support; student perception of parental goal orientation and autonomy support). Third, the effects of student perception of school goal structures and parental goal orientations on students' ideational behaviors were partially mediated by students' personal goal orientations.

Fourth, the association between autonomy supportive environment at school and home and students' ideational behaviors were fully mediated by students' personal goal orientation.

Students' Personal Achievement Goals Predicting Ideational Behaviors

The school effect model indicated that college students' ideational behaviors are likely to be positively predicted by students' endorsement of mastery-approach, mastery-avoidance, and performance-approach goals, while they were negatively predicted by their performance-avoidance goal pursuit.

Students who strive to improve their ability or understand knowledge (e.g., mastery-approach goal oriented) tend to engage in ideational behaviors. Students with mastery-approach goals seem to expend their effort to develop creative ideas and apply them for the solution of problems in their academic works. They may utilize ideational behaviors as a way to understand new ideas and improve their ability. This finding is consistent with the research to explore the relationship between employee's creativity and their mastery goals in job performance setting (Gong et al., 2009). Mastery goals (mastery-approach and mastery-avoidance) focus on understanding and growth, and are shown to facilitate persistence and mastery-oriented behaviors in the face of obstacles and low ability (Ames & Archer, 1988; Elliott & Dweck, 1988; Grant & Dweck, 2003). Therefore, students bring mastery goals in achievement setting may do behaviors related to thinking creative ideas.

Students' performance-approach goal was positively related to students' ideational behaviors. Students striving to demonstrate their ability in academic tasks tended to engage in ideational behaviors. This finding can be explained by the 'approach' component of performance goals, which represents the active and positive form of regulation seeking desirable outcomes and success (Elliot et al., 2005). Performance-approach goals are often related with mixed outcomes.

Performance-approach goals tend to facilitate better performance in a broader range of situations and on a broader range of tasks than mastery goals while they tend to decrease academic interest (Elliot et al., 2005). The adaptability of performance-approach in extensive settings can give explanation why performance-approach goals showed a positive association with ideational behaviors.

Given that students' mastery goals and performance-approach goals led to higher engagement in ideational behaviors, it might be plausible that students with different types of achievement goals may utilize ideational behaviors for different purposes. It may imply that students with mastery-approach and performance-approach utilize ideational behaviors for different reasons (to achieve different purposes). For example, students with mastery-approach may be involved in ideational behaviors to explore ideas and gain deeper understanding (for learning purpose). On the other hand, students with PA may be involved in ideational behaviors to demonstrate their superior ability (for demonstration purpose).

Contrary to other types of students' achievement goals, students' performance-avoidance goal negatively predicted students' ideational behaviors. Students striving to hide that their ability is low may not try to engage in ideational behaviors. Performance-avoidance goals involve regulating a negative normative possibility that is posited to evoke a host of negative processes (distraction, anxiety, self-protective divestment) that undermine performance in most achievement settings (Elliot et al., 2005).

In the parent effect model, similar patterns of relationship between students' personal achievement goals and ideational behaviors were observed except that students' mastery-approach goal pursuit did not lead to increased ideational behaviors, which is inconsistent with the result of previous studies. The inconsistent effect of mastery-approach goals on ideational behaviors across the two models needs further investigation.

Student Perception of Environmental Goal Orientations (i.e., School Goal Structures and Parental Goal Orientation) Predicting Ideational Behaviors

In general, student perception of school goal structures and parental goal orientations showed a direct effect on students' ideational behaviors as well as an indirect effect through the mediating role of students' personal achievement goals. More detailed findings of the school effect model and the parental effect model will be discussed.

In the school effect model, both student perception of mastery and performance goal structures promoted by a school resulted in students' higher engagement in ideational behaviors. Prior studies have supported the positive association between school mastery goal structure and desirable outcome (Midgley & Urdan, 2001; Urdan, 2004; Urdan et al., 1998; Wolters, 2007). When a school emphasizes students' mastery learning and individual improvement, students tend to be more motivated to engage in ideational behaviors. More interestingly, the association between student perception of school mastery goal structures and their ideational behaviors were mediated by their personal achievement goals. This implies that student perception of school goal structures tend to lead students to endorse a certain type of achievement goals, which then motivate them to engage in more ideational behaviors to achieve their personal goals in achievement academic setting.

Although previous studies have documented that school performance goal structures are associated with both positive and negative outcomes (Christensen, 2009; Wolters & Daugherty, 2007), the present study indicated that ideational behaviors are one of the desirable outcomes that can be facilitated by school performance goal structures. Even when a school represents a focus on students' high ability relative to others and doing better that other, students still tend to be

more motivated to engage in ideational behaviors. In addition, the relationship between student perception of school performance goal structures and their ideational behaviors were mediated by their personal achievement goals. However, cautions need to be taken in regards to the practical implication for the positive association between school performance school goal structure and ideational behaviors because of numerous negative outcomes promoted by school performance goal structures.

The results from the parental effect model demonstrated that students' ideational behaviors had significant associations with how students perceive their parents' goal orientations that reflect parental expectations and values toward students' academic achievement. Students' ideational behaviors were positively influenced by student perception of parent mastery goals. When parents focus on students' self-improvement over past performance and learning and understanding new skills, students tend to show higher engagement in ideational behaviors. In addition, the association between parents' mastery goal and students' ideational behaviors were mediated by students' mastery-approach goal. Further, the present study showed that the influence of parents' emphasis on mastery goals on students' ideational behaviors can be explained by the mediating role of students' personal achievement goals. Parents' mastery goal orientations tend to promote students' mastery-approach and mastery-avoidance goals while they tend to discourage performance-approach and performance-avoidance goals. Then, these personal achievement goals are differentially associated with ideational behaviors. It is very meaningful to investigate how parent goal orientations affect students' engagement in ideational behaviors through the development of students' personal achievement goal orientation.

While student perception of parents' performance goal orientation did not have a direct impact on students' ideational behaviors, it exerted an indirect effect on ideational behaviors through the mediating role of students' personal achievement goals. Parents who are perceived to stress demonstrating superior ability and getting higher grades tend to increase students'

endorsement of mastery-avoidance, performance-approach, and performance-avoidance goals, which then lead to different levels of ideational behaviors.

Within the framework of achievement goal theory, the influences of parental goal orientations or student perceptions of parent goal orientations on students' personality, motivational constructs, learning pattern and academic achievement has been investigated by many studies. Most studies have showed that parent mastery goal (or student perception of parent mastery goal) exerted more positive influence than parent performance goal (or perceived parent performance goal) on students' healthy perfectionism, mastery goals, and improvement of academic achievement (Elliot & Thrash, 2004; Gutman, 2006; Friedel, Cortina, Turner, & Midgley, 2007; Gonida et al., 2007). Few studies have examined the influence of student perception of parent goal orientations on students' ideational behaviors. However, the results of other studies regarding the positive influences of (perceived) parent mastery goal are consistent with that of the present study. Student perception of their parent mastery goal was found to be a significant predictor of students' ideational behaviors.

Student Perception of Environmental Autonomy Support (i.e., School and Parental Autonomy Support) Predicting Ideational Behaviors

Student perceptions of school autonomy support and parental autonomy support showed indirect effects on students' ideational behaviors through the mediating role of students' personal achievement goals. More detailed findings of autonomy support in the school effect model and the parental effect model will be discussed.

In the school effect model, school autonomy support promoted by instructors motivating style in classroom affected students' ideational behaviors through the mediating role of student personal achievement goals. This means that student perception of school autonomy support can direct students to endorse a certain type of achievement goals, and the achievement goal

orientations lead students to more ideational behaviors in achievement academic setting. School autonomy support was fully mediated by student mastery-approach and performance-approach goals. Either when students engage in developing ability in term of progress towards an absolute standard or when they strive in demonstrating ability in terms of comparative standards, students' engagements in achievement academic setting seem to improve their ideational behaviors.

The personal achievement goals playing the role of significant mediating effects on ideational behaviors include a common type, 'approach'. When students have mastery-approach goals, they want to learn, master, and truly understand the task at hand. The students with performance-approach goals strive to attain favorable judgments of competence. This implies that students engaged in 'approach' goals in academic setting tend to pursue their desirable goals voluntarily, and this type of students' goals may improve student's ideational behaviors. The characters of the 'approach' goals are similar to those of intrinsic motivation. Prior studies have supported the autonomy support have been associated with a stronger sense of competence and higher levels of intrinsic motivation (Ryan & Grolnick, 1986). The finding of the present study, the mediating effects of the approach goals on ideational behaviors by school autonomy support, is consistent with the studies to explore the positive associations between intrinsic motivation and creativity (Greene et al., 2004; Shih, 2008). School autonomy support seems to provide encouragement for the learners to make their own choices, and encourage student to do more ideational behaviors in academic setting.

The results from the parent effect model demonstrated that student perception of parental autonomy support affected students' ideational behaviors through the mediating role of student personal achievement goals. Student performance-approach goal mediated the positive relationship between student perception of parental autonomy support and their ideational behaviors, while performance-avoidance goal mediated the negative relationship. This implies that parents' promotion of students' independence supports students striving in performing better

academic achievement than others, and this goal type motivate students to engage in more ideational behaviors. However, parents' motivating style to encourage student's independence makes students focus on avoiding unfavorable judgment of their academic achievement, this performance-avoidance goal provoke students to avoid doing ideational behaviors.

The finding of the present study regarding student perception of parental autonomy support is consistent with the study showing the positive relationship between students' autonomy regulation style and their creativity (Mahboobeh, Bahram, & Mohammad, 2011). The participants of this study were college students, and most of the participants (##%, see appendix ##) did not live with their parents. However, they still seem to be influenced their parents promote independence regarding their ideational behaviors in academic works. Students perception of parental autonomy support, that is, parents motivating style to promote students' independence resulted in students' engagement in their ideational behaviors.

Limitations of Present Study

The limitations of the present study are the problems regarding measurement and generalizability. All variables of this study were self-report measures via questionnaires with a rating scale. Participants' self-reported response can have an issue of response bias. Response bias may be broadly grouped into response style and response set (Lanyon & Goodstein, 1997). Response style means bias in a particular direction regardless of the content of the test items. Participants have a tendency to respond positively regardless of the content of the question, and this acquiescence response style can be particularly problematic for attitude survey research (see Paulhaus, 1991). Another tendency of participants regarding response style is to respond moderate consistently using particular sections of the scale. The final limitation in terms of measurement is response set, a response distortion related to content of the question. Response set is a response bias which is participants' conscious or unconscious responses to create a certain

impression. Participants tend to give socially desirable responding in self-reported questions (see Edwards, 1953).

Although the participants of present study were sampled in a is balanced way in terms of participant's characteristics such as gender, academic year, college, age etc., the participants were affiliated with a midwestern university in the US, and thus there is a limitation to generalize the findings to college students in other institutions in the United State or other cultures.

Suggestions for Future Studies

The current study examined the influences of personal achievement goal orientations, perceived goals, and autonomy support on creativity in two environmental settings, parent and school. The present study defines creativity in terms of domain-general ideational behaviors. Creative thinking can predict creative performance in a course, but the components that can explain creative performance may be different according to contextual features of a course (Jeon, Moon, & French, 2011). The performance required in a course may be viewed as either creative (originality or uniqueness) or noncreative (precision or accuracy), depending on the characteristics of the course. Education to focus on reproduction of existing knowledge has a negative effect on creative thinking (Alencar, 1993). Considering domain-specific creativity, the patterns of the relationships among personal achievement goals, perceived goals and autonomy supports in parent and school settings, and creativity in a certain course may be different.

In addition, the environmental motivational variables of the current study were considered as domain-general constructs which impose restriction to understand the influential motivational variables in the relationship with creativity in a specific domain. For parental motivational variables, it is likely to be difficult to identify how students perceive parent goals or autonomy support in a different course. For school motivational variables, perceived goal structures and autonomy support can be considered at an individual classroom level in addition to at a general school level.

In addition to the motivational variables included in the present study (e.g., personal achievement goals and perceived goals and autonomy support in parent and school settings), other motivational variables need to be investigated to further identify motivational antecedents of ideational behaviors. For example, motivating styles can be considered as the significant predictor of creativity. The study of the relationship between motivational belief and creativity demonstrated that students' autonomy regulation style positively predicted their creativity (Mahboobeh, Bahram, & Mohammad, 2011).

The participants of the present study were college students. Considerable research documented the changes in students' achievement goal orientations, perceived parental goal orientations, and perceived school goal structures across the transition to middle-level or to high school and how these changes are related to students' motivational and cognitive behaviors (Anderman & Anderman, 1999; Anderman & Midgley. 1997; Pajares & Cheong, 2003; Urdan & Midgley, 2003). The examination of creativity and its relation to achievement goals and autonomy support needs extended into various age groups to better understand developmental patterns.

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APPENDICES

APPPENDIX A

Runco Ideational Behavior Scale (RIBS)

Not at all true			Somewhat true			Very true
1	2	3	4	5	6	7

1. I have many wild ideas.
2. I think about ideas more often than most people.
3. I often get excited by my own new ideas.
4. I come up with a lot of ideas or solutions to problems.
5. I come up with an idea or solution other people have never thought of.
6. I like to play around with ideas for the fun of it.
7. It is important to be able to think of bizarre and wild possibilities.
8. I would rate myself highly in being able to come up with ideas.
9. I have always been an active thinker—I have lots of ideas.
10. I enjoy having leeway in the things I do and room to make up my own mind.
11. My ideas are often considered "impractical" or even "wild."
12. I would take a college course which was based on original ideas.
13. I am able to think about things intensely for many hours.
14. Sometimes I get so interested in a new idea that I forget about other things that I should be doing.
15. I often have trouble sleeping at night, because so many ideas keep popping into my head.
16. When writing papers or talking to people, I often have trouble staying with one topic because I think of so many things to write or say.
17. I often find that one of my ideas has led me to other ideas that have led me to other ideas, and I end up with an idea and do not know where it came from.
18. Some people might think me scatterbrained or absentminded because I think about a variety of things at once.
19. I try to exercise my mind by thinking things through.
20. I am able to think up answers to problems that haven't already been figured out.
21. I am good at combining ideas in ways that others have not tried.
22. Friends ask me to help them think of ideas and solutions.
23. I have ideas about new inventions or about how to improve things.

APPPENDIX B

Personal Achievement Goal Orientations

Not at all true			Somewhat true			Very true
1	2	3	4	5	6	7

1. My aim is to completely master the material presented in class. (MA)
2. My aim is to avoid doing worse than other students. (PV)
3. My aim is to perform well relative to other students. (PA)
4. My aim is to avoid learning less than I possibly could. (MV)
5. I am striving to understand the content of course as thoroughly as possible. (MA)
6. I'm striving to avoid performing worse than others. (PV)
7. I am striving to do well compared to other students. (PA)
8. I am striving to avoid an incomplete understanding of course material. (MV)
9. My goal is to learn as much as possible. (MA)
10. My goal is to avoid performing poorly compared to others. (PV)
11. My goal is to perform better than the other students. (PA)
12. My goal is to avoid learning less than it is possible to learn. (MV)

MA: Mastery-Approach Goal Orientation
MV: Mastery-Avoidance Goal Orientation
PA: performance-Approach Goal Orientation
PV: Performance-Avoidance Goal Orientation

APPPENDIX C

Perceptions of Parent's Goal Orientations

Not at all true			Somewhat true			Very true
1	2	3	4	5	6	7

1. My parents want me to spend time thinking about concepts.
2. My parents don't like it when I make mistakes in my class work.
3. My parents would like it if I could show that I'm better at class work than other students in my class.
4. My parents want my work to be challenging for me.
5. My parents would like me to show others that I am good at class work.
6. My parents would like me to do challenging class work, even if I make mistakes.
7. My parents think getting the right answers in class is very important.
8. My parents want me to understand my class work, not just memorize how to do it.
9. My parents want me to see how my class work relates to things outside of school.
10. My parents would be pleased if I could show that class work is easy for me.
11. My parents want me to understand concepts, not just do the work.

Parent Mastery Goal Orientation: 1, 4, 6, 8, 9, 11
Parent Performance Goal Orientation: 2, 3, 5, 7, 10

APPPENDIX D

Perceptions of School Goal Structures

Not at all true			Somewhat true			Very true
1	2	3	4	5	6	7

1. At OSU, instructors believe all students can learn.
2. At OSU, instructors treat students who get good grades better than other students.
3. At OSU, understanding the work is more important than getting the right answers.
4. At OSU, only a few students get praised for their school work.
5. At OSU, mistakes are okay as long as we are learning.
6. At OSU, instructors only care about the smart students.
7. At OSU, instructors think how much you learn is more important than test scores or grades.
8. Instructors at OSU have given up on some of its students.
9. At OSU, instructors want students to really understand their work, not just memorize it.
10. At OSU, special privileges are given to students who get the highest grades.
11. At OSU, trying hard counts a lot.

School Mastery Goal Structure: 1, 3, 5, 7, 9, 11
School Performance Goal Structure: 2, 4, 6, 8, 10

APPPENDIX E

Perceptions of Parents Scales (POPS): The College-Student Scale

The following statements are your thoughts about your parents.
If you do not have any contact with one of your parents (for example, your father), but there is another adult of the same gender living with your house (for example, a stepfather) then please answer the questions about that other adult.
If you have no contact with one of your parents, and there is not another adult of that same gender with whom you live, then leave the questions about that parent blank.

Not at all true			Somewhat true			Very true
1	2	3	4	5	6	7

The questions about your parents.

1. My parents seem to know how I feel about things.
2. My parents, whenever possible, allow me to choose what to do.
3. My parents listen to my opinion or perspective when I've got a problem.
4. My parents allow me to decide things for myself.
5. My parents are usually willing to consider things from my point of view.
6. My parents help me to choose my own direction.

All items are for Parent Autonomy Support

APPPENDIX F

Perception of Instructors' Motivating Styles
(The Learning Climate Questionnaire (LCQ)

Not at all true			Somewhat true			Very true
1	2	3	4	5	6	7

1. At OSU, I feel that instructors provide me choices and options.
2. At OSU, I feel understood by instructors.
3. At OSU, instructors convey confidence in my ability to do well in the courses
4. At OSU, instructors encourage me to ask questions
5. At OSU, instructors listen to how I would like to do things.
6. At OSU, instructors try to understand how I see things before suggesting a new way to do things.

All items are for Instructor Autonomy Support

Appendix G. Demographic Information of the Participants (N=1164)

Variable	Frequency	Percent
Age (M=21.09, SD=4.39)		
18 years	204	17.8
19 years	231	20.2
20 years	183	16.0
21 years	203	17.7
22 years	131	11.5
23 years	69	6.0
24 years	31	2.7
25 years	11	1.0
Gender		
Male	476	40.8
Female	688	59.2
Academic classification		
Freshman	307	26.4
Sophomore	225	19.3
Junior	264	22.7
Senior	368	31.6
College		
Agricultural Science	99	8.5
Art & Sciences	347	29.8
Business	216	18.6
Education	84	7.2
Engineering & Architecture	111	9.5
Human Environmental Sciences	194	16.7
Veterinary Health Sciences	108	9.3

Appendix H: Institutional Review Board Approval

Information Sheet for Paper-based Survey Participants
(This will be provided as a written form.)

INFORMATION SHEET

Project Title:	The Influence of Environmental and Personal Variables of Motivation on Creativity
Investigators:	Sungah Kim, Doctoral Graduate Student of Educational Psychology, Oklahoma State University.
Purpose:	The purpose of this research study is to explore the effect of achievement goal orientation and self determinate motivation on ideation in classroom in order to help students be motivated to engage in their ideation.
Procedures:	Participants will be asked to complete an online survey questionnaire and provide demographic information with an anticipated completion time of 15 minutes.
Risks of Participation:	There are no known risks associated with this project which are greater than those ordinarily encountered in daily life.
Benefits:	Benefits to participants may include gaining further understanding of how college students' achievement goal orientation and self determinate motivation influence on their ideation in classroom. The findings of this study may help students better be motivated to engage in their ideation. An additional benefit may be that answering the survey questions may help students become more aware of their perception of parents' goal orientations and motivating styles, teachers' goal orientations, and classroom goal structures.
Confidentiality:	Confidentiality protections the investigators plan to use include: • Research records will be stored securely in a locked file of the researcher at 402 Willard and no one other than the research team will have any access to the data obtained; • Electronic data files will be destroyed five years after the completion of the study; • Any written results and information will not identify you. There are no foreseeable risks in maintaining confidentiality.
Compensation:	No compensation is offered for participation in the research.
Contacts:	Please feel free to contact the researcher or her advisor if you have questions or concerns about this research project. Sungah Kim, Oklahoma State University, 402 Willard Hall, Stillwater, OK 74078, 405-332-0277, sungah@okstate.edu YoonJung Cho, Assistant Professor, Oklahoma State University, 426 Willard Hall, Stillwater, OK 74078; 405-744-9444; yoonjung.cho@okstate.edu If you have questions about your rights as a research volunteer, you may contact Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu.
Participant Rights:	Participation is voluntary and subjects can discontinue the research activity at any time without reprisal or penalty. There are no risks to subjects who might withdraw.

I have read and fully understand the information sheet. I also understand that all information I provide is strictly confidential and will be used for this study purpose only. I also understand that I will remain anonymous throughout the course of this study. I am free to discontinue participation during data collection at any time. My agreement to participate in this study is signified by my participation.

VITA

Sungah Kim

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE INFLUENCE OF ENVIRONMENTAL AND PERSONAL VARIABLES OF MOTIVATION ON CREATIVITY

Major Field: Educational Psychology

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in Educational Psychology at Oklahoma State University, Stillwater, Oklahoma in July, 2012.

Completed the requirements for the Master of Science in Educational Psychology and Counseling at Kyungpook National University, Daegu, Korea in 2001.

Completed the requirements for the Bachelor of Science in Education at Changwon National University, Changwon, Korea in 1994.

Experience:

Graduate Research Associate in the University Assessment & Testing at Oklahoma State University from September 2009-2012.
Instructor in School of Applied Health & Educational Psychology at Oklahoma State University from Fall 2006-Fall 2009.
Research Coordinator in the Center for Teaching and Learning at Gongju National University of Education, Korea in 2004.
Instructor in higher education in Korea from 2002- 2006

Professional Memberships:

American Educational Research Association - Motivation SIG
American Psychological Association - Division 15
International Society for the Scientific Study of Subjectivity
Korean Educational Psychology Association
Oklahoma Psychological Association

Name: Sungah Kim Date of Degree: July, 2012

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: THE INFLUENCE OF ENVIRONMENTAL AND PERSONAL MOTIVATIONAL VARIABLES ON CREATIVITY

Pages in Study: 95 Candidate for the Degree of Doctor of Philosophy

Major Field: Educational Psychology

Scope and Method of Study: Cultivating creativity is considered as a prominent curricular goal for the preparation for the future which might have more new information and technology and more challenge. Creative ideation reflects how individual uses appreciate ideas, and it can be a universal component of creativity, in that creativity at all levels involves ideation (Runco, Plucker, & Lim, 2001). The most efficient way to cultivate people's ideation is motivating them to be creative in their everyday life as well as in specific context. It is crucial to explore what motivational theory or variables can explain ideational behaviors and improve them. Achievement goal orientation theory focus on the types of goal individuals pursue in achievement situations (Dweck & Leggett, 1988; Maehr, 1989; Urdan & Midgley, 2003). Different goals results in different behaviors (Urdan & Midgley, 2003). Individual need for autonomy is related to achievement motivation (Grolnick, 2002; Grolnick, Deci, & Ryan, 1981; 1997). Autonomy-supportive contexts are associated with more intrinsic motivation (Deci, Schwartz, Sheinman, & Ryan, 1981). The purpose of this study was to investigate how school and parent environment in terms of goal orientation and autonomy support affect college students' ideational behaviors through the mediation effect of students' personal achievement goal orientation. The participants were 1164 college students, and the data was analyzed using the Structure Equation Modeling.

Findings and Conclusions: The full structural model of school influence on ideational behaviors explained 12% ($R^2 = .12$, $p < .001$), and the full structural model of parental influence on ideational behaviors explained 14% of the variance of ideational behaviors ($R^2 = .14$, $p < .001$). This study yielded the following primary findings. First, students' ideational behaviors were affected by both students' personal goal orientation and their perceptions of school environment and parenting (e.g., perceived school goal structures and autonomy support; perceived parents' goal orientation and autonomy support). Second, students' personal achievement goals were shaped by their perception of school and parental motivational variables. Third, the effect of perceived school goal structures and parental goal orientation on students' ideational behaviors was partially mediated by students' personal goal orientation. Fourth, the association between autonomy supportive environments and students' ideational behaviors were fully mediated by students' personal goal orientation.

ADVISER'S APPROVAL: Dr. YoonJung Cho