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Pepperdine University  
Graduate School of Education and Psychology

TEACHERS' BELIEFS ABOUT CREATIVITY IN THE ELEMENTARY CLASSROOM

A dissertation presented in partial satisfaction  
of the requirements for the degree of  
Doctor of Education in Organizational Leadership

by

Dina Aish

July, 2014

Diana B. Hiatt-Michael, Ed.D. — Dissertation Chairperson

This dissertation, written by

Dina Aish

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

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## TABLE OF CONTENTS

	Page
LIST OF TABLES.....	vi
LIST OF FIGURES.....	ix
DEDICATION.....	x
ACKNOWLEDGMENTS.....	xi
VITA.....	xii
ABSTRACT.....	xiv
Chapter 1: Background.....	1
Statement of the Problem.....	1
Statement of the Purpose.....	3
Research Questions.....	5
Theoretical Framework.....	6
Significance of the Study.....	9
Definition of Terms.....	10
Assumptions.....	11
Limitations of the Study.....	12
Summary.....	13
Chapter 2: Literature Review.....	15
The Need for Creativity in the 21st Century.....	15
Knowledge Age Society.....	15
Industrial Age Education.....	17
History of Creativity in Education.....	20
Definitions of Creativity.....	26
Creativity and Intelligence.....	29
Creativity and Learning.....	30
Purposes of Education.....	32
Pedagogy and Learning Theory.....	41
Barriers to Creativity in the Classroom.....	46
Summary.....	59
Chapter 3: Methodology.....	62
Restatement of the Research Questions.....	62
Research Design.....	62

	Page
Population and Sample .....	63
Research Instrument.....	64
Human Subjects Protections.....	70
Data Collection Procedures .....	71
Summary of Methodology.....	72
 Chapter 4: Data Analysis and Results.....	 73
Participants .....	73
Data Analysis .....	73
Results.....	76
Summary .....	101
 Chapter 5: Summary, Discussion, Conclusions, Implications for Practice, and Recommendations for Further Research.....	 102
Restatement of the Problem .....	102
Restatement of the Purpose and Research Questions.....	103
Summary of Methodology.....	103
Summary of Major Findings.....	104
Discussion .....	107
Conclusions .....	132
Implications for Practice .....	138
Recommendations for Further Research .....	142
 REFERENCES.....	 145
 APPENDIX A: Permission to Reprint Figure.....	 164
APPENDIX B: School District Recruitment Letter, Email, or Phone Script.....	166
APPENDIX C: Principal Recruitment Letter, Email, or Phone Script.....	167
APPENDIX D: Survey Instrument.....	168
APPENDIX E: Permission to Use Or Modify Survey Instrument (1).....	171
APPENDIX F: Permission to Use Or Modify Survey Instrument (2).....	172
APPENDIX G: Permission to Use Or Modify Survey Instrument (3) .....	173
APPENDIX H: Permission to Reprint Table .....	174
APPENDIX I: Informed Consent.....	175
APPENDIX J: IRB Exemption Notice.....	176

## LIST OF TABLES

	Page
Table 1. Demographic Information of the Participants ( $N = 120$ ) .....	65
Table 2. Demographic Information of National K-12 Teachers .....	66
Table 3. Linkage Between Research Questions and Items on Survey Instrument .....	69
Table 4. Linkage Between Research Questions, Quantitative Survey Items, and Statistical Analysis.....	75
Table 5 Definition of Creativity: Survey Items 9, 23, and 27.....	77
Table 6 Definition of Creativity: Survey Items 9, 23, and 27 (Mean, Standard Deviation, Mode, and Range).....	77
Table 7. Teachers' Definitions of Creativity: Survey Item 1 ( $N = 114$ ) .....	78
Table 8. Teachers' Examples of Creativity: Survey Item 2 ( $N = 112$ ) .....	80
Table 9. Distribution of Creativity: Survey Item 29 (Frequency and Percentage) .....	81
Table 10. Distribution of Creativity: Survey Item 29 (Mean, Standard Deviation, Mode, Range) .....	81
Table 11. Percentage of Highly Creative Students: Survey Item 5 ( $N = 114$ ).....	82
Table 12. Malleability of Creativity (Frequency and Percentage) .....	83
Table 13. Malleability of Creativity: Means, Standard Deviations, Modes, and Ranges.....	83
Table 14. Specificity (Subject Domain) of Creativity .....	84
Table 15. Specificity of Creativity: Means, Standard Deviations, Modes, and Ranges.....	84
Table 16. "More Creative" School Subjects: Survey Item 31 .....	85
Table 17. The Way Participants Selected the "More Creative" School Subjects .....	85
Table 18. Top Themes for Description of the Creative Person: Survey Item 3 .....	86
Table 19. Characteristics of a Creative Student: Survey Item 4 .....	87

	Page
Table 20. Knowledge Base Characteristic of a Creative Student: Survey Item 24 .....	88
Table 21. Knowledge Base Characteristic of a Creative Student: Survey Item 24 (Mean, Standard Deviation, Mode, and Range).....	88
Table 22. Creativity is Essential for Enhancing Student Academic Learning: Survey Item 17 .....	89
Table 23. Creativity is Essential for Enhancing Student Academic Learning: Survey Item 17 (Mean, Standard Deviation, Mode, and Range).....	89
Table 24. Teachers' Beliefs about School or Classroom Environments and Creativity .....	90
Table 25. Teachers' Beliefs about School or Classroom Environments and Creativity: Survey Items 14, 19, 8, 13, and 16 (Mean, Standard Deviation, Mode, and Range).....	91
Table 26. Teachers Can Inhibit Creativity: Survey Item 25 .....	92
Table 27. Teachers Can Inhibit Creativity: Survey Item 25 (Mean, Standard Deviation, Mode, and Range).....	92
Table 28. Barriers to Promoting Student Creativity: Survey Item 7 (Frequencies and Percentages).....	93
Table 29. Employ Many Methods to Foster Creativity: Survey Item 28.....	94
Table 30. Employ Many Methods to Foster Creativity: Survey Item 28 (Mean, Standard Deviation, Mode, and Range).....	94
Table 31. Promoting Creativity Requires Improvisation: Survey Item 20.....	94
Table 32. Promoting Creativity Requires Improvisation: Survey Item 20 (Mean, Standard Deviation, Mode, and Range).....	94
Table 33. Activities and Strategies to Support Creativity: Survey Item 6 (N = 111).....	95
Table 34. Teachers Should Have Knowledge About Creativity: Survey Item 21 .....	96
Table 35. Teachers Should Have Knowledge About Creativity: Survey Item 21 (Mean, Standard Deviation, Mode, and Range).....	96
Table 36. Responsible for Helping Students Develop Creativity: Survey Item 10.....	97



Table 37. Responsible for Helping Students Develop Creativity: Survey Item 10 (Mean, Standard Deviation, Mode, and Range) .....	97
Table 38. Perceived Need for Special Programs to Enhance Creativity: Survey Item 32 .....	97
Table 39. Training to Recognize Creative Achievements: Survey Items 12 and 26 (Frequencies and Percentages) .....	98
Table 40. Training to Recognize Creative Achievements: Survey Items 12 and 26 (Mean, Standard Deviation, Mode, and Range) .....	99
Table 41. Participants' Years of Experience Teaching (N = 120) .....	99
Table 42. Spearman Rho Correlations Between Years of Experience and Survey Items 8 to 30 .....	100
Table 43. Pearson Correlations Between Years of Experience and Nature of Creativity, Definition, Malleability, Specificity, Classroom Environment, and Teacher's Roles.....	101

## LIST OF FIGURES

	Page
Figure 1. Framework on teachers' beliefs about creativity.....	8
Figure 2. Framework on teachers' beliefs about creativity .....	68
Figure 3. Framework on teachers' beliefs about creativity.....	108

## DEDICATION

I would like to dedicate this dissertation and work to my mega much-loved mother, Ekhlas (Lola) Aish, and father, Abdallah Aish, each of whom, and together who have always encouraged me to fulfill my highest learning potential and to be my most creative self. For this, and so much more, I will always feel a depth of gratitude and immense blessings! Thank you!

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I would like to express my deep appreciation to my love, and fiancé, Peter Hodes, for being ever-compassionately present and joyfully uplifting to me throughout this journey. Peter, my love—may we continue to create boundless joy and deep peace together, for one and for all!

I would like to express my sincere gratitude to my awesome brother, Bassil Aish, and awesome sister, Mona Rousta, each of whom have given their encouragement, support, and good cheer throughout. I'm so lucky to have you guys as family!

I would like to warmly acknowledge my friends who have encouraged me along the way, including Kineret Sherman, Clara Konzevic Wood, and Berenice Glass, and my fellow doctoral students, with whom this journey was shared.

I would like to express my gratitude to my professors and to the researchers who lit the path for me on this road.

And, I would like to thank the members of my doctoral committee for their guidance and support along this journey, including Dr. Diana B. Hiatt-Michael, for her generous attention and wisdom, Dr. June Schmieder-Ramirez for her inspiration and support, and Dr. Robert Barner, for his guidance and good humor.

And finally, to all the elementary school teachers and educators, who are doing their best every day to awaken joy and creativity in learning! May you kindle the sparks of creativity within yourselves and your students, of all ages, and keep fanning the flame.

## VITA

Dina Aish

## EDUCATION

Pepperdine University

Doctor of Education, Organizational Leadership  
Specialization in Elementary Education

Master of Science, Educational Administration

California State University, Northridge

Multiple-Subject Teaching Credential  
Cross-Cultural Language and Academic Development Certificate

University of California, Los Angeles

Bachelor of Arts, Psychology  
Specialization in Education

## EMPLOYMENT

Citizens of the World Charter School, Hollywood

Teacher/Administrator

Pacific Palisades Elementary Charter School, Los Angeles Unified School District

Teacher/Administrator

## PROFESSIONAL EXPERIENCES at elementary schools:

Teacher, Multiple Subjects

- Second grade
- Kindergarten
- Fourth grade
- First & Second grades combined class
- Second & Third grades combined class

Grade Level Chair

- Designed, organized and led curriculum and instructional planning meetings in second grade, kindergarten, and fourth grade
- Innovated instructional design, using a constructivist, project-based learning approach
- Coordinated team instructional plan with teachers and principal

Administrator

- Assisted principal with various duties, including instructional leadership, parent outreach, budget planning, and school governance

## PROFESSIONAL EXPERIENCES at elementary schools (cont.):

### Student Success Team Coordinator

- Facilitated meetings with teachers, parents and administrators to support instruction for students with special needs
- Planned, organized and implemented training programs for instructional aides and teachers

### Gifted and Talented Education Coordinator

- Planned, organized and implemented faculty professional development on challenging students instructionally and meeting diverse instructional needs
- Created and led parent informational sessions on meeting the needs of gifted and talented students
- Attended various external professional development sessions on gifted and special education

### Curriculum Committee Team Leader

- Planned, organized and implemented activities and sessions for teachers to reflect on and improve instructional practice
- Conferred with principal regularly on grade-level instructional practices and development

### Coordinator for Council Meetings

- Decided issues with administrators and teachers from charter complex schools
- Organized professional developments for area charter schools' faculty and administrators

## Other selected PROFESSIONAL EXPERIENCES:

### Soka University Guest Lecturer

- Presented and lead discussions for seminar on comparative elementary educational practices to undergraduate students

### Mira Costa College Educational Consultant

- Co-developed recommendations and plan to improve use of student association for Board of Student Services

### MoveOn.org Council Member

- Trained in nonviolent communication methods
- Organized and facilitated education outreach on social justice issues

### Published Author and Presenter of Academic Research

- Published research in academic journals on leadership and learning
- Presented research at various educational conferences

## ABSTRACT

Creativity is considered to be an essential life skill that should be fostered throughout the educational system. However, public elementary school classrooms in the USA generally do not appear to be creativity-fostering places. A better understanding of teachers' beliefs about creativity would provide valuable insights into their practices in the classroom and facilitate the planning and evaluation efforts to foster creativity in all classrooms.

Using a validated survey instrument, adapted from the Teachers' Conceptions of Creativity Questionnaire (TCCQ), the researcher collected beliefs from 120 public elementary school teachers from six schools within one mid-sized public unified school district in the Los Angeles area. The survey included 25 forced choice and seven open ended items. Participating teachers taught in kindergarten through fifth grade and possessed teaching experience from 3 to 40 years.

Major conclusions include that the teachers believe creativity is primarily expressed in the form of originality of product, behavior or thought. However, these teachers were not aware that creativity should also be appropriate for the situation, an aspect critical to scholars. The teachers believe creativity to be connected mainly with the arts and school subjects in the arts. These teachers support that creativity can be developed in all students but that only a small percentage of students are highly creative. When describing creative students, teachers reported only the positive traits of creative students. The teachers believe that creativity is essential in academic learning, however, teachers expressed an ambivalence regarding their training and capability to effectively promote student creativity within the classroom. The teachers feel impeded to promote student creativity in the classroom by the emphasis on testing, standards, and expectations of the school system.

Some implications for practice are that pre-service teacher education and in-service staff development should provide courses, workshops, and activities that assist teachers with knowledge and skills to foster creativity in all students within the classroom. Policy makers and educational authorities must establish creative thinking as an essential learning goal in the educational system so that all children can develop their full personal and work creative potential.



## **Chapter 1: Background**

Today creativity is considered to be an essential life skill, which needs to be fostered by the education system (Craft, 1999), because it has the potential to solve a range of social, political, and economic problems (Burnard & White, 2008; Kampylis, 2010). Creative industries, in the United States and around the world, are part of a leading economic sector that is developing at a pace greater than other economic sectors (Florida, 2002), and creative thinking is regarded as a key commodity of human capital (Florida, 2002; Pink, 2005), as well as a source of many marked benefits for healthy social and emotional well-being (Skiba, Tan, Sternberg, & Grigorenko, 2010). Based on socioeconomic demands and on learning theories (such as those of Bruner, Dewey, Piaget, and Vygotsky), fostering of students' creative thinking is regarded today as a key education target, albeit it a challenging one, by a number of education systems around the world (Kampylis, 2010).

### **Statement of the Problem**

Teachers' role in the development of elementary school students' creativity is very important because they act as role models and mentors and spend a considerable amount of time with students (Kampylis, Berki, & Saariluoma, 2009). The importance of providing creative learning opportunities in the regular classroom is well established (Aljughaiman & Mowrer-Reynolds, 2005). However, overall, there seems to be a consensus that creative potential is not identified systematically or nurtured in the schools the way it should be (Andliou & Murphy, 2010; Beghetto, 2010a; Diakidoy & Phtiaka, 2002; Hennessey & Amabile, 1987; Sawyer, 2010; Sternberg, 1996). Classrooms generally do not appear to be creativity-fostering places (Furman, 1998; Plucker, Beghetto, & Dow, 2004).

A number of researchers report that teachers hold negative attitudes and little tolerance for behaviors and characteristics associated with creativity (Beghetto, 2007a, 2010a; Beghetto & Kaufman, 2010; Beghetto & Plucker, 2006; Fasko, 2001; Runco, 2003b; Westby & Dawson, 1995), even though they generally value it (Andiliou & Murphy, 2010; Chappel, 2007; Fleith, 2000; Kamylyis et al., 2009; Runco & Johnson, 2002). Therefore, some teachers may follow practices that inhibit the expression of students' creativity and realization of their creative potential (Alencar, 2002, p. 15; Kamylyis et al., 2009), and schooling may have a debilitating effect on student creativity (Beghetto 2009; Beghetto & Plucker, 2006; Guilford, 1950; Robinson, 2001; Torrance, 1970).

A number of studies also reveal conflicts between teachers' and researchers' conceptions of creativity (Chan & Chan, 1999; Diakidoy & Phtiaka, 2002; Fryer & Collings, 1991; Kamylyis et al., 2009). For example, many teachers mistakenly believe that creativity is an extremely rare trait of gifted youngsters (Beghetto, 2010a; Kamylyis, 2010), even though several theories of creativity have emphasized that all of us can fulfill our creative potential if we are given the appropriate means and opportunities (Cropley, 2001; Kamylyis, 2010; Moran, 2010; Smith, Ward, & Finke, 1995). Additionally, teachers have been found to connect creativity with the arts, and subjects such as music or drama education (Aljughaiman & Mowrer-Reynolds, 2005; Craft, 2003; Diakadoy & Kanari, 1999; Fryer, 1996; Kamylyis, 2010), and see it as irrelevant in "rigorous" subjects such as science or mathematics (Cropley, 2010), even though research has shown that students' creative thinking can be fostered in all school subjects and curriculum areas (Craft, 2005; Kamylyis, 2010; Starko, 2005; Wilson, 2009) and many contemporary scholars have argued that

creative learning should be embedded in all subject areas (Craft, Jeffrey, & Liebling, 2001; Gardner, 2007; Sawyer, 2011).

In sum, teachers may have a narrow and stereotypic view of creativity (Davies, Howe, Fasciato, & Rogers, 2004 as cited in Kamylyis et al., 2009), and hold misconceptions about creativity (Kamylyis, 2010; Plucker et al., 2004) and implicit theories (generalizations from personal experience) which are problematic when they are not aware of their subjectivity and inconsistency (Kamylyis, 2010) and how they can lead to inhibiting students' creative thinking (Kamylyis, 2010; Kowalski, 1997). There is, furthermore, a lack of attention to creativity in teachers' education (Davies, Howe, Fasciato & Rogers, 2004 as cited in Kamylyis et al., 2009) and in-service training (Kamylyis et al., 2009), and so, little opportunity for teachers to confront the misconceptions and implicit theories they hold about this topic.

### **Statement of the Purpose**

According to researchers, in order for creativity to find a legitimate space in the classroom, we must examine and understand how teachers conceptualize creativity (Beghetto & Plucker, 2006). Teachers who have a clear understanding of the nature of creativity are able to avoid negative stereotypes and misconceptions about creativity and thereby, make room for creativity in their curriculum (Beghetto & Kaufman, 2010; Beghetto & Plucker, 2006). Studies on implicit theories have revealed that individuals formulate latent but existing implicit creativity theories, and that they use them in identifying, describing, and evaluating creativity, both in themselves and in others (Kamylyis, 2010). A better understanding of teachers' beliefs and implicit theories could provide valuable insights into their practice and facilitate both the planning and evaluation

efforts to foster creativity (Diakidoy & Phtiaka, 2002; Kampylis, 2010; Plucker & Renzulli, 1999).

Therefore, the purpose of this study was to describe Los Angeles area public elementary school teachers' beliefs and implicit theories about creativity—including the nature of creativity, creative students, and fostering creativity within the classroom. More specifically, this study aimed to describe teachers' beliefs and implicit theories on the *nature of creativity*—including:

- Teachers' implicit definition of the construct of creativity, and what they believe the essential features of creativity to be.
- Teachers' beliefs about its distribution among children and to what extent creativity is a characteristic of all students or a rare phenomenon.
- Teachers' beliefs about its ability to be developed.
- Teachers' beliefs about its presence across school subjects, and if some subjects are more creative than others.

This study also sought to describe teachers' beliefs about *creative students* and the characteristics teachers perceive to describe them. Furthermore, this study aspired to describe teachers' beliefs about *environments and strategies* that promote or inhibit creativity in the classroom, as well as teachers' beliefs about the importance of creativity and their *role* in fostering student creativity. Lastly, this study sought to determine what the relationship is between public elementary school teachers' *years of experience teaching* and their beliefs about creativity.

According to research, the facilitation of creativity in the classroom will ultimately depend on the teacher's ability to identify creative potential, to recognize creative

outcomes, to encourage personal characteristics and cognitive processes that have been found to relate to creativity, and, finally, to structure the classroom or educational environment in a way that will render it more conducive to creativity (Beghetto, 2010a; Beghetto & Kaufman, 2010; Diakidoy & Phtiaka, 2002; Kampylis, 2010; Kampylis et al., 2009). According to Diakidoy and Phtiaka (2002), when the objective is to promote creativity in educational settings, there are two interrelated issues: (a) the extent to which training prepares teachers to successfully identify and facilitate creativity in the classroom, and (b) teachers' theories of and beliefs about creativity and the factors that may influence it. The purpose of the present study is focused on the second issue—the beliefs and implicit theories that elementary-school teachers hold about creativity.

### **Research Questions**

This study aimed to gain deeper understanding and clarity on five main research questions, regarding public elementary-school teachers' beliefs about creativity in the classroom. The first research question addressed the topic of teachers' beliefs on the nature of creativity—including its implicit definition, perceived distribution among children, perceived malleability or ability to be developed, perceived specificity or presence across school subjects, and its perceived level of importance for enhancing student academic learning. The second research question investigated teachers' beliefs on characteristics that describe the creative child. The third research question addressed teachers' beliefs on classroom environments and teaching strategies that foster or inhibit creativity within the classroom, including whether school is a good environment for students to manifest creativity, if creativity is essential for academic learning, and what barriers keep teachers from effectively promoting student creativity in the classroom. The

fourth research question investigated teachers' beliefs about the importance of creativity and their role and responsibility in fostering student creativity within the classroom, including how well trained they feel to enhance or facilitate student creativity. Lastly, the fifth research question examined the relationship between teachers' years of experience teaching and their beliefs on creativity. These five main research questions are stated below:

1. What are public elementary-school teachers' beliefs and implicit theories about the nature of creativity?
2. What are public elementary-school teachers' beliefs about the characteristics of creative students?
3. What are public elementary-school teachers' beliefs about classroom environments and teaching strategies that promote or inhibit creativity in the classroom?
4. What are public elementary-school teachers' beliefs about their role in fostering student creativity in the classroom?
5. What is the relationship between public elementary school teachers' years of experience teaching and their beliefs about creativity?

### **Theoretical Framework**

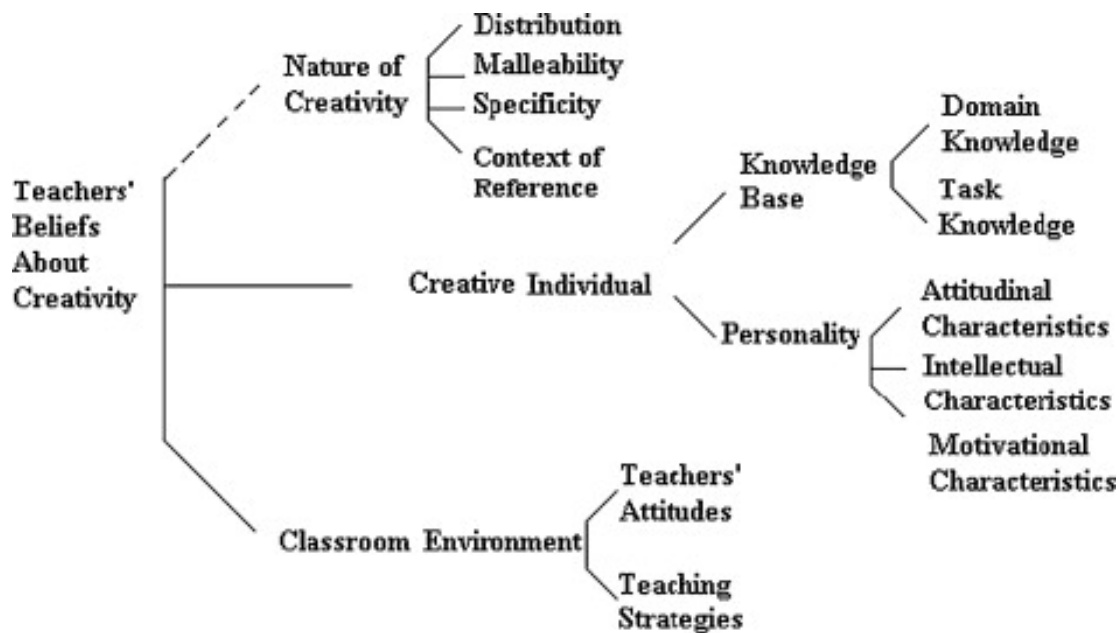
There are varied explanations and theories of creativity. The varied views and definitions of creativity imply different research approaches to creativity (Lin, 2011), which have drawn from scholarly fields including: behaviorist, cognitive (and creative-cognition), psychodynamic, developmental, humanistic, and social-psychological approaches (Craft, 2001a; Lin, 2011; Moran, 2010; Piirto, 2004). The approach to creativity in education, as Craft (2005) suggests, has its unique concerns, including the

relationship between creativity and knowledge, curriculum, and appropriate pedagogical strategies to foster creativity in the classroom (Lin, 2011). Creativity researchers in education have integrated earlier approaches, such as creative-cognition—which contributed the important assertion that creativity arises from ordinary cognitive process, and therefore can be facilitated through education—but which focused on the individual (Kampylis, 2010), with new ones, such as sociocultural approaches—like the social dynamic perspective of Vygotsky (Beghetto & Kaufman, 2010; Moran, 2010; Sawyer 2006). According to Moran (2010), this social dynamic perspective on creativity provides a solid foundation for leaders, parents, teachers and others interested in education to affect children’s creativity, because it emphasizes what and how children experience the world, not just “innate abilities” (Moran, 2010, p. 321).

Part of a four-c model of creativity (Kaufman & Beghetto, 2009), *mini-c creativity* is informed by a Vygotskian (or sociocultural) view of knowledge that stresses the transactional relationship between the individual and the social world (Beghetto & Kaufman, 2010). Mini-c creativity focuses on the novel and personally meaningful *interpretation* of experiences, actions and events that often occur during the process of learning (Beghetto & Kaufman, 2010, 2007) and is focused more on the process, rather than the product of creativity (Beghetto & Kaufman, 2010; Lin, 2011). In contrast to a product-orientation, process-oriented creativity focuses on the “mental process” involving creative potential to generate new ideas, solution of problems, and the self-actualization of individuals (Esquivel, 1995; Fryer, 1996; James, Lederman & Vagt-Traore, 2004; Lin, 2011). According to researchers, a product-oriented focus on creativity within the classroom can be problematic (Runco, 2005) because it confuses potential with accomplishment

(Beghetto & Kaufman, 2010) and minimizes the more dynamic and developmental nature of creativity (Cohen, 1989), resulting in teachers failing to recognize that students' unique insights and interpretations (mini-c) might be developed into larger-c creative products and accomplishments (Beghetto & Kaufman, 2010). Thus, a developmental process and a social dynamic approach are underlined and useful in advocating educational efforts in creativity (Lin,2011).

Furthermore, the research questions in this study, fit within the conceptual framework derived by Andiliou and Murphy (2010) on teachers' beliefs about creativity (see Figure 1).



*Figure 1.* Framework on teachers' beliefs about creativity. From "Examining variations among researchers' and teachers' conceptualizations of creativity: A review and synthesis of contemporary research," by A. Andiliou and P.K. Murphy, 2010, *Educational Research Review*, 5, p. 214. Copyright 2010 by Elsevier. Reprinted with permission (see Appendix A).



## **Significance of the Study**

Within the framework of education, the implicit theories of teachers have been regarded as extremely important (Kampylis et al., 2009; Kowalski, 1997; Runco & Johnson, 2002). Teachers' beliefs about educationally relevant issues and constructs may influence their perceptions and evaluations of learning outcomes, as well as their choice of instructional methods and tasks (Diakidoy & Phtiaka, 2002; Hofer & Pintrich, 1997; Pajares, 1992). According to Runco, Johnson, and Baer (1993), teachers' idiosyncratic implicit theories act—intentionally or unintentionally—as prototypes against which students' creative behavior and performance are judged. Teachers' beliefs and implicit theories may facilitate or inhibit students' creative behavior, because the ways in which teachers organize the classroom practices are primarily influenced by what they know and believe (Beghetto, 2006, 2007a; Kampylis et al., 2009).

Although a multitude of studies have examined teachers' attitudes toward and beliefs about teaching and learning, pedagogical content knowledge, and multicultural education (Diakidoy & Phtiaka, 2002), for example, studies that have explicitly addressed teachers' beliefs about creativity are few (Diakidoy & Phtiaka, 2002; Kampylis, 2010). There is a gap in research and literature on teachers' beliefs and implicit theories of creativity (Diakidoy & Phtiaka, 2002; Kampylis, 2010; Kampylis et al., 2009) and a need for further research on how these relate to their role in students' creative thinking (Kampylis et al., 2009). Within the United States, a limited number of studies such as this have been undertaken (Andiliou & Murphy, 2010). Furthermore, a number of creativity scholars worldwide (Beghetto, 2010a; Chan & Chan, 1999; Craft, 2001a; Diakidoy & Phtiaka, 2002;

Kampylis, 2010; Kowalski, 1997; Lin, 2011; Runco & Johnson, 2002) have stressed the importance of studying teachers' implicit theories and beliefs about creativity.

Therefore, the examined research problem is significant both at a national and an international level, and this study sought to give a robust and in-depth look at Los Angeles area teachers' beliefs about creativity. It is well documented that teachers play a vital role in the facilitation of students creativity (Beghetto, 2010a; Kampylis et al., 2009; Kowalski, 1997; Nickerson, 1999; Sawyer, 2011). Primary teachers need a clear idea about what creativity is in order to effectively foster it in real classroom settings (Beghetto, 2010a; Kampylis, 2010). Understanding teachers' beliefs about creativity may provide valuable insights into their practice with respect to creativity and may also provide the foundations for the improvement of professional preparation and in-service training (Diakidoy & Phtiaka, 2002). Policymakers, curriculum designers, educational authorities, and creativity researchers may find valuable situated knowledge and insights into teachers' experiences, implicit theories, and conceptions of creativity (Kampylis, 2010).

### **Definition of Terms**

In order to clarify meaning, definitions of relevant terms in this study are included below. These listed definitions inform the meanings referred to in the present study.

- Creativity: the activity (both mental and physical) that occurs in a specific time-space, social and cultural framework and leads to a tangible or intangible outcome(s) that is original and useful... (Kampylis et al., 2009 p. 18)
- Creative thinking: a type of higher order thinking that requires students to generate ideas, to elaborate and refine ideas, but also to critically evaluate their ideas and

argue about the effectiveness and appropriateness of their proposed ideas (Andiliou & Murphy, 2010, p. 217).

- Beliefs: ideas, doctrines, tenets, etc. that are accepted as true on grounds which are not immediately susceptible to rigorous proof (University of Southern California Library, 2013).
- Implicit creativity theory: a latent but existing theory (including beliefs or values, images or metaphors, and biases) that an individual has developed and uses in identifying, describing, and evaluating creativity, both in themselves and in others, and that governs expectations and guides certain behaviors (Kampylis, 2010, p. 50; Kercz, 1992, Runco & Bahelda, 1986, Sternberg, 1985).
- Explicit creativity theories: scholarly theories of creativity based mainly on relevant psychological theories such as psychoanalytic, behaviorist, developmental, systems, and cognitive theories (Kampylis, 2010, p. 36).
- Teacher: a certificated, Los Angeles area public elementary school teacher in a regular classroom of grades kindergarten through 5th.

### **Assumptions**

Additionally, behind any research endeavor there are assumptions that determine the researcher's decisions and, consequently the research outcomes (Creswell, 2009; Kampylis, 2010). Here are the main assumptions that consciously influence my research:

- Our world is undergoing continuous change and faces numerous urgent problems that require creative approaches and solutions.
- By nurturing students' creative potential, we offer them more opportunities to

become creative adults who can adapt and contribute to our continuously changing world.

- Creativity is an ability that all humans have, and their creative potential can be fulfilled or constrained through education and schooling.
- All students should be provided with the opportunities and means to express their creative potential to the maximum degree.
- Teachers play a key role in the fulfillment—or not—of students' creative potential.
- Teachers need appropriate initial education and in-service training as well as support in practical and theoretical issues to carry out their significant role of fostering students' creative thinking.
- Teachers beliefs and implicit theories of creativity greatly influence their everyday classroom practices and determine whether, to what degree, and how they endeavor to foster students' creative thinking.
- A clearer understanding of teachers' beliefs on creativity can facilitate both the planning and evaluation efforts to foster creativity.
- Teachers will honestly and can accurately represent their beliefs in a survey questionnaire.

I am grateful to the various researchers who helped me to clarify these assumptions (Beghetto, 2010a; Craft, 2001a; Kamylyis, 2010; Plucker & Renzulli, 1999).

### **Limitations of the Study**

The framework of this study was within the context of public elementary education, within the urban United States, in one Los Angeles area school district, with kindergarten through fifth grade, full-time, regular classroom teachers; thus, findings on teachers' beliefs

are limited to similar public education systems and populations. Furthermore, public education systems may differ in underlying values, objectives and supports available, so it may be beyond the scope to generalize, depending on such contexts (Creswell, 2012; Diakidoy & Phtiaka, 2002).

### **Summary**

Today creativity is considered to be an essential life skill, which needs to be fostered by the education system (Craft, 1999), because it has the potential to solve a range of social, political, and economic problems (Burnard & White, 2008; Kampylis, 2010). Teachers' role in the development of elementary school students' creativity is very important because they act as role models and mentors and spend a considerable amount of time with students (Kampylis et al., 2009). However, classrooms generally do not appear to be creativity-fostering places (Plucker et al., 2004), chiefly due to the biases of teachers and traditional classroom organization (Furman, 1998; Plucker et al, 2004). There is, furthermore, a lack of attention to creativity in teachers' education (Davies, Howe, Fasciato & Rogers, 2004 as cited in Kampylis et al., 2009) and in-service training (Kampylis et al., 2009), and so, little opportunity for teachers to confront the misconceptions and they hold about this topic. According to researchers, in order for creativity to find a legitimate space in the classroom, we must examine and understand how teachers conceptualize creativity (Beghetto & Plucker, 2006). A better understanding of teachers' beliefs could provide valuable insights into their practice and facilitate both the planning and evaluation efforts to foster creativity (Diakidoy & Phtiaka, 2002; Kampylis, 2010; Plucker & Renzulli, 1999). Therefore, the purpose of this study was to describe Los Angeles area public elementary school teachers' beliefs and implicit theories about creativity. The study proposed five

main research questions. A definition of terms and a presentation of assumptions influencing this research were presented, as well as the limitations of the study.

## **Chapter 2: Literature Review**

Life in the 21st century is marked by great uncertainty, due in part to unprecedented social, economic, and global changes (Beghetto, 2010a; Cropley, 2001; Florida, 2002; Kamylylis, 2010; Robinson, 2001). The world is changing more rapidly than ever before (Cropley, 2001; Kaufman & Sternberg, 2010). In the last several decades, many of the world's most developed countries have shifted from an industrial economy to a knowledge economy (Drucker, 1993; Sawyer, 2010).

### **The Need for Creativity in the 21st Century**

The social demand for creativity has been steadily increasing, since the turn of the century, in almost every field of human activity (Florida, 2002; Kamylylis, 2010). "Creativity is at a historical premium" (Kaufman & Sternberg, 2010, p. xiii). Today, creativity is considered to be an essential life skill, which needs to be fostered and promoted by the education system (Craft, 1999) because it has the potential to solve a range of social, political, and economic problems (Burnard & White, 2008; Kamylylis, 2010).

### **Knowledge Age Society**

Scholars of our "knowledge age" have argued that creativity, innovation, and ingenuity are more important today than ever before (Sawyer, 2010, p. 172). In our global and wired society, creativity is in demand, cultivated, and rewarded (Gardner, 2007). Creative industries are part of a leading economic sector that is developing at a pace greater than other economic sectors (Florida, 2002); and, include art, design, fashion, architecture, cinema, music, the performing arts, publishing, computer science, mass media, and education (Florida, 2002; Kamylylis, 2010). Some claim that we have entered a revolutionary new age, and that this future belongs to a very different kind of mind than

the past, including that of synthesizers, creators, and meaning-makers (Gardner, 2007; Pink, 2005; Robinson, 2001).

Consequently, creative thinking is regarded today as a commodity and a key “employability” skill, as well as a key factor of human capital (Florida, 2002; Gardner, 2007; Kampylis, 2010; Pink, 2005; Robinson, 2001). However, the conceptualization of human creativity as a commodity—and an accompanying globalized market approach to creativity in education (Beghetto, 2010a)—raises many concerns—among researchers, including this one— about its use in simply meeting the needs of the modern capitalist economy (Craft, 2006; Peters, 2009) rather than the common good (Banaji & Burn, 2006; Craft, 2006). This motivation for the cultivation of creativity can have ...“potentially destructive and ethically questionable ecological and cultural consequences” (Beghetto, 2010a, p. 449). A *wise* creativity in education is needed—one that takes into account multiple needs and perspectives (Craft, 2008). Outside capitalistic drives, a broader understanding of human creativity reveals that it has many marked benefits for people’s personal lives as well as for society as a whole (Skiba et al., 2010). Personality theorists Maslow (1970) and Rogers (1961) defined creativity as no less than a vital life force (Feldman & Benjamin, 2006), and Maslow included creativity as part of self-actualization in his theory of motivation (Moran, 2010; Richards, 2010). Creativity appears to be an important component of healthy social and emotional well-being (Plucker et al., 2004), and the use of creative abilities to solve relevant problems in one’s life can contribute to one’s overall success, both personal and financial (Skiba et al., 2010; Sternberg & Lubart, 1999). In any case, although it is clear that modern creative industries require creative employees, 21st century education systems are still based on the needs of 19th-century industries (Darling-Hammond, 2010; DeZutter,



2011; Makel, 2009; Robinson, 2001; Senge et al., 2000; Sawyer, 2011), in which “there was little room for originality on a production line” (Kampylis, 2010, p. 21).

### **Industrial Age Education**

The current systems of education were not designed to meet the challenges we now face (e.g., Cropley, 2001; Darling-Hammond, 2010; Hartley, 2003; Robinson, 2001; Senge et al., 2000). At their birth, the education systems in North America and Europe were designed to meet the labor needs of an industrial economy, based on manufacturing, engineering and related trades (DeZutter, 2011; Robinson, 2001; Sawyer, 2006). Educators of the mid-19th century explicitly borrowed their designs from factory builders, and the result was an industrial-age school system shaped in the image of the assembly line (Robinson, 2001; Senge et al., 2000). Nineteenth-century writers spoke admiringly of schools as equivalents to machines and factories (Senge et al., 2000); though, few of us today appreciate how deeply assembly-line concepts are embedded in the modern school. Senge et al. (2000) write the following:

While the assembly-line school system dramatically increased educational output, it also created many of the most intractable problems with which students, teachers, and parents struggle to this day. ... It established *uniformity of product and process as norms*, thereby naively assuming that all children learn in the same way. It made educators into controllers and inspectors, thereby transforming the traditional mentor-mentee relationship and establishing *teacher-centered rather than learner-centered learning*. ... The assembly-line model tacitly identified *students as the product rather than the creators of learning*, passive objects being shaped by educational processes beyond their influence. (pp. 31-32, italics added)

With conformity as a core value of industrialism—an assembly line that produced continuous variety would not be considered efficient (Senge et al., 2000)—education

systems designed to meet industrialist interests have little room for creativity within them (Sawyer, 2010).

As mentioned earlier, the rapidly changing global marketplace and requirements of the 21st century have put a special emphasis on the need for creative thinking. This has brought increased international attention to the ineffectiveness of traditional pedagogies in preparing students for the demands of the next century (Darling-Hammond, 2010; Hartley, 2003; Kamylyis, 2010; Skiba et al., 2010). Based on these new socioeconomic demands, and on learning theories like those of Dewey, Bruner, Piaget, and Vygotsky, the fostering of students' creative thinking is held as a key education goal, by a number of education systems, including Australia, China, Finland, Greece, Hong Kong, and the United Kingdom (Kamylyis, 2010) and has had an increased emphasis in Belgium, Brazil, Canada, Denmark, France, Iceland, Japan, Macau, The Netherlands, Northern Ireland, New Zealand, Qatar, Scotland, Serbia, Singapore, Turkey, Sweden, Switzerland, Taiwan, Wales, USA (Craft, 2008).

The current environment puts pressure on schools to educate and train the next generation for a future that cannot be foreseen and is not easily predictable from what currently exists (Darling-Hammond, 2010; Florida, 2002; Makel, 2009; Moran, 2010). Individuals need to be able to adjust to change that is both rapid and widespread, both for their own well being and for that of the societies in which they live (Cropley, 2001). More and more, our economy, culture and daily lives depend on and require our ability to generate and manage new knowledge (DeZutter, 2011). It has been shown that knowledge is expanding at a mind-blowing pace (Darling-Hammond, 2010). For example, in the 3 years from 1999 to 2002, the amount of new information produced nearly equaled the

amount produced in the entire history of the world previously (Varian & Lyman, 2003 as cited in Darling-Hammond, 2010). As a consequence, education can no longer be productively focused primarily on the transmission of pieces of information, as it was in the 1900s, when emphasis in schools was on acquisition of text-based knowledge and rote procedures, like the memorization of a stable storehouse of knowledge (Darling-Hammond, 2010; DeZutter, 2011; Makel, 2009; Moran, 2010; Sawyer, 2006, 2008).

New pedagogies and education must enable students to “...learn how to learn, create, and invent the new world they are entering” (Darling-Hammond, 2010, p. 3). We need to develop more than just their factual knowledge base (DeZutter, 2011). Needed for today is successful critical thinking, along with the increasingly important ability to think creatively and innovate, which depends on deep conceptual knowledge that goes beyond rote memorization or basic comprehension of facts (DeZutter, 2011; Sayer 2006). Of more importance now is not access to information, but how to find, select and use the desired information—which requires procedural knowledge, as well as evaluation and creativity (Makel, 2009). Despite this shift in importance, the transmission of knowledge remains a top priority in schools (Beghetto, 2010a; Makel, 2009; Sawyer, 2006). “This mismatch between educational actions and societal value fails to establish a solid foundation for the future. We need to stop educating our kids for the 20<sup>th</sup> century!” (Makel, 2009).

Although it is difficult to predict what the future might hold, it is clear to many researchers that students will need to be better equipped to successfully navigate the increasingly complex and changing nature of life in the 21st century (Beghetto, 2010a; Hartley, 2003; Skiba et al., 2010; Wells & Claxton, 2002). Establishing a common curricular

goal of developing the creative competence of children is one way to help prepare students for an uncertain future (Beghetto, 2010a).

### **History of Creativity in Education**

People have long been interested in notions of imagination and inspiration. Ancient Greek, Judaic, Christian and Islamic traditions saw creativity as mystical, stemming from divine inspiration (Craft, 2008). During the Romantic Era of mid-19th century Europe, creativity was increasingly recognized as a *human* capacity for originality, insight, and subjectivity of feeling (Craft, 2001a; Pope, 2005).

The twentieth century saw a move toward more practical investigation of creativity within the new discipline of psychology; however, the early decades were influenced more by philosophical speculation than by empirical investigations (Craft, 2001a; Runco & Albert, 2010). Surprisingly, the abstract noun 'creativity' did not appear at all in the 1933 edition of *The Oxford English Dictionary* and was not widely current until the 1940s and the 1950s (Pope, 2005).

Most creativity theorists use the 1950 presidential address of scholar J.P. Guilford to the American Psychological Association as the beginning of the modern era of creativity research (Cropley, 2001; Fasko, 2001; Smith & Smith, 2010). In it, he stressed the importance of developing the creative potential of school-age children (Beghetto, 2010a) and called on researchers to make creativity a more focal point of inquiry (Guilford, 1950; Simonton, 2000). In conjunction with the successful launching of Sputnik by Soviet engineers, both events stimulated a strengthening interest in creativity and the utilization of U.S. education to identify and nurture scientific talent and creativity (Cropley, 2001; Esquivel, 1995; Kamylyis, 2010). "Americans rushed to embrace new ideas about

intelligence and education, which might position the country to compete more effectively in the space race” (Feldman & Benjamin, 2006, p. 322). The National Defense Education Act was passed in 1958 as a comprehensive educational reform bill to strengthen teacher practices in the areas of math and science, foreign languages, and creative arts (Dow, 1991; Esquivel, 1995). With this view of creativity—as a problem-solver and an instrument of social engineering, contrasted with that as a medium of self-expression or a means of human development—major educational efforts were launched by the federal government and national organizations (Esquivel, 1995; Pope, 2005). By the turn of the decade, systematic, empirical research on the topic of creativity was thriving (Feldman & Benjamin, 2006).

J.P. Guilford contributed much to our understanding of creativity, in particular with regard to giftedness and the measurement of creativity (Smith & Smith, 2010). Another key researcher during this early modern era of creativity was E.P. Torrance, who looked at creativity teaching and creative thinking in children and also developed the Torrance Tests of Creative Thinking, which still rule approaches to creativity testing in the United States (Smith & Smith, 2010; Torrance, 1972). Most scholars agree that Guilford and Torrance can be rightly considered the pioneers of modern creativity theory and research (Smith & Smith, 2010).

Educational issues were central to creativity research throughout the 1960s and mid 70s, but it took the social revolution of the 1960s and the push for change in all segments of U.S. society to broaden the field’s view of creativity from a 1950s narrow focus on technological inventiveness—until then taken to represent creativity as a whole—to

something greater (Feldman & Benjamin, 2006). There were two very different (and, reportedly incompatible) educational agendas being pushed under the banner of creativity:

The first followed Guilford's argument that schools needed to do a better job at identifying critical qualities in students in areas essential to the survival of the U.S. The second agenda proposed a fundamental reorientation of schooling to foster freedom of expression, to promote tolerance of widely different perspectives, and to give students greater control over what they chose to study and how they participated in school life. (Feldman & Benjamin, 2006, p. 328)

Attempts to reform education led educators to re-examine issues such as: the nature of the learning process; the replacement of conventional approaches with experimental and nondirective methods; and the implementation of teaching strategies for stimulating inquiry, creativity, and self-directed learning (Dow, 1991; Esquivel, 1995). Piagetian theory of cognitive development guided general curriculum reform in the United States during the late 1960s (Feldman & Benjamin, 2006) and peaked with the *open classroom* movement, in which one of the major goals was to foster creative thinking (Esquivel, 1995; Walberg & Thomas, 1972). Elementary education aligned more with the practices of early childhood education and put into effect innovations such as hands-on, active learning, team teaching, independent learning, cooperative learning, and individualized instruction (Esquivel, 1995; Feldman & Benjamin, 2006), which showed "positive psychological outcomes in terms of attitudes and resulted in creative development" (Esquivel, 1995, p. 188; Horowitz, 1979). Moreover, scholars report the gains were not made at the expense of academic achievement (Tayak, 1974), as some critics expected would be the case (Esquivel, 1995); however, at least one scholar reports an often failure of children in open classrooms to achieve academic competence (Feldman & Benjamin, 2006). During this progressive period, attention was also given to the creative

characteristics and strengths of children from disadvantaged or culturally diverse backgrounds (Esquivel, 1995) and the need to consider the concerns of poor and minority families (Feldman & Benjamin, 2006).

During the 1970s the momentum of curriculum reform in regular education began to wane (Dow, 1991; Esquivel, 1995), but during this same time the gifted child movement spurred the development of special programs for gifted students and the implementation of creative techniques and approaches (Davis, 1992; Esquivel, 1995). Creativity researchers working primarily in the area of gifted education made the most strides in discovering how to help educators support students' creative potential (Beghetto, 2010a). Unfortunately, nurturing creative potential was viewed as separate from the mainstream academic curriculum and reserved only for the select few (Beghetto, 2010a).

The 1980s brought an apparent decline in school performance, with the lowering of achievement test scores (Esquivel, 1995; Tayak, 1974) and a back-to-basics mentality (Smith & Smith, 2010). There was a palpable sense that something had to be done to improve educational standards (Ravitch, 2010). Open education's popularity had ended, and authors argued that progressive schools had better attend to literacy before fretting about creative thinking (Feldman & Benjamin, 2006). Questions about the quality of teaching were raised anew, and research on teacher performance suggested that regular classroom teachers were still emphasizing traditional methods of rote learning and basic skill training, at the cost of higher-level thinking skills and creativity (Goodlad, 1984). The National Commission on Excellence in Education (NCEE; 1983) formed to examine the problem and issued its report *A Nation at Risk* which stated that "the educational foundations of our society" were "being eroded by a rising tide of mediocrity" in our

schools (NCEE, 1983, p. 5; see also Esquivel, 1995; Ravitch, 2000). Not much had changed, despite the increased research on creativity in education (Esquivel, 1995; Goodlad, 1984).

In the 1990s, constructivist learning theory, rooted in the work of Russian psychologist Vygotsky, became the dominant idea among educational theorists and widely popular among educators (Feldman & Benjamin, 2006; Lobman, 2011; Moran, 2010; Ravitch, 2000; Sawyer, 2011). Vygotsky's ideas included active learning and the construction of knowledge, as well as the importance of imagination and creativity in learning (Moran, 2010). Also during this time, school reform initiatives called into question programs for gifted students, so that creative teaching and practices for the gifted would be infused into the regular curriculum, through approaches such as the school-wide enrichment model (Renzulli & Reis, 1997) and provide an opportunity for the development of strengths and potential abilities of *all* students (Esquivel, 1995).

But, the core of state educational reforms over the last decade has been the development of educational standards to guide school practices; and increasingly, this has centered on test-based accountability (Darling-Hammond & Rustique-Forrester, 2005). A "major and unrelenting call for more testing of students" escalated over the last 2 decades (Baer & Garrett, 2010, p. 6), highlighted with the passage of the No Child Left Behind Act in 2001, which still requires all states receiving funding to test students annually and to enforce penalties for schools that do not meet specific test score targets each year (Darling-Hammond & Rustique-Forrester, 2005). With the press for greater accountability through testing, low-quality tests have driven a narrow curriculum "disconnected from the higher-order skills needed in today's world" (Darling-Hammond, 2010, p. 67). No Child Left Behind "sucked all the air out of the ruminations of educators who might embrace



creativity in the United States” (Smith & Smith, 2010, p. 252). This recent education movement in the United States, dominated by standardized testing, is not surprisingly viewed with suspicion by progressive educators, particularly as it endangers practices that are believed to promote creativity (Feldman & Benjamin, 2006, p. 324).

In sum, creativity is, and historically has been important in such areas as early childhood education and gifted and talented education, and has been important in education generally only during certain times, most notably the 1960s and 1970s (Smith & Smith, 2010). The study of creative teaching and learning has traditionally been associated with arts educators, but many contemporary scholars have argued that creative learning should be embedded in all subject areas (Craft et al., 2001; Gardner, 2007; Sawyer, 2011). Fundamentally, the influence of creativity on education has been intermittent and irregular (Feldman & Benjamin, 2006), and the impact of creativity research on education has been referred to as tepid and “not as strong as it might be (Smith & Smith, 2010). Yet creativity may be undergoing a renaissance of importance in education globally, and in particular in the United Kingdom (Craft, 2005; Moran, 2010; Smith & Smith, 2010). It has been stated that governments do not want creativity in practice, despite their declarations (Kampylis, 2010), but in contrast to the American experience, British practitioners, policy-makers, interested scholars, school officials and teacher preparation programs have established a “pattern of collaboration as they implement a coordinated movement to enhance creativity among schoolchildren” (Feldman & Benjamin, 2006, p. 331). Educational policy-makers have traditionally neglected creativity (Beghetto, 2010a) however, and although there are a number of efforts in research and practice to rectify the situation, creativity simply is not at the forefront of the educational debate today (Smith & Smith, 2010).

## Definitions of Creativity

The numerous definitions, conceptions, and theories of creativity accurately reflect the complexity of the construct (Skiba et al., 2010). Without a clear definition of it, however, those who are most interested in understanding and conveying it to others—educators and other practitioners—are left confused and challenged (Moran, 2010). In fact, one of the factors limiting the progress of educational implementation of creative thinking lessons and assessment is the lack of a coherent definition of creativity that can be agreed on widely (Plucker et al., 2004). Although researchers have entered the seventh decade of contemporary scientific research on creativity, hundreds of definitions are available and the term remains unclear (Kampylis, 2010; Kaufman & Sternberg, 2010; Negus & Pickering, 2004). Developing a working definition with specific goals is a necessary step in effectively translating creativity theory into educational practice (Skiba et al., 2010). The definitions of creativity reviewed within this chapter will focus primarily on those pertaining to the field of education.

**Facets and levels of creativity.** Many researchers have noted that creativity has four major facets or avenues of approach: the person, the process, the product and the press or situation—known as the *4Ps* (Kozbelt, Beghetto, & Runco, 2010; Simonton, 2000). That is, creativity is defined as: a personal trait or special type of person, a mental or a social process, a product or artifact, or an aspect of the environment or climate (Moran, 2010). A creative product may be an actual physical outcome, such as a work of art or invention, or a nonphysical outcome, such as original ideas and their relevance to a problem at hand or their aesthetic qualities (Cropley, 1999, 2001; Skiba et al., 2010), or a behavior (Guthrie, 2003; Plucker et al., 2004). Increasingly, the *4Ps* are represented or

studied in interaction (Moran, 2010; Skiba et al., 2010). Following, one current definition which synthesizes elements of many recurring definitions (Kampylis & Valtanen, 2010; Skiba et al., 2010) is: “Creativity is the interaction among *aptitude, process, and environment* by which an individual or group produces a *perceptible product* that is both *novel and useful* as defined within a *social context*” (Plucker et al., 2004, p. 90, emphasis in original).

So, there is general agreement that in order for an idea, a product, or a behavior to be considered creative it must be a combination of originality, uniqueness or novelty *and* meaningfulness, usefulness or task appropriateness (Beghetto & Kaufman, 2010; Kampylis & Valtanen, 2010; Moran, 2010; Plucker et al., 2004; Sternberg & Lubart, 1999). What is considered original and meaningful is defined within a particular social, historical, and cultural context (Beghetto & Kaufman, 2011; Plucker et al., 2004), as reflected in the definition above. Then, what creativity appears to consist of depends on the various participants who evaluate the creative act, person, or product (Plucker et al., 2004).

**Four C model of creativity.** Furthermore, there are different levels of creative expression (Cropley, 2001; Houtz, 2003), as a Four C Model of Creativity developed by Kaufman and Beghetto (2009) illustrates, ranging from interpretive or *mini-c* creativity (such as, a child having an insight about how to include a character from a favorite story into a song just learned), to so-called everyday or *little-c* (such as, a home cook creating a tasty fusion of leftover and fresh ingredients from the refrigerator), to expert or *pro-c* (such as, a mathematics professor developing a novel solution to a difficult mathematical problem), to legendary or *big-C* creativity, such as Beethoven composing music that is still enjoyed today (Beghetto & Kaufman, 2007, 2010, 2011; Skiba et al., 2010). In the context

of the classroom, the smaller-*c* categories (*little-c* and *mini-c*) are more appropriate (Skiba et al., 2010)—“given that it takes many sustained years of intensive training to develop the domain knowledge necessary for larger-*c* levels of creative expression” (Beghetto & Kaufman, 2011 p. 98; Beghetto & Plucker, 2006; Ericsson, 1996). This means that a student’s *mini-c* novel and personally meaningful insight or interpretations—which occur with great frequency while learning (Beghetto & Kaufman, 2011)—are important sources of larger-*c* creative potential; and teachers who are aware of this *mini-c* potential are in a better position to draw it out and develop it (Beghetto & Kaufman, 2011, 2007; Skiba et al., 2010). To this point, decades of research on the nature of creativity *does* support the assumption that creative abilities *are* responsive to further development (Esquivel, 1995; Fasko, 2001; Guilford, 1967; Plucker et al., 2004; Torrance, 1963). It is a pervasive and stubborn myth that people either have or do not have creativity, with no capacity for enhancement (Plucker et al., 2004; Kamylyis, 2010). Scholars within the field of educational psychology theorize that creativity is a “normally distributed property” of children (Moran, 2010, p. 325; see also Houtz, 2003).

Creativity has also been defined as a novel and appropriate *solution* to a problem or response to a situation (Runco, 2004), as well as the proactive *formulating*, finding or framing of problems themselves (Kozbelt et al., 2010). Creativity has been associated with a wide range of behavioral and mental characteristics, including: associations between semantically remote ideas and contexts; tolerance for ambiguity and uncertainty; divergent thinking; rapid generation of multiple, qualitatively different solutions and answers to problems and questions; flexibility; viewing problems holistically and from multiple perspectives; curiosity; preference for disorder and complexity; critical thinking; breaking

free from assumptions about a situation and disengaging from a particular mind set; acceptance of own differentness; transforming and restructuring ideas; openness to internal and external stimuli; trust in own senses; willingness to take risks; being playful and childlike; attraction to the unknown and the mysterious; and above average intelligence (Andiliou & Murphy, 2010; Cropley, 2001; Dacey, 1989; Esquivel & Hodes, 2003; Guthrie, 2003; Houtz, 2003; Maslow, 1976).

### **Creativity and Intelligence**

Research on the relationship between creativity and intelligence has been a topic of interest for a long time, but there has been no clear consensus among researchers yet (Kim, Cramond, & VanTassel-Baska, 2010). Initial developers of intelligence tests considered creativity to either be a subset of intelligence or wholly independent from it (Getzels & Jackson, 1962; Plucker & Makel, 2010). Creative thinking was prominently featured as a part of intellectual functioning in Guilford's 1967 *structure of intellect* theory (Kim et al., 2010). However, many studies (some as recent as 2008) have shown creativity and intelligence with low correlations; that is, a highly intelligent person is not necessarily highly creative (Kim et al., 2010). Sternberg and O'Hara (1999) have suggested five ways in which creativity and intelligence could be related: (a) creativity is a subset of intelligence, (b) intelligence is a subset of creativity, (c) creativity and intelligence are overlapping sets, (d) creativity and intelligence are essentially the same things, and (e) creativity and intelligence bear no relation at all to each other. Cropley (1999) has highlighted differences and noted that conventional intelligence is heavily dependent on recognizing, recalling, reapplying, and logical application of the already known (convergent thinking producing orthodoxy); whereas, creativity involves departing from the facts, finding new

ways, making unusual associations, or seeing unexpected solutions (divergent and critical thinking producing novelty). Gardner (1995) has argued that intelligence is a multifaceted collection of eight distinct intelligences and that creativity is the highest application of these intelligences. Many researchers in the field agree with the “threshold theory,” which assumes that above an IQ score of 120 there is no correlation between measured creativity and intelligence; and thus asserts that creativity and intelligence are separate constructs above a minimum level of IQ 120 (Kim et al., 2010). Other researchers have concluded that the relationship between creativity and intelligence depends largely on how each is defined and measured (Plucker & Makel, 2010).

### **Creativity and Learning**

Conceptions of creativity are changing. Earlier on, in both research and educational practice, creativity was seen as an individual difference, and measures were used to determine who is defined as creative, but now creativity is seen as more social and dynamic (Moran, 2010). That is, experts recognize that creativity as a trait arises through interaction among the individual, the task, task materials, and other people (Esquivel, 1995; Moran, 2010; Plucker et al., 2004; Skiba et al., 2010). According to more than one researcher, this social, dynamic perspective on creativity changes the relation of creativity to learning and to school, bringing it to a less elitist approach and to a more democratic or “everyone is creative approach” (Craft, 2001a, p. 16; Moran, 2010). These researchers assert that since there is some evidence that creativity can be learned (Esquivel, 1995; Fasko, 2001; Plucker et al., 2004), school curriculum should be restructured “to reflect forms of learning which develop creative ability” (Craft, 2001a, p. 16).

Creativity scholars have accumulated “persuasive evidence” supporting the relationship between learning and creativity (Beghetto & Plucker, 2006, p. 316). One researcher asserts that creativity “helps children learn and develop” (Cropley, 2001, p. 28), while another states that “creative thinking abilities [can] be developed through direct instruction” (Fasko, 2001, p. 320). Some point to the social, dynamic perspective advanced by Vygotsky (discussed further in sections below), where “learning, development, and creativity are composed of each other and influence each other within and across people’s minds” (Vygotsky, 1997 as cited in Moran, 2010, p. 320; see also Holzman, 1997; Lobman, 2011; Russ & Fiorelli, 2010; Vygotsky, 1978). Others point to learning theorists like Bruner and Piaget (discussed further in sections below), who recognized that meaningful learning involves the personal construction of knowledge (Beghetto & Plucker, 2006; Bjorklund, 2000; Bransford, Derry, Berliner, Hammerness, & Beckett, 2005; Bruner, 1996; Duckworth, 1996; Piaget, 1972). “In this view, student imagination and curiosity drive the learning process, and creativity becomes the vehicle for understanding” (Beghetto & Plucker, 2006, p. 324). The recent revision of Bloom’s Taxonomy (Anderson & Krathwohl, 2001) added “creating” as a distinct component of student learning (Makel, 2009).

Both learning and creativity involve novelty, but not in the same way (Moran, 2010). “When a person learns something, he knows or can do something he could not before. But, in most cases, someone else in the culture does know that fact or how to do that task” (Moran, 2010, p. 323). Learning means new for me. Creativity means new for the domain. No one else in the culture has yet thought about the topic in that way. “When a person creates something, she knows or can do something no one could know or do before. Creativity changes or enlarges what later generations *can* learn” (Moran, 2010, p. 323).

In sum, educators and practitioners appear to be coming to a clearer understanding of the meanings of creativity, its breadth, as well as its relationship and limitation to other similar constructs. This greater clarity—through research, reflection, and study—can allow for more effective translation of creativity theory into educational practice.

### **Purposes of Education**

There are good reasons for talking about the purposes, rather than solely the functions, of education. According to philosopher Dorothy Emmet, purpose and function are not synonyms; as *function* supports maintenance while *purpose* mirrors creativity (Hansen, 2008). While maintenance and creativity are both indispensable to society, they may co-exist uneasily (Bass, 1997; Hansen, 2008; McLaren, 1989; Robinson, 2001). According to Hansen (2008), “to conceive of education in functional terms presumes that the terms of work are not set by its practitioners but rather by larger societal forces” (p. 11). While broad social, economic, political, cultural and other forces will always influence educational practice (Apple, 2008; Abowitz, 2008; Kozol, 2005; Spring, 2012), there can be significant consequences when educators ask: What do we want to do, and how are we going to do it? (Hansen, 2008).

There is substantial disagreement among teacher educators, teachers, school administrators, policy-makers, researchers and others regarding the purposes of education (Darling-Hammond et al., 2005; Hansen, 2008; McCarthy & Quinn, 2003; Moran, 2010; Spring, 2012). Education is a “value-laden endeavor,” and “every curriculum and every mode of instruction embodies a judgment that *this* is important to learn and *this* is the way to teach it” (Hansen, 2008, p. 9). The inevitable presence of values in all educational work raises the question of which values ought to be given priority in a given system (Hansen,



2008; Kessler, 2000; Senge et al., 2000), and this question illustrates why educational purposes are bound to spark tension and controversy, because they are based upon values that may not be shared or prioritized the same by others (Hansen, 2008; McLaren, 1989; Spring, 2012). To understand where creativity may fit into education, we need to examine our current and our traditional perspectives on the purposes of education.

In his book *A Place Called School*, educational scholar John Goodlad (1984) identified four purposes of schools: (a) *academic*, involving the development of intellectual skills and knowledge; (b) *vocational*, concerned with preparing students for work; (c) *social and civic*, functioning to prepare people to be citizens in our society; and (d) *personal*, emphasizing the development of the individual. Educational historians and researchers agree that all of these purposes have been strongly advocated by members of our society, to greater or lesser degrees in different communities and at different times, and are embedded in the policies and practices that continue to govern schools (Darling-Hammond et al., 2005; Hinchey, 2001; Spring, 2012).

**Civic and social.** In the United States and most other western countries over the last 150 years, school has been thought of as a system to prepare good citizens and good workers (Parsons, 1985). We are often told that the democratic purpose of establishing free public education, in the tradition of Thomas Jefferson (1743-1826), was to develop in all citizens the characteristics, skills, wisdom, and virtues necessary for public life (Wood, 1992). Influential philosopher, psychologist, educational reformer John Dewey believed in the core relationship between democratic life and education, where education—as a practice of both personal and community growth—was the source of democracy itself and the *good society* (Dewey, 1916; Loss & Loss, 2003). A persistent educational goal from the

early days of schooling has also been providing equality of opportunity (Spring, 2012).

Horace Mann, often called the father of public schools, referred to this as the *great balance wheel of society* where education was believed to be the key in giving all members of society an equal chance to pursue wealth and enter any occupation or social class (Gutek, 2011; Spring, 2012). We see this today with educational reformers concerned with social justice and a commitment to rectify, through schooling, historic injustices in society based on racism, sexism, classism and other forms of systematic prejudice (Hansen, 2008).

Radical perspectives are exemplified in the works of theorists such as Paulo Freire and Henry Giroux who make a distinction between *schooling* and *education*, where the former is primarily a mode of social control and the latter has the potential to transform society (McLaren, 1989). Educational theorist Apple (2008) put the extreme political nature of schooling this way:

By its very nature the entire schooling process—how it is paid for, what goals it seeks to attain and how these goals will be measured, who has power over it, what textbooks are approved, who has the right to ask and answer these questions, and so on—is political. The educational system will constantly be in the middle of crucial struggles over the meaning of democracy, over definitions of legitimate authority and culture, and over who should benefit the most from government policies and practices. (p. 105)

And so, many nations are currently attempting to radically transform education policy and practice (Hansen, 2008). Public schools are supposed to serve the public good (Abowitz, 2008; Hinchey, 2001; Spring, 2012). One common and implicit assumption about public schools is that they exist to serve American children (Hinchey, 2001), and that public schooling is always a social good (Spring, 2102). The *public* of public education usually refers to the governance and curriculum of schools, shaped to promote the inclusion of

different kinds of families and students into common, universal education (McCarthy & Quinn, 2003) and ultimately in shared political life (Abowitz, 2008). A number of political and social theorists today argue that the central purpose of schooling in a democracy is to equip the young with the skills, knowledge, and dispositions that can enable them to act as creative citizens (Darling-Hammond et al., 2005; Hansen, 2008; McLaren, 1989; Spring, 2012), “rather than solely as producers and consumers in the economic system” (Hansen, 2008, p. 14).

**Economic growth.** However, according to Spring (2012), economics are now the primary influence of public school policies, curricula, and standardized testing, and a major goal of education today is to increase economic growth and prepare students for jobs in the global economy. In 2008, a report entitled *21<sup>st</sup> Century Skills, Education, and Competitiveness* indicated economic educational goals by declaring that our central economic competitiveness issue for the next decade is to create an aligned up-to-date public education system that prepares students, workers and citizens to “triumph in the global skills race” (Partnership for 21<sup>st</sup> Century Skills, 2008, p. 1). Current global economic goals are based on human capital theory, which assumes that money spent on education will cause economic growth, reduce poverty, and improve personal incomes (Spring, 2012). A basic question arises of whether or not public school policies, including the curriculum, methods of instruction, and testing should be determined primarily by the economic goal of growing the economy and educating workers for global economic competition. There seems to be an unexamined assumption that business is a natural partner to education (Robinson, 2001), and yet critics can see that what is in the best interests of corporations is not necessarily in the best interests of the children being educated (Hinchey, 2001).

However, developing the competence of creativity with a *wise* approach (Craft, 2006) appears to be necessary and mutually beneficial to both the individual and the current economy.

**Academic learning and intellectual development.** It has been argued that education should be broad enough to prepare students for all aspects of living, including any type of employment, should prepare students to improve the quality of society and their own happiness, and should transmit culture, including history, literature and the arts (Spring, 2012). According to Ravitch (2000) there are many more reasons to get a good education than preparing for gainful employment, and the main purpose of schools should be the academic learning and intellectual development of its students, rather than guiding social change, furthering personal self-actualization or becoming economically productive or competitive. Educators who esteem academic learning believe that excellent teaching equips the young with knowledge and intellectual skills that go beyond mindless memorization into genuine understanding (e.g., Beghetto, 2010a; Beghetto & Plucker, 2006; Bransford, Brown, & Cocking, 2000; Bransford et al., 2005; Bruner, 1996; Blythe, 1998; Darling-Hammond, 1997; Gardner, 2007; Kamyliis, 2010; Lobman, 2011; Moran, 2010; Piaget, 1972; Ravitch, 2000; Ritchhart, Weiss, Blythe, & Kelly, 2002; Robinson, 2001; Sawyer, 2010; Senge et. al., 2000; Starko, 2005; Vygotsky, 1978). Those emphasizing subject-matter learning see academic disciplines as “beautiful, ever-evolving human achievements” (Hansen, 2008, p. 13) that are mind expanding and value enriching, that students should not be denied. Education transmits culture (Bass, 1997), yet some critics have argued that not enough cultural literacy is being transmitted or preserved and that a core of knowledge is essential in education over all else (Hirsch, 1987). But challenging

questions arise, such as: What knowledge is of most worth and who decides? and When and how should academic knowledge be introduced to students? (Hansen, 2008; McCarthy & Quinn, 2003). These questions have influenced the development of *curriculum*, which may be looked at as a negotiated set of beliefs about what students should know or be able to do (McCarthy & Quinn, 2003). States and local districts once had significant latitude in the development of elementary curriculum; however, the standards movement has lessened this freedom, for the better according to some and for the worse according to others (McCarthy & Quinn, 2003). Creativity and educational scholars agree that the test-based accountability to standards have narrowed the focus of the curriculum and stripped it of its creativity (Beghetto, 2010a; Darling-Hammond, 2010; Smith & Smith, 2010). Nevertheless, enlightened educators concerned with intellectual development hold that a deeper and more disciplined understanding of academic subjects is the aim (Bransford et al., 2000; Darling-Hammond, 1997) and methods of engendering higher-order thinking skills in students, over rote learning and memorization, constitutes their right to learn (Darling-Hammond, 1997).

**Human development.** Educators, in the tradition of Jerome Bruner—a pioneer in cognitive and developmental psychology—believe the purpose of education is not to impart knowledge, but instead to facilitate a child’s thinking and problem solving skills which can be transferred to a range of situations (Bruner, 1996). There have always been scholars who have argued for attention to be paid to every aspect of a child’s development—including the cognitive, physical, social and emotional, as well as creative (e.g., Dewey, 1938; Emerson, 1837; Emilia, 1996; Montessori, 1912/2012; Steiner, 1924/2004). Educational philosophers such as Montessori, Piaget, and Vygotsky

formulated detailed accounts of human development (Hansen, 2008). German philosopher Froebel and Swiss educator Pestalozzi were among the first to articulate the process of educating the whole child, where learning moved beyond the subject matter and ultimately to the needs and interests of the child (Loss & Loss, 2003). Vygotsky (1978) pointed out that learning supports and is inseparable from overall human development and “the only good learning is that which is in advance of [personal, creative] development” (p. 89; Lobman, 2011; Moran, 2010).

Recently, some educational theorists have had the “splendid audacity” to propose for schools the cultivation of happiness in the young (Goodlad, 2008, p. 112; Noddings, 2003), and others have recognized the importance of the soul in education (Kessler, 2000; Palmer, 1998). Educators emphasizing human development assert that it is the responsibility of schools to fully foster all positive aspects of the personality of the child, including creativity, and to support entry into a life of purpose and meaning (Cropley, 2001; Hansen, 2008; Emerson, 1837). This is a humanistic goal that has been given great prominence in educational philosophy for hundreds of years (Cropley, 2001). However, educators who support this goal face criticism from those with a more economic focus (Hansen, 2008). Hansen (2008) addresses this contention with a critical question: “Can a humanistic education that cultivates the mind, the hand, the heart, indeed the whole person, prepare people for the concrete challenges of life? Or should schools focus tightly on training in skills and practical know how...?” (p. 16). Further, how does creativity fit into the purposes of education?

**Creativity.** Psychologists have long recognized the importance of establishing the creative competence of children. For instance, Vygotsky (1967/2004) argued that, “we

should emphasize the particular importance of cultivating creativity in school age children. The entire future of humanity will be attained through the creative imagination....” (p. 87). Jean Piaget believed that the principal goal of education is to produce creative people (Fisher, 1990; Newton, 2012). Historically, creativity has been an important component in the work of educators including the curriculum of Pestalozzi, the Montessori method, and of Dewey’s emphasis on inquiry and experience (Sawyer, 2011). Many contemporary scholars argue that creative learning is a priority and should be embedded in education in all subject areas (Craft et al., 2001; Gardner, 2007; Newton, 2012; Sawyer, 2011; Starko, 2005). Establishing a common curricular goal of developing the creative competence of children is one way to help prepare students for an uncertain future (Beghetto, 2010a; Kampylis, 2010). The ability and disposition to be creative offers a valuable kind of autonomy and personal effectiveness, which can be empowering, satisfying and fulfilling (Newton, 2012). Some even claim that creativity in the classroom is vital to the survival of the soul, as well as success of learning (Kessler, 2000) and so is a necessary aim.

Both learning and creativity are dynamic forces in cultural progress, a major purpose of education (Bass, 1997; Moran, 2010). “Education is the device that allows one generation to pass on to the next generation all that it has learned through experience” (Bass, 1997, p. 129; Hansen, 2008). Learning—especially through direct teaching—is the primary mechanism of cultural *stability*, since a culture cannot survive if young members do not learn and build on the ways of their society (Bass, 1997; Bass & Good, 2004; Craft, 1984; Moran, 2010). But it has been said that a culture can become stagnant if its members do not adapt to, or sometimes even create, new circumstances, and so creativity is the primary mechanism of cultural *advancement* (Bass, 1997; Moran, 2010). Without

continuity and renewal, society would collapse (Hansen, 2008), thus, a basic purpose of education is the perpetuation of the society (Bass, 1997; Parsons, 1985). Importantly, it has been indicated that this does not mean that the society must be preserved unchanged (Bass, 1997); and so, creativity is essential, and education must function to preserve as well as provide for change (Bass, 1997, Bass & Good, 2004; Craft, 1984; Cropley, 2001; Moran, 2010).

These dual purposes of education are embodied in the Latin roots of the English word *education*, *educare*, which means “to train or mold” and *educere* meaning “to lead out” (Craft, 1984). Taken to the extreme, *educare*—or similarly, the overemphasis on cultural stability—demands total uniformity and making sure young people know the necessary information or methods of the culture (Bass, 1997, Bass & Good, 2004; McLaren, 1989; Moran, 2010). “Creativity is seen as revolutionary by instilling doubt about what is ‘right’ or by overthrowing old knowledge with new ideas” (Moran, 2010, p. 322). However, *educere*—which develops as providing for change and cultural advancement (Bass, 1997; Craft, 1984)—encourages in the young curiosity and creativity (Bass, 1997) and prepares them to create solutions to problems yet unknown (Bass & Good, 2004). All educators who assume the responsibility of preparing students for a changing world must take this approach to a larger degree (Bass, 1997; Bass & Good, 2004; DeZutter, 2011; Newton, 2012). Knowledge is not a static body of information on which individuals can be tested (Darling-Hammond, 2010; DeZutter, 2011; Moran, 2010) and today’s fast-paced economies, politics, and cultural change makes this assumption anachronistic (Darling-Hammond, 2010; Lobman, 2011; Moran, 2010).



While schools have taken on a variety of purposes, in recent history there has been a need or vision that the purpose of education should be to increase flexibility, adaptability, proactivity (Chen, Moran, & Gardner, 2009; Craft, 2003) and creativity (DeZutter, 2011; Lobman, 2011; Moran, 2010; Newton, 2012; Sawyer, 2011). But if this is a developing change in purpose, it has not yet trickled down into practice (Beghetto, 2010a; Moran, 2010). What pedagogical models should guide our teaching practices in fulfillment of our values in the purpose of education?

### **Pedagogy and Learning Theory**

According to educational theorist Roger Simon, *pedagogy* refers to the “integration in practice of particular curriculum content and design, classroom strategies and techniques, and evaluation, purpose, and methods” (McLaren, 1989, p. 161). Similarly, *pedagogical content knowledge* as defined by Shulman (1987) assumes good practices of generic pedagogy (e.g., cooperative learning) and emphasizes pedagogy integrated with the specific content of various disciplines (e.g., mathematical fractions) and teaching practices that support the ways in which novice learners may struggle to understand this content knowledge (Bransford et al., 2000, 2005; Grossman, Schoenfeld, & Lee 2005; Newton, 2012; Shulman 1987). So we can see that good pedagogical practice needs a teacher’s threshold knowledge of subject matter (Shulman, 1987), but even more importantly, according to educational scholar Linda Darling-Hammond, a teacher’s knowledge of how to teach and the understanding and skill to guide the learner’s developing thinking to knowing (Darling-Hammond, 1997,1992).

It is also important to recognize—as Nobel laureate Herbert Simon stated—that the meaning of *knowing* has shifted from being able to remember and repeat information to

being able to find and use it (Simon, 1996 as cited in Bransford et al., 2000). This kind of procedural knowledge—rather than factual knowledge—has been associated with creativity and knowing how to manipulate and use the right information (Makel, 2009). Eminent learning scientists Bransford et al. (2000) have stated that, due to the “sheer magnitude of human knowledge” and the fact that “information and knowledge are growing at a far more rapid rate than ever before in the history of humankind,” the goal of education is better conceived as “helping students develop the *intellectual tools and learning strategies* [emphasis added] needed to acquire the knowledge that allows people to *think productively* [emphasis added] about history, science and technology, social phenomena, mathematics, and the arts” (p. 5).

**New theory of learning.** According to Bransford et al. (2000), there has been a revolution in the study of the mind that has occurred in the last 3 or 4 decades, and a “new theory of learning” (p. 3) is coming about that leads to very different approaches to the design of curriculum, teaching and assessment than those often found in schools today. Many researchers agree that the primary characteristics of this new science of learning are an emphasis on understanding and a focus on the process of knowing (Beghetto & Plucker, 2006; Bransford et al., 2000, 2005; DeZutter, 2011; Hargreaves, 2003; Lobman, 2011; Sawyer, 2006, 2010, 2011). The foundations of this new science of learning can be found in the works of Piaget and Vygotsky and the constructivist theories of knowing (Bransford et al., 2000, 2005) which assume that all new knowledge is constructed from previous knowledge (Bransford et al., 2005; DeZutter, 2011; Lobman, 2011; Moran, 2010; Piaget, 1978; Vygotsky, 1978).

**Constructivist theory.** In recent decades, scholars who study learning have reached a consensus about the strength of constructivist theory for understanding how people learn, particularly how people learn deep conceptual knowledge (Bransford et al., 2000; DeZutter, 2011; Sawyer, 2006). Constructivist learning theory views learning as a process in which individuals construct new knowledge by reorganizing their existing knowledge (e.g., Brooks & Brooks, 1999; Beghetto & Plucker, 2006; Bransford et al., 2000, 2005). Since constructivism is a descriptive theory of the learning process it makes no prescriptions for teaching (DeZutter, 2011), but there is much scholarship that addresses how we might use a constructivist understanding of learning in order to optimize the teaching process. The specific recommendations vary across content areas (Newton, 2012), but a few hallmarks of constructivist-based teaching are: create situations that challenge students' prior conceptions (Brooks & Brooks, 1999; DeZutter, 2011), allow for collaborative work in which students will stimulate each other's learning (Brooks & Brooks, 1999; Windschitl, 2002), and allow students to take charge of their own learning and develop metacognitive skills (Bransford et al., 2000; Windschitl, 2002). In constructivist theory, students are considered *active learners* who make meaning and construct their own knowledge (Bruner, 1960), and this process is essentially a *creative* one (Newton, 2012).

Dewey favored a pedagogy and curriculum that centered on the needs and interests of the students and made them active participants in their own learning (Semel, 2002). This active role of the learner, which was also emphasized by Vygotsky, Bruner, and Piaget, is a central part of the new science of learning (Bransford et al., 2000). This active learning has been linked to metacognition—which can be defined as an awareness of thinking and

the ability to manage one's own thinking process (Bransford et al., 2000), and metacognitive processes have been tied to creative thinking (Fasko, 2001; Kozbelt et al., 2010).

**A model of constructivism versus transmission.** There is a wide-held assumption about teaching and learning that says that the primary job of the teacher is to help children obtain or *acquire* knowledge and skills (Lobman, 2011). This “deeply embedded cultural model of teaching” (Lobman, 2011, p. 73) has been referred to as *instructionism* (Papert, 1994), as *transmission and acquisition* (Rogoff, 1990; Sfard, 1998), or as *the banking model* (Freire, 1994). Constructivist approaches to learning and teaching stress the role of knowledge *creation* as opposed to knowledge *transmission* (Plucker et al., 2004), and the acquisitional understanding of learning has been criticized by many educators, who believe that it “leads schools to be organized around the pursuit of a narrowly conceived set of information and skills” (Lobman, 2011, p. 73; see also Egan, 1992; Eisner, 1998; Greene, 1988; Holzman, 1997, 2009). Instructionist schools were designed to prepare students for the industrialized economy of the early 20<sup>th</sup> century (Lobman, 2011; Robinson, 2001), and instructionism has been an effective model in transmitting a standard body of facts and procedures to students (Sawyer, 2010), but it has been said to be extremely difficult to incorporate creativity into instructionist classrooms (Sawyer, 2010), and creativity is rarely found in them (Beghetto, 2010a; Sawyer, 2010).

There are many continua on which different teaching approaches can be located, such as constructivist/transmissive, progressive/traditional, and student-centered/teacher-centered (Baer & Garrett, 2010). Student- or learner-centered environments attempt to help students make connections between their previous knowledge and their current

academic tasks (Bransford et al., 2000), and learner-centered teaching has been connected with facilitating creativity and creative thinking (Fasko, 2001). In learner-centered environments, teachers must pay close attention to the knowledge, skills, and attitudes that learners bring into the classroom (Bransford et al., 2000; Brooks & Brooks, 1999).

However, effective learning environments must also be knowledge centered (Bransford et al., 2000), which raises the question of the degree to which instruction begins with students' current knowledge and skills, rather than simply presents new facts about the subject matter (Bransford et al., 2000). The key issue, according to Bransford et al. (2000) is to what extent does the design of the curricula (and pedagogy) help students learn with understanding (and creativity) versus the acquisition of disconnected sets of facts and skills?

To summarize, results in the new science of learning have important implications for pedagogy (Sawyer, 2010). According to learning scientists Bransford et al. (2000), the key research findings on learners and learning and teachers and teaching are as follows:

1. Students come to the classroom with preconceptions about how the world works and they benefit from environments that support constructive and creative learning processes (Bransford et al., 2000; Plucker et al., 2004).
2. To develop competence in an area of inquiry, a deep foundation of factual knowledge is needed, *as well as* a conceptual framework to organize that knowledge in a way that facilitates application (Bransford et al., 2000). In other words, experts or so-called smart people are not just good thinkers; they also have a threshold of interconnected knowledge.

3. A metacognitive approach to instruction helps students learn and has been tied to creative thinking (Bransford et al., 2000; Fasko, 2001; Kozbelt et al., 2010).

These core learning principles have profound implications for the enterprise of teaching and teacher preparation (Bransford et al., 2000; Darling-Hammond, 1999). When these core learning principles are incorporated into teaching, evidence from research shows that student achievement improves (Bransford et al., 2000). So, a marked shift from instructionist delivery of facts and procedures, to the creation of learning environments that scaffold active learning and creative knowledge building is needed in our schools (Sawyer, 2010).

### **Barriers to Creativity in the Classroom**

Education has a pivotal role in promoting students' creative and innovative thinking. In the context of formal education teachers are expected to nurture each child's creative potential. The importance of providing creative learning opportunities in the regular classroom is well established (Aljughaiman & Mowrer-Reynolds, 2005). Unfortunately, such efforts are often marginalized (Andiliou & Murphy, 2010). Though encouraging creativity is not new to the mission of schooling, it is imperiled today, and too often, we see it as a luxury and a distraction to the real work of the core curriculum, or we want to avoid the unsettling feelings that may emerge from creative expression (Kessler, 2000).

**Instructionist classrooms and overemphasis on rote skills.** It has been said to be extremely difficult to incorporate creativity into instructionist classrooms (Sawyer, 2010), and creativity is rarely found in them (Beghetto, 2010a). Creative potential is not identified systematically or nurtured in the schools the way it should be (Diakidoy & Phtiaka, 2002, Hennessey & Amabile, 1987; Sternberg, 1996). Creativity researchers have,

for decades, noted the potential for the schooling experience to have a depressing, if not outright debilitating, effect on student creativity (Beghetto, 2009; Beghetto & Plucker, 2006; Guilford, 1950; Torrance, 1970). Creativity is too often associated with negative assumptions and characteristics held by practitioners (Plucker et al., 2004), and opportunities for student creativity may be systematically eliminated from the classroom (Beghetto & Plucker, 2006). In fact, it has been suggested the role of education institutions is inhibiting creativity (Beghetto, 2005; Beghetto & Plucker, 2006; Kaila, 2005; Makel, 2009; Robinson, 2001, 2006; Shaheen, 2010).

A *creativity paradox* seems to characterize the practices of primary teachers (Westby & Dawson, 1995), where, on the one hand teachers say they value creative thinking and performance, but on the other hand they follow practices that leave almost no room for creativity (Kampylis, 2010). Nurturing creativity often takes a backseat to more convergent, skill-and-drill approaches to teaching the curriculum (Aljughaiman & Mowrer-Reynolds, 2005; Beghetto & Kaufman, 2010). To the extent that formal schooling homogenizes student knowledge and behavior, “educators interested in promoting creativity have reason to worry” (Beghetto & Plucker, 2006, p. 316).

**Creativity undervalued by policy makers and educational authorities.** The development of creative behaviors does not typically fall under current education standards, and teachers and schools are working in a system that does not directly reward them (and may even punish them) if they focus their attention on creative development (Makel, 2009). It has been said that creativity is marginalized in schools because school-based learning, as distinguished from learning in other settings, focuses on exogenous learning goals, where “someone other than the learner pre-determines the learning goals

and the rationale for those goals” (Beghetto & Plucker, 2006, p. 318). Policymakers, administrators, and teachers may espouse that creativity is a good thing, but when a decision has to be made, they lean toward the convenient (Moran, 2010). School-based pedagogy is focused on reproducing knowledge (Beghetto & Plucker, 2006). Many aspects of ordinary schooling still rely on behaviorist or rote training principles, highlighting memorization of facts, assimilation of routine procedures and capitalizing on external rewards (Hakkarainen, 2010). Although knowledge acquisition stresses transfer of so-called right information (Moran, 2010), meaning-making involves constructivist approaches, emphasizing the fact that learning always takes place on the basis of a student’s current understanding, involves his or her active constructive efforts (to make sense of their experience) and cannot be externally controlled (Hakkarainen, 2010).

The concern is not with standards, memorization, or the learning of facts, per se; rather, the concern is directed at the undue *emphasis* that teachers often place on the acquisition of facts—which suggested to Guildford (1950) and many after him a confusion of educational objectives (Beghetto, 2010a). Researchers have argued that student understanding of material is better suited when teachers go beyond so-called right answers and cultivate students feeling surprised, puzzled, excited, and comfortable with being wrong (Duckworth, 1996; Makel, 2009). Classrooms generally do not appear to be creativity-fostering places, “primarily due to the biases of teachers and traditional classroom organization” (Plucker et al., 2004, p. 84; see also Furman, 1998). Schools environments need to be made more congenial to fostering creativity (Cropley, 2001). According to Gardner (2007) the challenge of the educator is to keep alive the creative



mind and sensibility of the child, and so much of this depends on the messages that exist within the classrooms that serve the mass of children.

**Convergent teaching practices and creativity suppression.** As stated above, the current educational system does not value creativity in its methods (Beghetto & Plucker, 2006; Cropley, 2001; Makel, 2009), and within it, teachers follow practices that leave almost no room for creativity (Beghetto, 2010a; Kamylyis, 2010; Westby & Dawson, 1995) and may, in fact, suppress it (Beghetto, 2010a; Beghetto & Plucker, 2006; Kaila, 2005; Makel, 2009; Shaheen, 2010; Robinson, 2001).

**Minimization of mistakes.** For instance, it has been well documented that teachers tend to minimize failure of all types, and the fewer mistakes that students make, the more successful the teacher is regarded (Davies, 2000; Kamylyis, 2010). In contrast, creativity researchers assert that failure is part of the creative process, and that students should be encouraged to risk being wrong, cope with frustration and failure, and not feel guilty about their mistakes (Cropley, 2001; Kamylyis, 2010; Sternberg, 1996; Urban, 2007).

**Order and quiet.** Another example (of creativity-suppressing practices) is that teachers strive to keep their class quiet and disciplined, since they have been taught that this is what good teachers do (Kamylyis, 2010). Perhaps for this reason, most classrooms structurally discourage cooperation and require students to work in relative isolation on tasks that require low-level, rather than higher-order reasoning (Brooks & Brooks, 1999). Teachers may find it difficult to change their teaching practices automatically and deal with the noise and new arrangements that creative teaching and teaching for creativity require (Jeffrey & Woods, 2009; Kamylyis, 2010; Starko, 2005).

***Dominated by teacher talk.*** Research has shown that classroom discourse offers unique benefits for certain types of learning (Beghetto, 2009; Cazden, 2001; Sawyer, 2004a, 2004b), and in effective constructivist discussion, the topic and the flow of the class emerge from teacher and student together, and it is unpredictable where it will go (Beghetto 2009; Beghetto & Plucker, 2006; Sawyer, 2004a, 2004b). But, the American classroom is dominated by teacher talk (Beghetto, 2010a; Brooks & Brooks, 1999; Flanders, 1973, Goodlad, 1984). Goodlad (1984) described the results from a massive, multiyear study, illustrating the starkness of this approach and identifying that nearly 70% of talk in the classroom is teacher to students. Furthermore, the bulk of this teacher talk was instructing in the sense of telling, where barely 5% of this instructional time was designed to create students' anticipation of needing to respond (Beghetto, 2010a; Goodlad, 1984).

Cazden (2001) asks, "How do the words spoken in classrooms affect student learning? How does the observable classroom discourse affect the unobservable thinking of each of the students, and thereby the nature of what they learn?" (p. 60). Unfortunately, student thinking is devalued in most classrooms, and when asking students questions, "most teachers seek not to enable students to think through intricate issues, but to discover whether students know the so-called right answer (Brooks & Brooks, 1999, p. 7). In fact, what may be the most common discourse pattern at all grade levels (Cazden, 2001) follows a three-part sequence of: teacher initiation, student response, and teacher evaluation or teacher feedback, known as IRE (Mehan, 1979). This sequence or discourse pattern is the default option used by teachers, and is sometimes called *recitation* or *traditional lesson* (Cazden, 2001). According to Beghetto (2010a) by the time most students have completed their first few years of formal schooling they have come to learn that their role in this pattern of talk is: to wait for the teacher to ask a

question, quickly raise their hand, quietly wait until the teacher calls on them (or calls on someone who raised their hand before them), share their response (usually by trying to match their response with what they think the teacher expects to hear), and wait for the teacher to tell them if their answer is correct or acceptable (Beghetto, 2010a).

The most pervasive criticism of the IRE lesson structure is that the teacher asks only “display” questions to which she already knows the answer (Beghetto, 2010a; Cazden, 2001). The teacher is either simply testing student knowledge or is “co-opting students to participate in what could otherwise be a lecture—transforming a monologue into a dialogue by eliciting short items of information at self-chosen points” (Cazden, 2001, p. 46). Beghetto (2009) calls these fleeting classroom interactions *micromoments* and asserts that while they may be easily overlooked and seem to have little lasting effect on students in the big picture of schooling, the repeated negative experiences during these micromoments can accrue over time and have a profound impact.

While the convergent IRE pattern does have some appropriate uses in the classroom, like for quickly reviewing information or checking students’ ability to recall factual information (Cazden, 2001), when this approach comes to dominate classroom talk, teaching affords little or no opportunity for students to explore and express their own ideas, interpretations, and insights (Beghetto, 2010a; Brooks & Brooks, 1999; Cazden 2001; Goodlad, 1984). One researcher refers to this common pattern as *intellectual hide and seek* in which students learn to suppress their own unique thoughts in favor of providing responses that they think their teachers expect and want to hear (Beghetto, 2010b; Black & William, 1998). Ultimately, this process undermines the possibility for students’ creative potential to be nurtured and developed in the classroom (Beghetto, 2010b), and students quickly get the

message: unexpected or otherwise creative responses are not welcome in the classroom (Beghetto, 2010a).

Many teachers come to view unexpected student ideas as disruptive and habitually dismiss them, expressing concerns about going off task so-to-speak (Kennedy, 2005). These habitual dismissals discourage students from investing intellectual energy in their learning (Black & William, 1998; Kennedy, 2005), and may, in part, explain the slumps in student creativity (measured by scores on tests and noted by researchers) during the 4th year of school, referred to as the fourth-grade slump (Beghetto, 2007b; Cropley, 2001; Torrance, 1968). This creativity slump may reflect the effects of “teacher-dominated, convergent teaching approaches” (Beghetto, 2010a, p. 450) and school discipline (Cropley, 2001) on children’s willingness to diverge (Beghetto, 2007b; Cropley, 2001). Students come to see that managing school means letting go of curiosity, creativity, and meaningful learning (Beghetto, 2007b; Fried, 2005).

***Scripted instruction and standardized tests.*** Schooling in this instructionist system means that there is a fixed world and set of knowledge that the learner must come to know (Freire, 1994; Lobman, 2011; Moran, 2010; Papert, 1994; Rogoff, 1990; Sawyer, 2010, 2011; Sfard, 1998), and most teachers rely heavily on textbooks to disseminate this information (Brooks & Brooks, 1999; Sawyer, 2010). One more example of system-wide teaching practices which are devoid of creativity is the use of scripted instruction, which is particularly popular in urban districts, and does not rely on teachers’ creative potential or their subject matter expertise (Erickson, 2011; Sawyer, 2004a). Although scripted approaches have documented improvements in test scores, critics argue that scripted instruction emphasizes lower-order skills that are particularly easy to measure with standardized tests (Sawyer,

2004a.) and argue that creative teaching results in deeper understanding among learners—a form of learning that is more difficult to quantitatively assess (Bereiter, 2002; Sawyer, 2004a). As mentioned earlier, creativity and educational scholars agree that the test-based accountability to standards have narrowed the focus of the curriculum and stripped it of its creativity (Beghetto, 2010a; Darling-Hammond, 2010; Smith & Smith, 2010). In general, constructivist approaches to learning interpret learning as a creative improvisational process (e.g., Beghetto, 2009; Kamylylis, 2010; Sawyer, 2004b, 2011). Educators who hold to constructivist principles are those most likely to be critical of scripted instruction; and advocates of scripted instruction are often critical of constructivist theory and practice (Sawyer, 2004a, 2004b).

**Problematic teacher attitudes and beliefs about creativity.** Although teachers appreciate creativity, in general, and have good intentions for further developing the creative potential of children (Andiliou & Murphy, 2010; Chappel, 2007; Fleith, 2000; Runco & Johnson, 2002), unfortunately, they have little tolerance for manifestations of creativity in their classrooms (Beghetto & Plucker, 2006; Runco, 2003b), and few actually support creative expression within their classroom (Beghetto 2007a; Runco, 2003b; Sternberg, 2003). Part of the reason for the marginalization of creativity in schools may be based on problematic views of teaching and learning (Beghetto & Plucker, 2006). When teachers develop negative or conflicted views about creativity, it can result in missed opportunities for teachers to develop students' creative potential and even result in the systematic suppression of students' creative expression in the classroom (Beghetto, 2009; Beghetto & Kaufman, 2010).

***Implicit theories.*** These views are referred to by researchers as *implicit theories*: subjective views of creativity that govern our expectations and guide certain behaviors (Kampylis, 2010; Runco, 1990) and include beliefs or values, images or metaphors, and biases that practitioners have developed in the course of their working lives (Kercz, 1992). Teachers hold implicit theories about their students, the subjects they teach, and their roles and responsibilities, including how they should act (Clark, 1988; Kampylis, 2010). Teachers' implicit theories are not "...neat and complete reproductions of the educational psychology found in text books" (Kampylis, 2010, p. 6) but rather generalizations from personal experience. Teachers' implicit theories are said to be extremely important since they play an important role in the judgments and interpretations that teachers make every day and in the way in which they plan class activities (Beghetto, 2006, 2007a; Kampylis, 2010). However, implicit theories can be problematic when teachers are not aware of their subjectivity and inconsistency (Kampylis, 2010) and can either facilitate or inhibit students' creative thinking (Kampylis, 2010; Kowalski, 1997). Creativity researchers have used the term *misconceptions* (Aljughaiman & Mowrer-Reynolds, 2005) or *myths* (Plucker et al., 2004) to describe inaccurate or misleading common beliefs about creativity and creative thinking. According to researchers, in order for creativity to find a legitimate space in the classroom, we must examine and understand how teachers conceptualize creativity (Beghetto & Plucker, 2006).

***Bias against creative students.*** Creativity researchers have identified a variety of problematic beliefs and attitudes about creativity that reinforce and are reinforced by convergent approaches to teaching (Beghetto, 2010a). Many teachers, within the U.S. and from around the globe, have been found to hold negative views about creative students

(Beghetto & Kaufman, 2010) and sometimes prefer less creative students in their classroom (Beghetto & Kaufman, 2010; Cropley, 1992; Dawson, 1997; Scott, 1999). Torrance (1963) was one of the earliest creativity researchers to document how teachers typically view the ideal student as compliant and conforming, and in more recent years, researchers have reported similar findings, documenting that teachers have been found to associate creativity with nonconformity, impulsivity, and disruptive behavior (Beghetto, 2010a; Chan & Chan, 1999; Dawson, 1997; Scott, 1999). In more than one study, teachers reported that they enjoyed working with creative students, yet when given adjectives that are typically used to describe creative people, they rated students who possessed those adjectives as their least favorite type of student (Aljughaiman & Mowrer-Reynolds, 2005; Westby & Dawson, 1995). Creative children thrive on questioning received wisdom and tend to look at things from a different angle, which means they may offer “strange” answers to teachers’ questions, ask surprising or unusual questions, or go about a classroom task in an unexpected way (Cropley, 2010). It is sometimes hard to distinguish between creativity in the classroom and disorderliness or disruptiveness (Cropley, 2010; Smith & Smith, 2010), as creativity by its very nature represents a threat to good order in the classroom (Cropley, 2010). As one researcher stated, “educators are attracted to creativity, but they sometimes feel that they should not get too close, so as not to end up as a moth to a flame” (Smith & Smith, 2010, p. 251).

***Misconception about the nature of creativity.*** Confusion about the nature of creativity can be a key roadblock for teachers who might otherwise want to support the creative potential of their students (Beghetto, 2010a; Plucker et al., 2004). Teachers who have a clear understanding of the nature of creativity are able to avoid negative stereotypes

and myths (misconceptions) about creativity and thereby, make room for creativity in their curriculum (Beghetto & Kaufman, 2010; Beghetto & Plucker, 2006 ). A common area of confusion for educators is to equate creativity with originality alone (Beghetto, 2010a) or “doing whatever you like regardless of accuracy, appropriateness, or effectiveness” (Cropley, 2010, p. 308), sometimes referred to as pseudo-creativity (Cattell & Butcher, 1968 as cited in Cropley, 2010). However, researchers report that when teachers recognize that creativity is not simply unconstrained originality—but actually requires a combination of originality and task appropriateness (Beghetto, 2010a)—they can see the value of curricular standards and conventions and recognize that curricular constraints are not opposing to creativity, but can, in fact, can provide “necessary evaluative criteria” for judging whether student’s “original ideas, products, or contributions are appropriate (and therefore creative) within the constraints of a particular curricular task, activity, or assignment” (Beghetto & Kaufman, 2010, p. 193; see also Plucker et al., 2004).

***Misconception about rare-and-gifted status.*** Many teachers might mistakenly believe that creativity is an extremely rare trait of highly gifted youngsters—as opposed to a gift possessed by all students—and feel that nurturing creative potential and talent is a job better suited for gifted education—rather than all—teachers (Beghetto, 2010a; Moran, 2010). Consequently, a very small proportion of students are typically afforded systematic opportunities to develop their creative potential in schools and classrooms (Beghetto, 2010a; Craft, 2005; Kamylyis, 2010). Moreover, this inequity is particularly pronounced for culturally diverse students who historically have been underrepresented in U.S. gifted education programs (USDE, 1993 as cited in Beghetto, 2010a; Ford & Grantham, 2003). However, several theories of creativity have emphasized that all of us can fulfill our



creative potential if we are given the appropriate means and opportunities (Cropley, 2001; Kampylis, 2010; Moran, 2010; Smith et al., 1995). One of the most widespread misconceptions about creativity is (that you either are or you are not creative and) that it is something inherent that cannot be nurtured, even though contemporary creativity research places the emphasis on “little-c” or everyday creativity (Beghetto, 2010a; Beghetto & Kaufman, 2007; Craft, 2001b; Kampylis, 2010; National Advisory Committee on Creative and Cultural Education (NACCCE), 1999; Richards, 2007), which assumes that everyone has creative potential that can be nurtured through education and schooling (Kampylis, 2010; Starko, 2005). Creative teaching and practices for the gifted may (can and should) be infused into the regular curriculum, as exemplified by such approaches as the school-wide enrichment model (Esquivel, 1995; Renzulli & Reis, 1997). Researchers assert that the notion that only a few individuals are gifted or creative is false, in other words a myth and a misconception (Beghetto, 2010a; Esquivel, 1995; Moran, 2010; Treffinger, 1991), and it is the role of educators to enhance the creative potential of all students (Esquivel, 1995; Moran, 2010; Treffinger, 1991).

***Misconception about creativity as limited to extracurricular topics.*** There is also a widespread misconception that there are so-called creative and non-creative school subjects (Kampylis, 2010). Most people connect creativity primarily with the arts (Sawyer, 2011), and teachers also connect creativity with the arts and consider that the most “creative” school subjects are those that are artistic, such as music or drama education (Aljughaiman & Mowrer-Reynolds, 2005; Craft, 2003; Diakadoy & Kanari, 1999; Fryer, 1996; Kampylis, 2010), and see no place for it in so-called rigorous disciplines such as science or mathematics and may dismiss it out of hand as irrelevant (Cropley, 2010).

However, many contemporary scholars have argued that creative learning should be embedded in all subject areas (Craft et al., 2001; Gardner, 2007; Sawyer, 2011), and research has shown that students' creative thinking can be fostered in all school subjects and curriculum areas (Craft, 2005; Kamylylis, 2010; Starko, 2005; Wilson, 2009). When creativity is viewed as an "add on" to the curriculum, mainstream teachers mistakenly believe that identifying and nurturing creativity is not part of their curricular responsibility (Beghetto, 2010a; Beghetto & Kaufman, 2010; Kamylylis, 2010).

***Misconception of creativity as necessarily productive.*** Another popular misconception held by teachers is the belief that creativity requires the production of a tangible product (Beghetto, 2010a; Runco, 2007). Teachers may praise students' creative products, but fail to recognize that students' unique insights and interpretations might be developed into *larger-c* creative products and accomplishments (Beghetto & Kaufman, 2010). Focusing only on creative end-products runs the risk of overlooking the creative potential of individuals (Runco, 2005), and researchers urge that educators must be helped to recognize that part of their role is to draw out and support the development of students' creative potential (Beghetto, 2010a; Kamylylis, 2010).

***Prior schooling model.*** It has been shown that the prior schooling experiences of teachers ultimately have a profound influence on teachers' instructional beliefs, knowledge and practice (Lortie, 1975). Left unexamined, these images and beliefs from their own schooling can carry over into their own classrooms (Beghetto, 2010a; Borko & Putnam, 1996; Calderhead & Robson, 1991; DeZutter, 2011; Richardson, 2003). It has been shown that most beginning, pre-service teachers hold implicit transmissionist (or instructionist) views of teaching which act as a barrier to accurately understanding constructivist

approaches to learning (DeZutter, 2011; Rogoff, 1990). Given that pre-service teachers have had approximately 13,000 hours of observation during their own schooling experiences (Beghetto, 2010a), it is reasonable to assume that these are practices they may have believed to be necessary or felt pressured to adopt (Beghetto, 2010a). Furthermore, not only the content of teachers' beliefs make them problematic, but also the fact that the beliefs are implicit and unrecognized assumptions about teaching and learning (DeZutter, 2011). This wider view gives a context from which to interpret and attempt to address teachers' potentially problematic beliefs, behaviors, and assumptions about creativity in the classroom (Beghetto, 2010a).

### **Summary**

Today creativity is considered to be an essential life skill, which needs to be fostered by the education system (Craft, 1999), because it has the potential to solve a range of social, political, and economic problems (Burnard & White, 2008; Kampylis, 2010). Based on socioeconomic demands and on learning theories (such as those of Bruner, Dewey, Piaget, Vygotsky) fostering of students' creative thinking is regarded today as a key education target, albeit it a challenging one, by a number of education systems around the world (Kampylis, 2010). Teachers' role in the development of elementary school students' creativity is very important because they act as role models and mentors and spend a considerable amount of time with students (Kampylis et al., 2009). The importance of providing creative learning opportunities in the regular classroom is well established (Aljughaiman & Mowrer-Reynolds, 2005). However, overall, there seems to be a consensus that creative potential is not identified systematically or nurtured in the schools the way it

should be (Andliou & Murphy, 2010; Beghetto, 2010a; Diakidoy & Phtiaka, 2002; Hennessey & Amabile, 1987; Sternberg, 1996; Sawyer, 2010).

Classrooms generally do not appear to be creativity-fostering places, primarily due to the biases of teachers and traditional classroom organization (Plucker et al., 2004). A number of researchers report that teachers hold negative attitudes and little tolerance for behaviors and characteristics associated with creativity (Beghetto, 2007a, 2010a; Beghetto & Kaufman, 2010; Beghetto & Plucker, 2006; Fasko, 2001; Runco, 2003b; Westby & Dawson, 1995), even though they generally value it (Andliou & Murphy, 2010; Chappel, 2007; Fleith, 2000; Kamylyis et al., 2009; Runco & Johnson, 2002). Therefore, some teachers may follow “inhibiting practices” (Alencar, 2002, p. 15) for the expression of students’ creativity and realization of their creative potential (Kamylyis et al., 2009), and schooling may have a debilitating effect on student creativity (Beghetto 2009; Beghetto & Plucker, 2006; Guildford, 1950; Robinson, 2001; Torrance, 1970).

Within the framework of education, the implicit theories of teachers have been regarded as extremely important (Kamylyis et al., 2009; Kowalski, 1997; Runco & Johnson, 2002). Teachers’ beliefs about educationally relevant issues and constructs may influence their perceptions and evaluations of learning outcomes, as well as their choice of instructional methods and tasks (Diakidoy & Phtiaka, 2002; Hofer & Pintrich, 1997; Pajares, 1992). According to Runco, Johnson, and Baer (1993), teachers’ idiosyncratic implicit theories act—intentionally or unintentionally—as prototypes against which students’ creative behavior and performance are judged. Teachers’ beliefs and implicit theories may facilitate or inhibit students’ creative behavior, because the ways in which

teachers organize the classroom practices are primarily influenced by what they know and believe (Beghetto, 2007a; Kampylis et al., 2009).

Teachers' beliefs and implicit theories are problematic when they are not aware of their subjectivity and inconsistency (Kampylis, 2010) and how they can lead to inhibiting students' creative thinking (Kampylis, 2010; Kowalski, 1997). Since, there is little attention given to this topic in teachers' education (Davies, Howe, Fasciato, & Rogers, 2004 as cited in Kampylis et al., 2009) and in-service training (Kampylis et al., 2009) there is little opportunity for teachers to confront the misconceptions and implicit theories they hold about this topic. Primary teachers need a clear idea about what creativity is in order to effectively foster it in real classroom settings (Beghetto, 2010a; Kampylis, 2010). According to researchers, in order for creativity to find a legitimate space in the classroom, we must examine and understand how teachers conceptualize creativity (Beghetto & Plucker, 2006). Teachers who have a clear understanding of the nature of creativity are able to avoid negative stereotypes and misconceptions about creativity and thereby, make room for creativity in their curriculum (Beghetto & Kaufman, 2010; Beghetto & Plucker, 2006).

### **Chapter 3: Methodology**

According to researchers, in order for creativity to find a legitimate space in the classroom, we must examine and understand how teachers conceptualize creativity (Beghetto & Plucker, 2006). Therefore, the purpose of this research is to describe public elementary-school teachers' beliefs and implicit theories about creativity—including the nature of creativity, creative students, and fostering creativity within the classroom.

#### **Restatement of the Research Questions**

This study aimed to gain deeper understanding and clarity on five main research questions, regarding public elementary-school teachers' beliefs about creativity:

1. What are public elementary-school teachers' beliefs and implicit theories about the nature of creativity?
2. What are public elementary-school teachers' beliefs about the characteristics of creative students?
3. What are public elementary-school teachers' beliefs about classroom environments and teaching strategies that promote or inhibit creativity in the classroom?
4. What are public elementary-school teachers' beliefs about the importance of creativity and their role in fostering student creativity in the classroom?
5. What is the relationship between public elementary school teachers' years of experience teaching and their beliefs about creativity?

#### **Research Design**

This research utilized a descriptive, mixed-methodology design. A *descriptive* research design was deemed most appropriate because the study attempted to identify the characteristics of a phenomenon, namely teachers' beliefs regarding creativity. As a

descriptive study, it did not involve changing or modifying the situation under investigation, nor did it intend to determine cause-and-effect relationships (Leedy & Ormand, 2005). In the case of this study, the research sought to identify elementary-school teachers' beliefs regarding creativity. The unit of analysis was the individual elementary school teacher. Additionally, a *mixed-method design* was chosen to combine the best of both quantitative and qualitative research. The mixed method design uses separate quantitative and qualitative methods as a means to off-set the weaknesses inherent within one method with the strengths of another method, and form a more complete understanding of the research problem (Creswell, 2012). In particular, a *convergent parallel design* (Creswell, 2012) was utilized, in which the researcher used a survey instrument, containing close- and open-ended questions, to simultaneously collect both quantitative and qualitative data to analyze and interpret. This researcher values both quantitative and qualitative data and viewed them as approximately equal sources of information in this study.

### **Population and Sample**

The population of this study consisted of currently employed, full-time, public elementary-school teachers, in a regular classroom, of grades kindergarten through five, within the greater Los Angeles area. The sample for this study was selected using *convenience sampling* in which the researcher selected participants because they were willing and able to be studied (Creswell, 2012). The researcher sought a sample size of teachers that was feasible and would provide sufficient data to assure validity. In the sampling process, the researcher requested and secured approval from the Pepperdine University IRB, from the Los Angeles area school districts, and from principals (see

Appendix B for district contact letter and Appendix C for principal contact letter) for permission to collect data from teachers and selected willing teacher participants for the sample. The sample consisted of 120 in-service, elementary school teachers, within one mid-sized public unified school district in the greater Los Angeles area (see Table 1). The researcher selected participants of any mix of male or female, age, years of experience, level of education, ethnicity, affiliations, or socio-economic background. Due to this method of sampling, the researcher is not able to say with confidence that the individuals are representative of the population as a whole (Creswell, 2012). Most recent comprehensive data from the National Center for Education Information (Feistritz, 2011) shows some similarities and contrasts to this study (see Table 2), including: fewer teachers holding a master's degree; a greater population of less-experienced teachers; and a similar age distribution among teachers, with the exception of far fewer teachers under age 30. While the sample from this study did not accurately represent the national population, they provided useful information for answering the research questions and gaining a broader and clearer understanding of Los Angeles area, regular classroom, public elementary school teachers' beliefs on the topic of creativity.

### **Research Instrument**

The research instrument used for this study was a self-report, anonymous, pencil-and-paper survey questionnaire (see Appendix D). Permission was received to modify the survey instrument (see Appendixes E, F & G). Surveys consist of a relatively systematic, mostly standardized approach to collecting information on individuals (Marsden & Wright, 2010). A survey instrument was selected by the researcher as best suited for the purpose of this study for its advantageous economy of use with a large sample, as well as increasing



Table 1

*Demographic Information of the Participants (N = 120)*

Characteristic	<i>n</i>	%
Gender		
Male	4	3
Female	115	97
Age <sup>a</sup>		
20 – 30	2	2
31 – 40	33	31
41 – 50	33	31
51 or older	38	36
Years of experience <sup>b</sup>		
1 – 5	2	2
6 – 10	6	5
11 – 15	42	36
16 – 20	38	33
21 or over	29	25
Grade currently teaching		
Kindergarten	20	18
First	17	15
Second	18	16
Third	19	17
Fourth	20	18
Fifth	15	13
First and second combination	2	2
Second and third combination	1	1
Fourth and fifth combination	1	1
Highest degree obtained		
Bachelor's degree	22	20
Master's degree	91	81

<sup>a</sup> Age.  $M = 46.63$ ,  $SD = 8.92$

<sup>b</sup> Years of experience  $M = 17.58$ ,  $SD = 6.34$

*Note.* Percentages may not total 100 due to rounding error.

Table 2

*Demographic Information of National K-12 Teachers<sup>a</sup>*

Characteristic	<i>n</i> <sup>b</sup>	%
Gender		
Male	-	16
Female	-	84
Age		
20 – 30	-	21
31 – 40	-	27
41 – 50	-	22
51 or older	-	31
Years of experience <sup>c</sup>		
1-5	-	26
6-9	-	16
10-14	-	16
15-24	-	23
25 or more	-	17
Highest degree obtained		
Bachelor's degree	-	44
Master's degree	-	55

<sup>a</sup> From *Profile of Teachers in the U.S. 2011* (p. 11), by C. E. Feistritzer, 2011, Washington, DC: National Center for Education Information (NCEI). Copyright 2011 by NCEI. Reprinted with permission (see Appendix H).

<sup>b</sup> The national data was presented in percentages without total number.

<sup>c</sup> Years of experience categories in Table 2 differ slightly from those in Table 1.

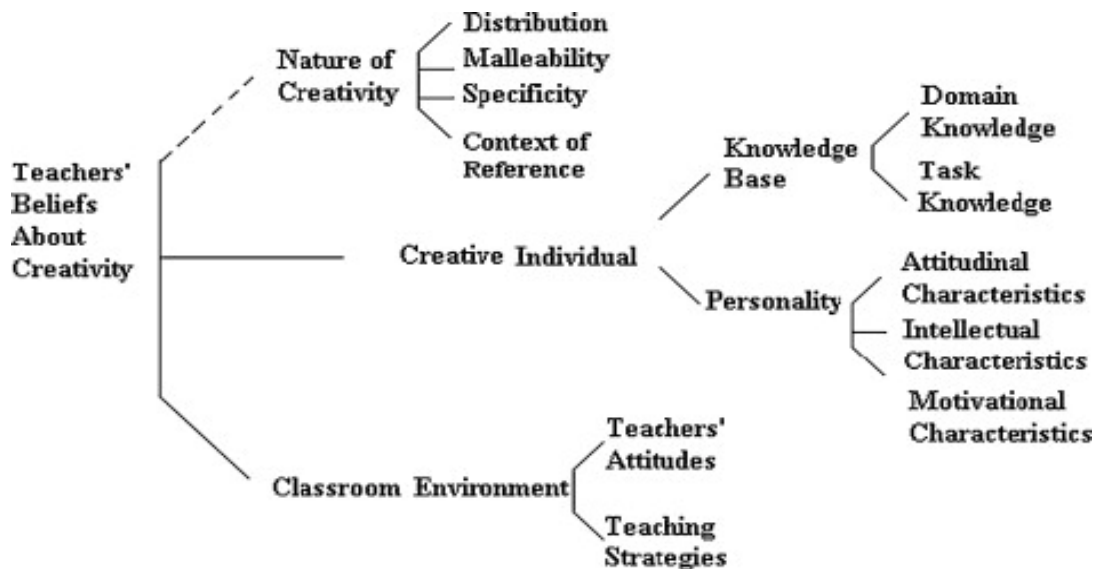
the chances to be able to generalize from the sample to the population about the beliefs held by this population (Cresswell, 2009)—namely, teachers' beliefs on creativity. In keeping with the mixed-methods design of this study, the survey had two parts: a *quantitative* section, with close-ended statements to be rated on a scale, as well as two multiple-choice items; and a *qualitative* section, with open-ended questions to encourage participants to express their beliefs and feelings accurately in their own words. The

qualitative portion of the survey was placed first so that teachers' responses would not be influenced by the statements in the quantitative section. A final section on demographics and background solicited respondents' age, gender, grade-level currently teaching, highest educational degree, and years of experience teaching. Brief instructions at the top of the survey described the topic of the survey questionnaire and instructions on how to complete the open-ended and close-ended survey items.

**Quantitative and qualitative sections.** The quantitative section of the survey (which comprises a majority) consisted of 23 Likert-type items, in which respondents were asked to indicate whether they *strongly disagree*, *disagree*, are *neutral* (e.g., I don't know, I don't want to answer), *agree*, or *strongly agree* with a statement. One multiple choice item included in the quantitative portion of the survey asked respondents to select one of three choices to best represent their belief, and a second multiple choice item asked respondents to "choose one or more" from a list of 12 choices. The qualitative section of the survey consisted of seven open-ended questions, which were considered important by the researcher to solicit responses in the participants' own words. Space on the survey allowed participant to record their responses directly on the instrument.

**Development of the survey instrument.** The development of the survey instrument involved the researcher first identifying factors and generating statements and questions regarding creativity in the classroom. Questionnaire items were adopted from previous research undertaken by Aljughaiman and Mowrer-Reynolds (2005), Diakidoy and Phtiaka (2002), and Kampylis (2010). (See permissions obtained from researchers in Appendixes E, F, & G.) This researcher selected relevant questions from previous survey instruments, including the Teachers' Conceptions of Creativity Questionnaire (TCCQ;

Kampylis, 2010), and four of these questions were slightly modified, in some instances to apply to the regional educational system. The conceptual framework derived by Andiliou and Murphy (2010) on teachers' beliefs about creativity (see Figure 2) served as the guide in determining statements and questions to include on the survey instrument.



*Figure 2.* Framework on teachers' beliefs about creativity. From "Examining variations among researchers' and teachers' conceptualizations of creativity: A review and synthesis of contemporary research," by A. Andiliou and P.K. Murphy, 2010, *Educational Research Review*, 5, p. 214. Copyright 2010 by Elsevier. Reprinted with permission.

The survey questions were aligned with the research questions, and included items on the topics of: defining creativity, including properties of its distribution, malleability, and specificity; creative students, and their characteristics; and classroom environments and teaching strategies to promote creativity. Table 3 shows the correspondence between each of this investigator's research questions—including subcomponents relating to the conceptual framework—with items from the survey instrument.

Table 3

*Linkage Between Research Questions and Items on Survey Instrument*

RQ	RQ topic	RQ subtopic	Survey item(s) specific to this RQ
1	Nature of creativity	<ul style="list-style-type: none"> <li>• Definition</li> <li>• Distribution</li> <li>• Malleability</li> <li>• Specificity</li> <li>• Combined for RQ1</li> </ul>	1, 2, 9, 23, 27 5, 29 11, 15, 18 22, 30, 31 1, 2, 5, 9, 11, 15, 18, 22, 23, 27, 29, 30, 31
2	Characteristics of a creative student	<ul style="list-style-type: none"> <li>• Personality</li> <li>• Knowledge base</li> <li>• Combined for RQ2</li> </ul>	3, 4 24 3, 4, 24
3	Classroom environments and teaching strategies that promote or inhibit creativity	<ul style="list-style-type: none"> <li>• Teacher attitudes</li> <li>• Teaching strategies</li> <li>• Combined for RQ3</li> </ul>	7, 8, 13, 14, 16, 17, 19, 25 6, 20, 28 6, 7, 8, 13, 14, 16, 17, 19, 20, 25, 28
4	A teacher's role in promoting student creativity	<ul style="list-style-type: none"> <li>• Importance of</li> <li>• In regular classroom</li> <li>• Training</li> <li>• Combined for RQ4</li> </ul>	21  10, 32 12, 26 10, 12, 21, 26, 32
5	Relationship between years of teaching experience and beliefs about creativity		Demographic on experience: Survey items 1-32

**Reliability and validity.** Statements and questions on the survey instrument from all three previous studies were tested for reliability and validity by the original researchers, using recognized methods and procedures, including expert panels and pilot tests on sample participants, and revisions were made (Aljughaiman & Mowrer-Reynolds, 2005; Diakidoy & Phtiaka, 2002; Kampylis, 2010). This researcher took appropriate measures to reestablish this validity and reliability, and also piloted survey items to

experts in the field and members of the sample population, in order to ensure reliability and comprehensibility of the instrument (Creswell, 2012).

### **Human Subjects Protections**

This study complied with all federal and professional standards for conducting research with human subjects. In accordance with IRB policy, risk to participants was minimized in the following manner: (a) the participant's name and affiliation were not used in this study, (b) other specific identifying information were not used or reported in this study, and (c) informed consent (see Appendix I) was sought to ensure that the participant knew that participation was voluntary and that the participant had the right to withdraw at any point in the process.

The researcher applied to the Pepperdine University IRB for an exempt status (see Appendix J), in accordance with the criteria of 45 CFR 46.101 (b)(2). This study fell under this designation because the study presented minimal risk to the participants, as outlined in appendix B of the Pepperdine IRB Manual found on the Pepperdine website, which states the categories and criteria of Exempt Research, including:

1. "Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as: a. Research on regular and special education instructional strategies" (Pepperdine University, 2009, p. 36)
2. "Research involving the use of...survey procedures," which does not involve research with children (Pepperdine University, 2009, p. 36).

There were no known risks to the participants in this study, and confidentiality was maintained throughout the process. The results of the study will be available for the participant's review upon completion of the study.

## **Data Collection Procedures**

As stated earlier, in the participant recruitment process the researcher requested and secured approval from the Pepperdine University IRB, as well as contacted Los Angeles area school districts and principals for permission to collect data from teachers. Once the research proposal was approved, and particular principals and elementary school sites were recruited and scheduled for participation, the researcher attended a faculty meeting at each of the six school campuses, during the spring of 2013, in order to collect data. A brief introduction was given and materials were distributed to all teachers present. Among the materials were the Informed Consent letter (see Appendix I), briefly explaining the nature of the study and notifying them of the voluntary nature of their participation and their right not to participate, as well as the confidentiality of their responses. Teachers were asked not to put their name or any particular identifiers on their survey instrument, to complete the survey individually, and informed that results would be reported in aggregate and that they may have access to the final results, if desired. The survey instrument included instructions for completing it. Teachers completed the survey instrument in approximately 10 to 15 minutes. Completed surveys were collected immediately thereafter. (Any surveys completed by a non-regular classroom teacher—such as a special education teacher or assistant—were collected but were not included in the data analysis.) Data was kept in a securely locked cabinet until time for the procedures of analysis, or in the researcher's password-protected computer, and will be destroyed after the completion of the study.

## **Summary of Methodology**

In sum, this study had five main research questions on the topic of teachers' beliefs about creativity in the classroom. It was a descriptive, mixed-methods study, using a paper-and-pencil survey instrument, with both qualitative and quantitative sections, administered and collected concurrently. The sample consisted of 120 in-service elementary school teachers, in a regular classroom of grades kindergarten through five, within six schools of one mid-sized, public unified school district in the greater Los Angeles area. Survey items were carefully selected from previous research instruments, and a new survey instrument was developed, using a scholarly framework, and piloted to experts and sample participants. Compliance with federal laws and university policies were taken for the protection of human subjects, and there were no known risks to the participants in this study. Data collection occurred at six separate school faculty meetings during the spring of 2013. Completed and collected surveys were stored securely throughout the data analysis process.



## Chapter 4: Data Analysis and Results

This study's purpose was to describe public elementary school teachers' beliefs and implicit theories about creativity. The study examined 120 Los Angeles- area teachers' beliefs on: the definition and nature of creativity, the characteristics of creative students, classroom environments and teaching strategies that promote or inhibit creativity, and the teachers' role in fostering student creativity in the classroom. The study also examined the relationship between teachers' years of experience teaching and their beliefs about creativity in these areas.

### Participants

The sample consisted of 120 in-service, public elementary school teachers from six schools within one mid-sized school district in the Los Angeles area. The vast majority of the sample was female (115, 97%), which is consistent and representative of elementary education within the United States and worldwide (Beghetto, 2007a; Diakidoy & Kanari, 1999; Kamylyis et al., 2009). Only 8 participants (7%) had been teaching for 10 years or less, and the majority of participants (80, 67%) had been teaching for 11 to 20 years. The years of experience teaching ranged from 3 to 40 ( $M = 17.58, SD = 6.34$ ). Participants' ages ranged from 27 to 69 ( $M = 46.63, SD = 8.92$ ). Most participants held a master's degree (91, 81%). Participants were distributed fairly evenly throughout the elementary grade levels, kindergarten through fifth (see Table 1). Frequencies and percentages for demographics of participants were presented in Table 1.

### Data Analysis

As stated earlier, the selected research design for this study was a descriptive, mixed-methods, convergent parallel design (using a paper and pencil

survey instrument). As such, both quantitative and qualitative data were collected concurrently, though data sets were prepared and analyzed independently. The data analyses used for each of the data sets, as recommended by Creswell & Plano Clark (2011), are described here.

**Quantitative analyses.** Upon completion of the surveys by teachers, raw data from the Likert-type scale questions (items 8-30) and from other quantitative questions (items 5, 31, 32), as well as data on the demographics of participants, were entered into a database for quantitative analyses using SPSS statistical analysis software. Quantitative data was analyzed using descriptive statistics, including mean, standard deviation, mode, range, frequencies and percentages, to determine trends in the data and its pattern of distribution. To find the relationship between groups of questions, aggregated scores were created for questions pertaining to six topics, including the following: nature of creativity, definition, malleability, specificity, classroom environments and teaching strategies, and teacher's role in promoting student creativity (see Table 4). Inferential analyses using the Pearson statistical test for correlation was conducted. To determine the relationship between teachers' years of experience teaching and beliefs about creativity, the Spearman's rho statistical test for correlation was conducted on each of the 23 Likert-type scale questions. Expert data analysts corroborated these data analyses, and results are presented by research question in the findings section below.

**Qualitative analyses.** Qualitative data from the open-ended questions on the survey were prepared using the process of analyses suggested by Creswell (2012) and Creswell and Plano-Clark (2011). All qualitative raw data was initially read over and transcribed by typing responses into a Word document or Excel spreadsheet. For each

Table 4

*Linkage Between Research Questions, Quantitative Survey Items, and Statistical Analysis*

RQ	RQ topic	Quantitative survey instrument item(s)	Statistical analysis
1	Nature of creativity: definition, malleability, specificity	9, 11, 15, 18, 22, 23, 27, 29, 30, 31	Descriptive statistics (mean, mode, range), standard deviation, Pearson correlation
2	Characteristics of a creative student	24	Descriptive statistics (mean, mode, range), standard deviation
3	Classroom environments and teaching strategies that promote or inhibit creativity	8, 13, 14, 16, 17, 19, 20, 25, 28	Descriptive statistics (mean, mode, range), standard deviation, Pearson correlation
4	A teacher's role in promoting student creativity	10, 12, 21, 26, 32	Descriptive statistics (mean, mode, range), standard deviation, Pearson correlation
5	Relationship between years of teaching experience and beliefs about creativity	Demographic on experience, survey items 8-30	Spearman's correlation

qualitative survey item (items 1-4, 6-7) relevant segmented text phrases were selected and highlighted in a particular color. Tallies of similar responses were conducted and codes were created to combine the similar segmented text phrases. Five other coders (four students from our Pepperdine GSEP doctoral dissertation seminar and one graduate student in sociology and research methods) were enlisted to separately code the qualitative data and to ensure validity (Creswell, 2007). Themes were then extracted from the total coded data, with a minimum of three coders agreeing on the theme representative

of the codes. Frequencies of response on the themes were recorded, and the themes were examined using comparisons to scholarly literature, to other relevant qualitative data from this study, and to quantitative findings from this study.

## Results

The findings of these quantitative and qualitative data analyses will now be presented by research question.

**Research question 1 findings.** Research question 1 asked: What are public elementary school teachers' beliefs about the nature of creativity? This question had subparts on the survey, aligned with the theoretical model on teachers' beliefs about creativity by Andiliou and Murphy (2010) corresponding to teachers' beliefs on the: (a) definition of creativity, (b) distribution of creativity, (c) malleability of creativity, and (d) specificity of creativity (see Table 4, Figure 1).

**Definition of creativity.** Teacher responses to quantitative survey items 9, 23, and 27 were used to partially answer research question 1(a) on the definition of creativity. Ratings were given on a 5-point scale (ranging from 1 = *strongly disagree* to 5 = *strongly agree*, with 3 = *neutral* or *do not know*). Survey item 9 stated, "For an outcome to be creative it must be novel." The majority of participants (83, 69%) indicated they disagreed or strongly disagreed with survey item 9. Survey item 23 stated, "For an outcome to be creative it must also be appropriate." Fifty-two participants (43%) indicated they agreed or strongly agreed with survey item 23, and 30% indicated they were neutral or did not know. Survey item 27 stated, "Creative thinking is different from the thinking required to solve problems in school," On which 56% disagreed or strongly disagreed. Table 5

presents frequencies and percentages for survey items 9, 23, and 27, and Table 6 presents means, standard deviation, mode, and range for these same survey items.

Table 5

*Definition of Creativity: Survey Items 9, 23, and 27*

Item	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%	<i>n</i>	%	<i>n</i>	%
Item 9: Novel	19	16	64	54	20	17	14	12	2	2
Item 23: Appropriate	5	4	26	22	36	30	42	35	10	8
Item 27: Creative thinking	12	10	54	46	23	20	26	22	3	3

Table 6

*Definition of Creativity: Survey Items 9, 23, and 27 (Mean, Standard Deviation, Mode, and Range)*

Item	<i>M</i>	Mode	<i>SD</i>	Min.	Max.
Item 9: Novel	2.29	2.00	0.93	1.00	5.00
Item 23: Appropriate	3.22	4.00	1.02	1.00	5.00
Item 27: Creative thinking	2.61	2.00	1.02	1.00	5.00

Quantitative data from these tables reflect sample teachers' beliefs on the definition of creativity. Specifically noteworthy, they indicate teacher disagreement with the necessity for a creative outcome to be novel, as well as a large uncertainty whether a creative outcome must be appropriate.

Teacher responses to qualitative survey items 1 and 2 were also used to answer research question 1(a) on the definition of creativity. These open-ended survey items allowed participants to write short answers responses in their own words. Survey item 1

asked, “How would you define creativity? Please you’re your own short definition.” And, survey item 2 directed participants to, “Please provide an example of creativity as manifested by one or more students in your classroom.” One hundred fourteen participants responded to survey item 1. Participant responses were carefully coded and analyzed to extract themes. Fourteen themes were extracted from the data on survey item 1 (see Table 7). The theme of *originality* in thought, action, or product most strongly emerged, with a majority of 73% of teacher responses indicating this theme in one way or another. Another theme to strongly emerge was that of *divergent thinking* (i.e., novel ideas, flexibility in

Table 7

*Teachers’ Definitions of Creativity: Survey Item 1 (N = 114)*

Creativity involves...	<i>n</i>	% agreement
Originality	83	73%
Divergent thinking	50	44%
Self expression	36	32%
Flexibility	23	20%
Aesthetic product	19	17%
Linguistic product	15	13%
Problem solving	14	12%
Freedom/no constraint	12	11%
Elaboration	12	11%
Tangible end product (only)	9	8%
Way of teaching	8	7%
Imagination	6	6%
Design for presenting information	6	6%
Any subject domain	5	4%

thought, remote associations, fluency in thought; Runco, 2010), with 44% of teacher responses indicating this theme. Thirty-two percent of teacher responses specifically indicated that creativity involved an ability of some kind. Thirty-two percent of responses designated creativity as some form of *self expression*. Other themes that emerged from teacher responses for a definition of creativity included: flexibility (20%), aesthetic product (17%), linguistic product (13%), problem solving (12%), freedom (11%), and elaboration (11%).

Some quotes of teacher responses to survey item 1 include:

On the theme of *originality*:

- “A quality that allows an individual’s unique gifts and talents to come across in whatever they do.”
- “Coming up with something that is unique and different.”

On the theme of *divergent thinking*:

- “Thinking outside the box or approaching things in an unusual way.”
- “...providing an unexpected response, novel thinking.”

On the theme of *self expression*:

- “Creativity is the process of expressing yourself.”
- “Ability of an individual to freely articulate one’s inner feelings, emotions, in a way through the use of the arts, etc.”

On the theme of *flexibility*:

- “Creativity is the ability to look at a situation from many different angles.”

On the theme of *problem solving*:

- “To be able to come up with a solution or way of solving a problem that no one has prompted/guided...”

- “Creativity is using your imagination to solve problems...”

On the theme of *freedom/no constraint*:

- “Ability to do what you choose without any parameters.”
- “Whatever a student wants to do. It doesn’t follow the lines.”

Teacher responses ranged from as little as a few words to as long as a full paragraph, written on the back of the survey page.

One hundred twelve participants responded to survey item 2, which directed participants to, “Please provide an example of creativity as manifested by one or more students in your classroom.” Five themes were extracted for survey item 2 (see Table 8). The largest percentage of teacher responses on a theme was that of an example of an *aesthetic product* (44%), such as a piece of art work, drawing, colorful product, or beautiful design. The next largest theme emerged as *originality* (37%), with examples such as, “student creates a project that is far different from the example” and “using toys in a different way than originally intended.”

Table 8

*Teachers’ Examples of Creativity: Survey Item 2 (N = 112)*

Examples	<i>n</i>	% agreement
Aesthetic product	49	44%
Originality	41	37%
Creative writing	29	26%
Math problem solving	17	15%
Elaboration	7	6%



***Distribution of creativity.*** Teacher responses to quantitative survey item 29 and qualitative survey item 5 were used to answer research question 1(b) on teachers' beliefs about the distribution of creativity among children. Quantitative survey item 29 stated, "Creativity is a characteristic of all students and is not a rare phenomenon." A majority of 67 participants (56%) indicated they agree or strongly agree with this statement. Table 9 and Table 10 show descriptive data, including frequencies, mean, mode and range for survey item 29.

Table 9

*Distribution of Creativity: Survey Item 29 (Frequency and Percentage)*

Item	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Item 29	1	1	19	16	32	27	56	47	11	9

Table 10

*Distribution of Creativity: Survey Item 29 (Mean, Standard Deviation, Mode, Range)*

Item	<i>M</i>	Mode	<i>SD</i>	Min.	Max.
Item 29	3.48	4.00	0.90	1.00	5.00

One hundred fourteen participants responded to survey item 5, which asked, "What percentage of your students do you consider to be highly creative?" Teachers were given a blank line on which to write in their numerical response. Participants' responses ranged from 0 to 100 with only 1 (1%) participant indicating 0% and 5 (4%) participants indicating 100%. The response that was indicated most often was 10% (26, 23%), followed by 5% (14, 12%). The top responses for survey item 5 are shown in Table 11.

Data from these survey items indicate that a majority of teachers believe a relatively small percentage of students are highly creative, yet creativity is a characteristic of all students and not a rare phenomenon.

Table 11

*Percentage of Highly Creative Students: Survey Item 5 (N = 114)*

Percentage of highly creative students (as stated by teacher participants)	<i>n</i>	% teacher responses
10%	26	23%
5%	14	12%
20%	8	7%
15%	7	6%
30%	6	5%

***Malleability of creativity.*** Teacher responses to quantitative survey items 11, 15, and 18 were used to answer research question 1(c) on teachers' beliefs about the malleability of creativity in children (i.e., the possibility to intentionally develop creativity). Survey item 11 stated, "Creativity can be taught." Fifty-nine participants (49%) agreed or strongly agreed with this statement, and 38% indicated they were neutral or did not know. Survey item 15 stated, "Student creativity can be developed in the classroom." A vast majority, 92 participants (77%), indicated that they agree or strongly agree with this statement. Survey item 18 stated, "Creativity can be developed in everybody." Eighty-seven participants (73%) indicated that they agree or strongly agree with this statement. Table 12 shows frequencies and percentages for survey items 11, 15, and 18, and Table 13 shows the mean, standard deviation, mode, and range for these items. Data from these survey items indicate that a majority of teachers believe that creativity can be developed in all students in the classroom.

Table 12

*Malleability of Creativity (Frequency and Percentage)*

Item	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Item 11: Taught	2	2	12	10	44	38	54	46	5	4
Item 15: Developed in class	0	0	5	4	21	18	70	59	22	19
Item 18: Developed in all	0	0	9	8	23	19	63	53	24	20

Table 13

*Malleability of Creativity: Means, Standard Deviations, Modes, and Ranges*

Item	<i>M</i>	Mode	<i>SD</i>	Min.	Max.
Item 11: Taught	3.41	4.00	0.80	1.00	5.00
Item 15: Developed in class	3.92	4.00	0.73	2.00	5.00
Item 18: Developed in all	3.86	4.00	0.83	2.00	5.00
Malleability	3.73	4.00	0.61	1.67	5.00

**Specificity of creativity.** Teacher responses to quantitative survey items 22, 30, and 31 were used to answer research question 1(d) on teachers' beliefs about the specificity of creativity (i.e., the domain or subject generalizability of creativity). The vast majority of participants (104, 87%) indicated that they agree or strongly agree with survey item 22, which stated, "Student creativity can be manifested in any school subject." Yet, in response to survey item 30, which stated, "Some school subjects are more creative than others." Only 15% of participants disagreed or strongly disagreed, and a majority of 68% also agreed or strongly agreed. Table 14 shows frequencies and percentages for survey items

22 and 30, and Table 15 shows the mean, standard deviation, mode and range for these items.

Table 14

*Specificity (Subject Domain) of Creativity*

Item	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Item 22: Any subject	0	0	2	2	13	11	71	60	33	28
Item 30: Some subjects	0	0	18	15	20	17	66	56	15	13

Table 15

*Specificity of Creativity (Means, Standard Deviations, Modes, and Ranges)*

Item	<i>M</i>	Mode	<i>SD</i>	Min.	Max.
Item 22: Any subject	4.13	4.00	0.66	2.00	5.00
Item 30: Some subjects	3.66	4.00	0.89	2.00	5.00
Specificity	3.90	4.00	0.52	2.50	5.00

Data from these survey items indicate that a majority of teachers believe that creativity can manifest in any school subject, yet some school subjects are more creative than others.

Survey item 31 stated, "Please select the school subject or subjects in which you consider it likely for a student to manifest his/her creativity (please choose one or more)."

Table 16 shows the school subject choices and the frequencies and percentages of teacher participant responses. An extreme majority of teacher responses show writing, arts, drama, and music education as the more creative school subjects.

Table 16

*“More Creative” School Subjects: Survey Item 31*

School subject	<i>n</i>	%
Writing	118	98
Arts education	114	94
Drama education	107	88
Music education	104	86
Technology	92	76
Science	89	74
Mathematics	85	70
Social studies	85	70
Reading	73	60
Physical education	60	50
Citizenship	48	40
Health education	38	31

*Note.* Percentages may not total 100 due to rounding error.

Table 17 shows that *all 12 subjects* was the most frequently endorsed (32, 27%) number of subjects (though not with a majority), which corresponds with the data presented earlier (survey items 301, 31) indicating that most participants view some school subjects as more creative than others.

Table 17

*The Way Participants Selected the “More Creative” School Subjects*

How many school subjects	<i>n</i>	%
12 (all)	32	27
9-11	25	21
5-8	52	43
1-4	11	9

**Research question 2 findings.** Research question 2 asked: What are public elementary school teachers’ beliefs about the characteristics of creative students? This question had subparts on the survey, aligned with the theoretical model on teacher’s

beliefs about creativity by Andiliou and Murphy (2010), corresponding to characteristics of a creative student's (a) personality, and characteristics of a creative student's (b) knowledge base.

**Personality.** Teacher responses to qualitative survey items 3 and 4 were used to answer research question 2(a) on teachers' beliefs about the personality characteristics of a creative student. One hundred fourteen participants provided responses to survey item 3, which stated, "Complete the sentence: Creative is the person who...". The top themes emerging from the responses are presented in Table 18. *Originality* (60%) in thought, action, or product was the most frequently stated response, and *divergent thinking* (46%),

Table 18

*Top Themes for Description of the Creative Person: Survey Item 3*

Creative is the person who...	<i>n</i>	%
Originality	68	60
Divergent thinking	52	46
Lacks fear, takes risks, confident	27	24
Self expression	22	19
Aesthetic sensibility	12	11
Elaboration	8	7
Problem solving	5	4

involving flexibility of thought, fluency of thought, and remote associations, as well as novel ideas (Runco, 2010), was the next most frequently stated response theme. These data are consistent with the themes for the definition of creativity (see Table 7), with *lacks fear/takes risks/confident* as a new theme to emerge.

Some examples of teacher responses for survey item 3 included:

- "Creates a piece that is unique"

- “Thinks outside the box and sees different perspectives.”
- “Has the confidence to try new ideas (and sometimes fail).”
- “Comes up with new, beautiful or interesting ways to do things.”

Survey item 4 stated, “List the top five characteristics that you feel best describe the creative student.” One hundred fifteen teacher participants indicated at least one characteristic of a creative student. Table 19 presents the top ranked responses, by theme

Table 19

*Characteristics of a Creative Student: Survey Item 4*

Characteristic	Rank	<i>n</i>	%
Artistic	1	36	31
Original/unique	2	29	25
Out-of-the-box thinker	3	24	21
Confident	4	22	19
Intelligent/gifted	5	21	18
Open-minded/open	6	19	17
Imaginative	7	18	16
Risk taker	8	17	15
Thoughtful/thinker	8	17	15
Expressive	10	13	11
Independent	10	13	11
Inquisitive/questioning	10	13	11
Unafraid	10	13	11
Flexible	14	12	10
Deep or critical thinker	15	11	10
Problem solver	16	10	9

(similar characteristics were put into the same category). *Artistic* was the top characteristic to emerge, with 36% of participants indicating this word. *Original, unique*, or a synonymous word or phrase was the next most common characteristic stated, with 25% of participants indicating this. *Out-of-the-box thinker* or some re-wording of this phrase

was the next most commonly stated characteristic, with 21% of participants signifying this phrase. The top 16 characteristics (where a minimum of 10 participants indicated each) have been ranked and listed in Table 19. Some new themes to emerge (not dominantly present in survey items 1, 2, or 3) were *intelligent/gifted* (18%), *imaginative* (16%), and *inquisitive/questioning* (11%).

**Knowledge base.** Participant responses to quantitative survey item 24 were used to answer research question 2(b) on teachers' beliefs about the knowledge base characteristic of a creative student. Survey item 24 stated, "Creativity depends on possessing a high degree of prior knowledge." Nearly half of participants (58, 48%) disagreed or strongly disagreed with this statement, while 28% indicated they agree or strongly agree and 23% indicated that they were neutral or did not know. Table 20 and Table 21 show descriptive data, including frequencies, mean, mode and range for survey

Table 20

*Knowledge Base Characteristic of a Creative Student: Survey Item 24*

Item	<u>Strongly disagree</u>		<u>Disagree</u>		<u>Neutral</u>		<u>Agree</u>		<u>Strongly agree</u>	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Item 24	5	4	53	45	27	23	29	24	5	4

Table 21

*Knowledge Base Characteristic of a Creative Student: Survey Item 24 (Mean, Standard Deviation, Mode, and Range)*

Item	<i>M</i>	Mode	<i>SD</i>	Min.	Max.
Item 24	2.80	2.00	1.00	1.00	5.00



item 24. Data from this survey item indicate disparate teacher beliefs, and that no majority of participants shared a belief on the necessity of prior knowledge for creativity.

**Research question 3 findings.** Research question 3 asked: What are public elementary school teachers' beliefs about classroom environments and teaching strategies that promote or inhibit creativity in the classroom? This question had subparts on the survey relating to the theoretical model on teachers' beliefs about creativity by Andiliou and Murphy (2010) and corresponding to (a) attitudes and classroom environments, and (b) teaching strategies.

**Attitudes and classroom environments.** Teacher responses to quantitative survey items 17, 8, 13, 14, 16, 19, and 25 and qualitative survey item 7 were used to answer research question 3(a) on attitudes and classroom environments that promote or inhibit creativity. Quantitative survey item 17 (on teachers' attitudes about creativity) stated, Table 22

*Creativity is Essential for Enhancing Student Academic Learning: Survey Item 17*

Item	<u>Strongly disagree</u>		<u>Disagree</u>		<u>Neutral</u>		<u>Agree</u>		<u>Strongly agree</u>	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Item 17	0	0	5	4	23	19	63	53	28	24

Table 23

*Creativity is Essential for Enhancing Student Academic Learning: Survey Item 17 (Mean, Standard Deviation, Mode, and Range)*

Item	<i>M</i>	Mode	<i>SD</i>	Min.	Max.
Item 17	3.92	4.00	0.73	2.00	5.00

“Creativity is essential for enhancing student academic learning.” A strong majority of 91 participants (76%) indicated that they agree or strongly agree with this statement. Tables 22 and 23 show descriptive statistics for survey item 17.

Quantitative survey items 14, 19, 8, 13, and 16 pertained to teachers’ beliefs about school or classroom environments and creativity. Table 24 and Table 25 present descriptive statistics for these items. Survey item 14 stated, “The school is the best environment for students to manifest their creativity.” A slight majority of participants (64, 53%) indicated that they disagree or strongly disagree with this statement, and nearly half of participants (45, 38%) indicated that they were neutral or did not know. Survey item 19 stated, “Students have many opportunities in school to manifest their creativity.” Forty-six percent of participants indicated they disagree or strongly disagree with this statement, while 32% of participants indicated they agree or strongly agree. Survey item 8 stated,

Table 24

*Teachers’ Beliefs about School or Classroom Environments and Creativity*

Item	<u>Strongly disagree</u>		<u>Disagree</u>		<u>Neutral</u>		<u>Agree</u>		<u>Strongly agree</u>	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Item 14: School environment	11	9	53	45	45	38	10	8	0	0
Item 19: Opportunities	3	3	52	44	26	22	35	29	3	3
Item 8: Time	14	12	68	57	17	14	15	13	5	4
Item 13: State standards	25	21	48	41	25	21	19	16	1	1
Item 16: School discourages	6	5	16	13	25	21	47	40	25	21

Table 25

*Teachers' Beliefs about School or Classroom Environments and Creativity: Survey Items 14, 19, 8, 13, and 16 (Mean, Standard Deviation, Mode, and Range)*

Item	<i>M</i>	Mode	<i>SD</i>	Min.	Max.
Item 14: School environment	2.45	2.00	0.78	1.00	4.00
Item 19: Opportunities	2.86	2.00	0.96	1.00	5.00
Item 8: Time	2.40	2.00	0.99	1.00	5.00
Item 13: State standards	2.35	2.00	1.02	1.00	5.00
Item 16: School discourages	3.58	4.00	1.12	1.00	5.00
School or classroom environments	2.88	2.83	0.48	1.40	4.50

“Students have enough time to manifest their creativity in the classroom.” Sixty-eight percent of participants indicated they disagree or strongly disagree, while only 17% of participants indicated they agree or strongly agree with this statement. Survey item 13 stated, “State standards allow for the manifestation of creativity in the classroom.” Similar to item 8, 61% of participants indicated they disagree or strongly disagree, while only 17% of participants indicated they agree or strongly agree with this statement. Survey item 16 stated, “A school environment which emphasizes competition, evaluation, and conformity discourages the manifestation of students’ creativity.” A slight majority (72, 60%) of participants indicated they agree or strongly agree with this statement, while only 18% of participants indicated they disagree or strongly disagree.

Quantitative survey item 25 also pertained to teachers’ beliefs about school or classroom environments and creativity. Survey item 25 stated, “Teachers can inhibit creativity in students.” A majority of participants (100, 83%) indicated they agree or strongly agree with this statement, and only 3% indicated they disagree or strongly

disagree (see Table 27). Table 26 and Table 27 present descriptive statistics for survey item 25.

Table 26

*Teachers Can Inhibit Creativity: Survey Item 25*

Item	<u>Strongly disagree</u>		<u>Disagree</u>		<u>Neutral</u>		<u>Agree</u>		<u>Strongly agree</u>	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Item 25	0	0	3	3	16	13	60	50	40	34

Table 27

*Teachers Can Inhibit Creativity: Survey Item 25 (Mean, Standard Deviation, Mode, and Range)*

Item	<i>M</i>	Mode	<i>SD</i>	Min.	Max.
Item 25	4.13	4.00	0.58	2.00	5.00

Teacher responses to qualitative survey item 7 were also used to answer research question 3(a) on teachers' beliefs about classroom environments that promote or inhibit creativity. Survey item 7 asked teachers: "What barriers may keep you from effectively promoting student creativity in the classroom?" to which 117 participants responded. Themes were extracted from the responses, and the top thematic responses are presented in Table 28. The most common response themes of participants were time constraints (47%) to cover all curricular requirements, followed by adherence to state standards (28%), and the ramifications of standardized testing (26%). Some quotes of teacher responses to survey item 7 include:

- "Time constraints and meeting all the standards required per year."
- "Standardized testing! Is the biggest!"

Table 28

*Barriers to Promoting Student Creativity: Survey Item 7 (Frequencies and Percentages)*

Characteristic	<i>n</i>	%
Time constraints to cover all curricular requirements	55	47
State standards	33	28
Standardized testing	30	26
Too many students	21	18
Lack of resources	10	9
Discipline issues	8	7

- “Standardized tests/test prep. Having to give assessments that require a right/wrong answer, no opportunity for thinking, giving explanations.”
- “Testing, implementation of ideas that have not been teacher driven, but forced on teachers to do.”
- “Curriculum that locks you into a scope and sequence.”
- “Class size, student behavior issues.”
- “So many students (31) that you often take the easier route and tell them it has to be done a specific way. Can’t listen to all of them or help foster their individual ideas.”

**Teaching strategies.** Teacher responses to quantitative survey items 28 and 20, as well as qualitative survey item 6 were used to answer research question 3(b) on teaching strategies that promote or inhibit creativity. Quantitative survey item 28 stated, “I employ many methods in my classroom to foster creativity.” A majority of participants (71, 59%) indicated they agree or strongly agree with this statement, and a sizable group of 31% indicated they were neutral or did not know. Table 29 and Table 30 present descriptive statistics for survey item 28.

Survey item 20 stated, “Promoting creativity in students requires improvisation by the teacher.” A majority of participants (83, 69%) indicated they agree or strongly agree

Table 29

*Employ Many Methods to Foster Creativity: Survey Item 28*

Item	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Item 28	0	0	7	6	35	31	60	53	11	10

Table 30

*Employ Many Methods to Foster Creativity: Survey Item 28 (Mean, Standard Deviation, Mode, and Range)*

Item	<i>M</i>	Mode	<i>SD</i>	Min.	Max.
Item 28	3.66	4.00	0.74	2.00	5.00

with this statement (see Table 31). Table 31 and Table 32 present descriptive statistics for survey item 20.

Table 31

*Promoting Creativity Requires Improvisation: Survey Item 20*

Item	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Item 20	0	0	11	9	24	20	67	57	16	14

Table 32

*Promoting Creativity Requires Improvisation: Survey Item 20 (Mean, Standard Deviation, Mode, and Range)*

Item	<i>M</i>	Mode	<i>SD</i>	Min.	Max.
Item 20	3.75	4.00	0.81	2.00	5.00

Teacher responses to qualitative survey item 6 were also used to answer research question 3(b) on teaching strategies that promote or inhibit creativity in the classroom. Survey item 6 asked teachers to respond to the following prompt: “List activities and strategies you can use in the classroom to support creativity.” One hundred eleven participants responded to survey item 6. Themes were extracted from the responses and the top thematic responses are presented in Table 33. The most common response theme of participants was providing open-ended assignments for students (54%), followed by providing art, music, or drama activities (50%).

Table 33

*Activities and Strategies to Support Creativity: Survey Item 6 (N = 111)*

Activity or Strategy	<i>n</i>	%
Open-ended assignments	60	54
Art, music, drama activities	55	50
Writing activities (general)	28	25
Allow student choice	14	13
Allow multiple answers or strategies	13	12
Math activities (general)	13	12
Provide safe or encouraging environment	12	11
Cooperative student work	11	10

**Research question 4 findings.** Research question 4 asked: What are public elementary school teachers’ beliefs about the importance of creativity and their role in fostering student creativity in the classroom? This question had subparts on the survey corresponding to teachers’ beliefs about their (a) importance, (b) responsibility, and (c) training for fostering student creativity in the classroom.

**Importance.** Teacher responses to quantitative survey items 17 and 21 were used to answer research question 4(a) on teachers’ beliefs about the importance of creativity in

the classroom. Survey item 17 stated, “Creativity is essential for enhancing student academic learning.” As presented earlier (see Tables 22 and 23), a strong majority of 91 participants (76%) indicated that they agree or strongly agree with this statement. Also corresponding with teachers’ beliefs on the importance of creativity, survey item 21 stated, “Teachers should have knowledge about creativity.” The vast majority of participants (105, 88%) agreed or strongly agreed with this statement. Table 34 and Table 35 present descriptive data on survey item 21. Data from survey items 17 and 21 indicate a strong majority of teacher participants believe that creativity is essential for academic learning and that teachers should have knowledge of creativity.

Table 34

*Teachers Should Have Knowledge About Creativity: Survey Item 21*

Item	<u>Strongly disagree</u>		<u>Disagree</u>		<u>Neutral</u>		<u>Agree</u>		<u>Strongly agree</u>	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Item 21	0	0	0	0	13	11	77	65	28	24

Table 35

*Teachers Should Have Knowledge About Creativity: Survey Item 21 (Mean, Standard Deviation, Mode, and Range)*

Item	<i>M</i>	Mode	<i>SD</i>	Min.	Max.
Item 21	4.13	4.00	0.58	3.00	5.00

**Responsibility.** Teacher responses to quantitative survey items 10 and 32 were used to answer research question 4(b) on teachers’ beliefs about their responsibility and role in fostering student creativity in the regular classroom. Survey item 10 stated, “A regular classroom teacher is responsible for helping students develop creativity.” A



majority of participants (87, 73%) agreed or strongly agreed with this statement. Table 36 and Table 37 present descriptive statistics for survey item 10.

Table 36

*Responsible for Helping Students Develop Creativity: Survey Item 10*

Item	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Item 10	3	3	7	6	22	19	67	56	20	17

Table 37

*Responsible for Helping Students Develop Creativity: Survey Item 10 (Mean, Standard Deviation, Mode, and Range)*

Item	<i>M</i>	Mode	<i>SD</i>	Min.	Max.
Item 10	3.79	4.00	0.88	1.00	5.00

Survey item 32 asked participants to indicate which of three statements (regarding special programs for enhancing creativity) they agreed with. Table 38 presents all three statements and the frequencies and percentages of responses.

Table 38

*Perceived Need for Special Programs to Enhance Creativity: Survey Item 32*

With which of the following do you agree? (please choose <i>only one</i> ):	<i>n</i>	%
Students with high-level creative potential must attend special programs to enhance their potential.	5	4
All students must attend special programs to enhance their creative potential.	27	24
There is no need for special programs. The whole curriculum must promote creativity.	82	72

The majority of participants (82, 72%) indicated agreement with the statement “There is no need for special programs. The whole curriculum must promote creativity.” Data from this survey item corresponds with that of survey item 10 above, indicating that a majority of teacher participants believe that it is their responsibility to promote creativity in their own regular classroom, to their students.

**Training.** Teacher responses to quantitative survey items 26 and 12 were used to answer research question 4(c) on teachers’ beliefs about their training to promote student creativity in the classroom. Survey item 26 stated, “I feel well-trained to promote creativity in students.” Slightly less than exactly half of participants (59, 50%) indicated that they agree or strongly agree with this statement; 20% indicated they disagree or strongly disagree; and a full 30% indicated they were neutral or did not know (see Table 39).

Table 39

*Training to Recognize Creative Achievements: Survey Items 12 and 26 (Frequencies and Percentages)*

Item	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Item 26: Trained to Promote	1	1	23	19	36	30	44	37	15	13
Item 12: Trained to Recognize	1	1	19	16	28	24	50	42	20	17

Survey item 12 stated, “I feel well-trained to recognize creative achievements of my students in many subjects.” A majority of participants (70, 58%) indicated that they agree or strongly agree with this statement; and 24% designated that they were neutral or did not know (see Table 40). Data from these survey items indicate that a sizable group of

teacher participants feel well trained to recognize and promote creativity in their students, yet many feel uncertain about the quality of their training.

Table 40

*Training to Recognize Creative Achievements: Survey Items 12 and 26 (Mean, Standard Deviation, Mode, and Range)*

Item	<i>M</i>	Mode	<i>SD</i>	Min.	Max.
Item 26: Trained to Promote	3.41	4.00	0.97	1.00	5.00
Item 12: Trained to Recognize	3.58	4.00	0.98	1.00	5.00
Training	3.49	4.00	0.89	1.00	5.00

**Research question 5 findings.** Research question 5 asked: What is the relationship between public elementary school teachers' years of experience teaching and their beliefs about creativity? Participants' years of experience teaching ranged from 3 to 40 with a mean of 17.6 years. Table 41 recaps the distribution of teacher participants' years of experience (from the earlier description of the sample demographics).

Table 41

*Participants' Years of Experience Teaching (N = 120)*

Years of experience teaching	<i>n</i>	%
1 - 5	2	2
6 - 10	6	5
11 - 15	42	36
16 - 20	38	33
21 or over	29	25

To address research question 5, 23 Spearman rho correlations were conducted between years of experience and survey items 8 to 30; one correlation was conducted per survey item. Statistical significance was determined at  $\alpha = .05$ . The results of the 23

Spearman Rho correlations were not statistically significant. This suggests that there were not significant relationships between years of experience and any of the 23 Likert-scale survey items. The results of the Spearman correlations are presented in Table 42. Six Pearson correlations were also conducted between years of experience and the following six variables: nature of creativity, definition, malleability, specificity, classroom environments and teaching strategies that promote or inhibit creativity, and a teacher's role in promoting student creativity.

Table 42

*Spearman Rho Correlations Between Years of Experience and Survey Items 8 to 30*

	Items	Years of experience
Item 8	Students have enough time in class	-.05
Item 9	A creative outcome must be novel	-.08
Item 10	Classroom teacher is responsible for promoting	-.01
Item 11	Can be taught	.08
Item 12	Feel well-trained to recognize creativity	-.01
Item 13	State standards allow for creativity	.11
Item 14	School is best environment for	-.03
Item 15	Can be developed in the classroom	.09
Item 16	Evaluation, conformity in school discourages	.04
Item 17	Essential for academic learning	.14
Item 18	Can be developed in everybody	.11
Item 19	Many opportunities in school	-.09
Item 20	Requires improvisation by teacher	-.16
Item 21	Teachers should have knowledge of creativity	.00
Item 22	Can be manifested in any school subject	.12
Item 23	Creative outcome must also be appropriate	-.15
Item 24	Creativity depends on prior knowledge	-.09
Item 25	Teachers can inhibit creativity	.08
Item 26	Feel well-trained to promote creativity	.03
Item 27	Creative thinking is different	-.07
Item 28	Employ many methods in classroom	-.06
Item 29	Characteristic of all students	-.05
Item 30	Some school subjects more creative	-.05

Note. \*  $p < .05$ . \*\*  $p < .01$ .

One correlation was conducted per variable. The results of the six Pearson correlations did not yield any statistically significant findings; none of the correlations had  $p$  values less than .05. This suggests that years of experience do not have a statistical relationship with these areas. The results of the Pearson correlations are presented in Table 43.

Table 43

*Pearson Correlations Between Years of Experience and Nature of Creativity, Definition, Malleability, Specificity, Classroom Environment, and Teacher's Roles*

Variable	Years of Experience
Nature of creativity	-.06
Definition	-.18
Malleability	.06
Specificity	.06
Classroom environment	-.03
Teacher's role	-.03

*Note.* \*  $p < .05$ . \*\*  $p < .01$ .

### Summary

This chapter has presented detailed information on the demographics of the sample, the procedures of analyses used for quantitative and qualitative data, as well as the findings of those data analyses by research question. The following chapter will present a summary and discussion of those results by research question, overall conclusions based on the results, implications for practice, and recommendations for further research.

## **Chapter 5: Summary, Discussion, Conclusions, Implications for Practice, and Recommendations for Further Research**

This chapter will present a restatement of the problem, purpose and research questions in this study, a summary of the methodology, as well as a summary of the major findings. Moreover, it will present a discussion of those findings, conclusions, implications for practice, and recommendations for further research on the topic of creativity in education.

### **Restatement of the Problem**

Creativity today is considered to be an essential life skill, which needs to be fostered by all levels of the education system (Craft, 1999), because creative individuals have the potential to solve a range of social, political, and economic problems (Kampylis, 2010). The importance of providing creative learning opportunities in the elementary classroom is well established (e.g., Aljughaiman & Mowrer-Reynolds, 2005; Beghetto, 2010a; Beghetto & Kaufman, 2010; Starko, 2005), and as an elementary school teacher of over a decade, this researcher truly believes in the necessity of fostering creative learning and teaching. However, contemporary elementary classrooms generally do not appear to be creativity-fostering places (Plucker et al., 2004). A better understanding of elementary teachers' beliefs about creativity may provide valuable insights into their practice and aid educational administrators and policymakers in their planning and evaluation efforts to facilitate teachers' capability and foster creativity in the classroom.

## **Restatement of the Purpose and Research Questions**

Therefore, the purpose of this study was to describe Los Angeles area public elementary school teachers' beliefs about creativity. The study proposed five main research questions:

1. What are public elementary-school teachers' beliefs about the nature of creativity?
2. What are public elementary-school teachers' beliefs about the characteristics of creative students?
3. What are public elementary-school teachers' beliefs about classroom environments and teaching strategies that promote or inhibit creativity in the classroom?
4. What are public elementary-school teachers' beliefs about their role in fostering student creativity in the classroom?
5. What is the relationship between public elementary school teachers' years of experience teaching and their beliefs about creativity?

## **Summary of Methodology**

This study used a descriptive, mixed-methods design, to gather both qualitative and quantitative data, from 120 elementary school teachers, in grades kindergarten through fifth, from six public schools, within one mid-sized district in the Los Angeles area. Convenience sampling was used to select the participants. Qualitative and quantitative data were collected concurrently and in-person, during teacher staff meetings, at each of the schools.

A 32-item, paper and pencil survey, which included both quantitative and qualitative sections, was utilized in this study. The new survey instrument for this study was developed from surveys used in previous scholarly research, including Aljughaiman &

Mowrer-Reynolds (2005), Diakidoy & Phtiaka (2002), and Kampylis (2010), which focused on elementary school teachers' beliefs on creativity. The conceptual framework derived by Andiliou and Murphy (2010) on teachers' beliefs about creativity served as the guide in determining statements and questions to include on the new survey instrument. Measures were taken to reestablish validity and reliability of the new survey instrument, including pilot testing survey items to experts in the field and members of the sample population. Data analysis included both descriptive and inferential statistics, as well as coding and the extraction of themes. A number of expert and graduate student data analysts were used to test or code data, and to agree upon themes, in order to ensure validity of the results.

### **Summary of Major Findings**

This section presents a summary of the major findings of this study by research question. A detailed discussion of these findings will be presented in the following section.

**Research question 1.** Research question 1, on the nature of creativity, had four subparts, including: definition, distribution, malleability, and specificity.

**Definition.** The most frequently occurring definitions of creativity in this study were *originality* in product, action, or thought (with 73% of teachers indicating this theme in their definitions), followed by the theme of *divergent thinking* (44%). The next most prevalent attribute indicated by teachers for creativity was that involving *an aesthetic product*, such as producing a piece of art or beautiful design. Aesthetic products were the most common example given by teachers (44%) in this study, when asked to provide an example of creativity as manifested by students in their classroom.

**Distribution.** A majority of teachers in this study (56%) indicated that they agree or strongly agree with the statement, "Creativity is a characteristic of all students and not a



rare phenomenon.” Yet, when asked, “What percentage of your students do you consider to be highly creative?” 45% of participants indicated only 10% or less of their students to be highly creative.

**Malleability.** A strong majority of teachers in this study (77%) indicated they agree or strongly agree with the statement, “Student creativity can be developed in the classroom.” Yet, less than half of sampled teachers (49%) indicated they agree or strongly agree with the statement, “Creativity can be taught.”

**Specificity.** A vast majority of sampled teachers (87%) indicated they agree or strongly agree with the statement, “Student creativity can be manifested in any school subject,” yet, a large majority of teachers in this study (68%) also indicated they agree or strongly agree that, “Some school subjects are more creative than others” and listed writing (98%), arts (94%), drama (88%), and music (86%) as the “more creative” school subjects.

**Research question 2.** Research question 2, on the characteristics of creative individuals, had two subparts: personality and knowledge base.

**Personality.** The number-one ranked characteristic of a creative student, provided by teachers in this study was *artistic*. The characteristics of *original* and *out-of-the-box-thinker* were ranked second and third by teacher participants, when asked to “List the top five characteristics that you feel best describe the creative student.”

**Knowledge base.** In response to the statement, “Creativity depends on possessing a high degree of prior knowledge,” 48% of teachers in this study indicated they disagree or strongly disagree, while 23% indicated they do not know.

**Research question 3.** Research question 3 had subparts including classroom environments and teaching strategies related to creativity.

**Classroom environments.** In response to the statement, “The school is the best environment for students to manifest their creativity,” a mere 8% of sampled teachers indicated they agree (and 0% indicated strongly agree). In response to the statement, “Students have enough time to manifest their creativity in the classroom,” 68% of teachers in this study indicated they disagree or strongly disagree, while only 17% of participants indicated they agree or strongly agree. And, similarly, in response to the statement, “State standards allow for the manifestation of creativity in the classroom,” 61% of sampled teachers indicated they disagree or strongly disagree, while only 17% of participants indicated they agree or strongly agree. Furthermore, when asked, “What barriers may keep you from effectively promoting student creativity in the classroom?” the top three teacher responses included: time constraints (47%) to cover all curricular requirements, state standards (28%), and standardized testing (26%).

**Teaching strategies.** In response the statement, “I employ many methods in my classroom to foster creativity,” 59% of teachers in this study indicated they agree or strongly agree, and 31% indicated they did not know. Further, when asked to, “List activities and strategies you can use in the classroom to support creativity,” the top two themes in teacher responses were: using open-ended assignments (54%) and providing art, music, or drama activities (50%).

**Research question 4.** Research question 4 had subparts relating to creativity, including: importance of, responsibility for, and training for.

**Importance.** In response to the statement, “Creativity is essential for enhancing student academic learning,” 76% of teachers in this study indicated that they agree or strongly agree with this statement.

**Responsibility.** In response to the statement, “A regular classroom teacher is responsible for helping students develop creativity,” a strong majority of sampled teachers (73%) indicated they agree or strongly agree.

**Training.** In response to the statement, “I feel well-trained to promote creativity in students,” less than half (49.9%) of teacher participants indicated they agree or strongly agree with this statement, and a sizable percentage (30%) indicated uncertainty about the effectiveness of their training to promote student creativity.

**Research question 5.** Research question 5 concerned the relationship between teacher years of experience and teacher beliefs. Correlational tests conducted between years of experience and beliefs on creativity did not yield any statistically significant findings, which suggests that the variable of years of experience teaching does not have a statistical relationship with beliefs on creativity.

## **Discussion**

This section presents a detailed discussion of this study’s results by research question and sub-question. In following sections, overall conclusions, implications for practice, and recommendations for further research will be presented.

A conceptual framework for understanding teachers’ beliefs about creativity, developed by Andiliou and Murphy (2010), as discussed in Chapter 1, was utilized herein to categorize and interpret teachers’ responses to the research questions (see Figure 3).

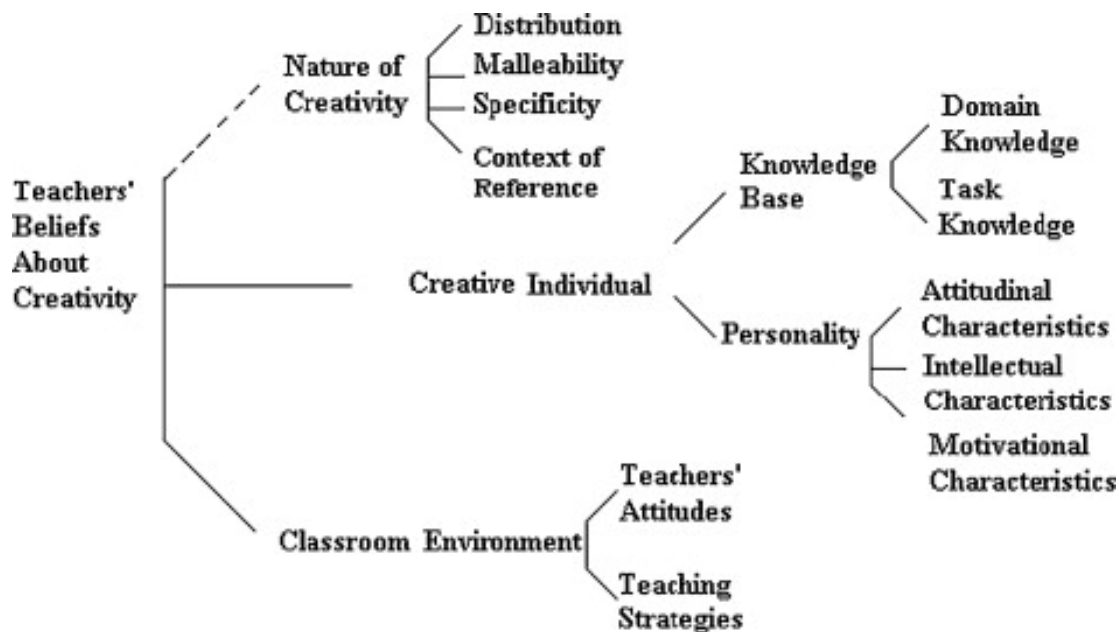


Figure 3. Framework on teachers' beliefs about creativity. From "Examining variations among researchers' and teachers' conceptualizations of creativity: A review and synthesis of contemporary research," by A. Andiliou and P.K. Murphy, 2010, *Educational Research Review*, 5, p. 214. Copyright 2010 by Elsevier. Reprinted with permission.

**Nature of creativity.** Research question 1 asked: What are public elementary school teachers' beliefs about the nature of creativity? This question had subparts on the survey, aligned with the theoretical model on teachers' beliefs about creativity by Andiliou and Murphy (2010), corresponding to teachers' beliefs on the: (a) definition of creativity, (b) distribution of creativity, (c) malleability of creativity, and (d) specificity of creativity.

**Definition of creativity.** The most frequently occurring definition of creativity in this study was *originality* in product, action, or thought. Of teachers in this sample, 73% believed creativity to be a form of originality (as indicated in responses to survey item 1). These results correspond with results of previous similar research (Aljughaim & Mowrer-Reynolds, 2005; Andiliou & Murphy, 2010; Cheung, Tse, Tsang, 2003; Diakidoy & Phtiaka, 2002; Fryer & Collings, 1991), which found originality or novelty widely recognized by

teachers as the defining characteristic of creative outcomes. These results of this study also correspond, to some degree, with researchers definitions of creativity (Craft, 2001a; Plucker et al., 2004; Kamylyis et al., 2009; Runco, 2004; Starko, 2005), where originality is one of the most common attributes of creativity. For example, Craft (2001a) states that, "Creativity involves...being original in some way" (p. 15), and Sternberg and Lubart (1999) define creativity, in part, as "...the ability to produce work that is...novel (i.e., original, unexpected)...." (p. 3). Starko (2005) states that, "Novelty and originality may be the characteristics most immediately associated with creativity" (p. 6).

But these results of this study are somewhat puzzling when looked at in combination with the following result of this study, as well: 69% of teachers in this sample indicated they disagree or strongly disagree with the statement, "For an outcome to be creative it must be novel" (survey item 9). On the one hand (in open-ended survey responses) sample teachers defined creativity as a form of originality, yet on the other hand (on a rating-scale survey statement) sample teachers did not believe a creative outcome must be novel. What might be the cause for this apparent inconsistency? To explain this, the key dilemma here is, novel to whom? To be considered creative, a product or idea must be original or novel to the individual creator (Starko, 2005), yet not necessarily novel to a domain or to society (Beghetto & Kaufman, 2007; Richards, 2010; Smith & Smith, 2010). This is consistent with the theory of *mini-c creativity* (Beghetto & Kaufman, 2007, 2010), which emphasizes creativity on a personal level, and *everyday creativity* (Richards, 2010), which emphasizes *relative originality*, so as to include "most people and creative acts, and not only those few that are unequivocally unique innovations" (Richards, 2010, p. 212). Teachers in this sample may have had this notion of *mini-c* or

*everyday creativity* in mind when indicating disagreement with the statement that for an outcome to be creative it must be novel (even while prior having supplied definitions of creativity with a main characteristic as *originality*).

Creativity researchers are in general agreement that originality, although necessary for creativity, is not sufficient (Beghetto, 2010a), and a common area of confusion for educators is *equating* creativity with originality (Beghetto, 2010a; Runco, 2004). To this point, teachers in this study indicated a general uncertainty as to whether a creative outcome must also be *appropriate* (survey item 23). A large 30% of sampled teachers indicated they did not know, and only 43% of sampled teachers agreed or strongly agreed. This result is consistent with similar previous studies, in which a relatively small percentage of teachers indicated agreement with, or awareness of the necessity for appropriateness as a characteristic of creative outcomes (Andiliou & Murphy, 2010; Diakidoy & Phtiaka, 2002). According to researchers, however (Beghetto, 2010a; Kamylyis & Valtanen, 2010; Plucker et al., 2004; Starko, 2005), most published or explicit definitions of creativity include the combination of originality or novelty *and* appropriateness (Beghetto, 2010a; Kamylyis et al., 2009; Plucker et al., 2004; Sawyer, 2006; Starko, 2005; Sternberg & Lubart, 1999). That is, an idea or product is appropriate when it is useful (Beghetto, 2010a) or meets some goal or criterion (Starko, 2005). And an outcome is creative only when it has, at minimum, these two criteria, of originality or novelty *and* appropriateness or usefulness (e.g., Kamylyis et al., 2009; Starko, 2005).

This apparent lack of awareness by teachers for the necessity of appropriateness in creativity (as exemplified by survey item 23 results and other research studies) is consistent with other results in this study; For example, at least 11% of sampled teachers

indicated the notion of *absolute freedom* or *no constraints* in their definition of creativity (survey item 1). Some examples of this, given by teachers in their definitions, are: “Ability to do what you choose without any parameters” and “Whatever a student wants to do. It doesn’t follow the lines (at all).” This, in combination with the more quantitatively substantial results of survey item 23 above, seem to indicate that some teachers equate creativity with what researchers have called *pseudo-creativity*—mere unfettered thinking, simply letting yourself go, or doing whatever you like regardless of accuracy, appropriateness, or effectiveness (Cropley, 2010). However, creativity is a type of higher order thinking that requires students to, for example, generate ideas, but also to critically evaluate their ideas and argue about the effectiveness and appropriateness of their proposed ideas (Andiliou & Murphy, 2010). Recognizing that creativity involves a combination of originality and appropriateness can help teachers see how constraints are not antithetical to creativity (Beghetto, 2010a; Stokes, 2006), an important link for teaching practice. If teachers see creativity as simply unconstrained originality, then it is easy to understand how teachers may come to associate creativity with negative aspects (Beghetto, 2010a; Cropley, 2010), such as disruption of the class or incompatibility with academic curricular standards (both of which were found in this study—to be discussed below in research question 3a, survey item 7, on classroom environment and perceived barriers to creativity) and be ambivalent about supporting creativity in their classroom (Beghetto & Kaufman, 2010).

The next most frequently occurring definition of creativity in this study (after originality) was that of *divergent thinking*—where 44% of sampled teachers indicated this theme (survey item 1). Divergent thinking has been defined by researchers as the

production of novel ideas, flexibility in thought or perspective, remote or unusual associations, or fluency and multiple answers (Cropley, 2006; Guilford, 1950; Runco, 2010; Torrance, 1972). Teachers in this study indicated this theme with responses such as: “thinking outside the box or approaching things in an unusual way” and “...providing an unexpected response/novel thinking” (survey item 1 responses). This contrasts with previous similar research (Aljughaiman & Mowrer-Reynolds, 2005), which found only 15% of sampled teachers to perceive divergent thinking as a defining attribute of creativity. Indeed, divergent thinking is a key element in experts’ definitions of creativity (Baer & Garrett, 2010; Gardner, 1993; Runco, 1994), and most educators readily associate creativity with divergent thinking (Baer & Garrett, 2010), as the results of the present study point toward. However, although divergent thinking is often considered to contribute to creativity, the constructs are not synonymous, and divergent thinking plays an important but small role (Plucker et al., 2004). Researchers have pointed out that creativity requires both divergent thinking (or productive thinking), to ensure novelty, and convergent thinking (or reproductive thinking), to ensure appropriateness (Dineen, Samuel, & Livesey, 2005; Kamylyis et al., 2009), as well as a great deal of domain knowledge and skills (Baer & Garrett, 2010; Kaufman & Baer, 2006; Runco, 2003a).

Nevertheless, the creative student is above all perceived as associated with originality, flexibility, and fluency—or divergent thinking (Morais & Azevedo, 2011), and the results of the present study confirm this. Findings here from research question 1 (survey item 1, Table 7) show *originality* and *divergent thinking* as the top two defining attributes for creativity, and findings from research question 2, as well (on the perceived characteristics of a creative student), show *originality* and *divergent thinking* as the top two



descriptions given for a creative person (survey item 3, Table 18). Research question 2 findings, pertaining to teachers' beliefs on the characteristics of a creative student, will be discussed further in a following section.

The next most prevalent defining attribute indicated by teachers for creativity was that involving an *aesthetic product*, such as producing a piece of art or beautiful design. Aesthetic products were the most common example given by teachers (44%) in this study when asked to provide an example of creativity as manifested by students in their classroom (survey item 2, Table 8), and 17% of teachers' definitions for creativity specifically focused on aesthetic products or production (survey item 1, Table 7). This corresponds with previous similar studies in which examples of creative outcomes focused on artistic products, resulting from drawing, painting, and construction or creative action entrenched in music, dance or theatre (Andiliou & Murphy, 2010), and studies in which teachers connected creativity mainly with the arts (Aljughaiman & Mowrer-Reynolds, 2005; Craft, 2003; Diakidoy & Kanari, 1999; Fryer, 1996; Kamylyis, 2010). However, even though western teachers generally see being creative as producing something novel, largely epitomized by artistic creativity (Davies, Howe, Fasciato & Rogers, 2004 as cited in Kamylyis et al., 2009; Edmonds, 2004; Newton, 2012), experts' theories underline the excessive association between arts and creativity as a myth (Morais & Azevedo, 2011; Runco, 2008). It is a misconception that creativity relates only to the arts (Kamylyis, 2010; Saarilahti, Cramond, & Sieppi, 1999), even though creativity is routinely attached to artistic domains commonly called "the creative arts" (Andiliou & Murphy, 2010; Newton, 2012; Sawyer, 2010). As one scholar pointed out, "we never see reference to 'the creative sciences' or 'the creative humanities'" (Newton, 2012, p. 13). And indeed, as we will see in

discussion below (on subject specificity), teachers consider the most “creative” school subjects to be those that are artistic, such as music or drama education (Kampylis, 2010).

***Distribution of creativity.*** The second part of research question 1 concerned teachers’ beliefs on the distribution of creativity, or how prevalent they believed it to be among their students. A majority of 56% of teacher participants indicated that they agree or strongly agree with the statement, “Creativity is a characteristic of all students and not a rare phenomenon” (survey item 29), while only 17% disagreed or strongly disagreed with this statement. These results are consistent with at least one prior relevant study (Diakidoy & Phtiaka, 2002), in which a majority of teacher participants indicated they believe creativity to be a characteristic of all people (63%) or all children (72%). However, the results of the present study differ from several other prior relevant studies (Diakidoy & Kanari, 1999; Kampylis et al., 2009; Fryer & Collings, 1991), in which teacher participants indicated their belief that creativity is *not* a characteristic all people (76%), is a rare phenomenon (58%), or is a rare gift (71%), compared to the present study, in which only 17% indicated belief that creativity is a rare phenomenon among students. Thus, there is some inconsistency among research results on the issue of the distribution of creativity among students. Furthermore, a near majority of participants in the present study seemingly contradicted themselves with these results, when responding to an open-ended survey question asking, “What percentage of your students do you consider to be highly creative?” Forty-five percent (45%) of participants indicated only 10% or less of their students to be highly creative (survey item 5)—pointing toward a belief in a more rare occurrence of creativity (than indicated earlier in survey item 29)—or at least of highly creative students.

Taken together, these results seem to indicate that most teachers (in this sample) believe creativity to be present among all students, but that highly creative students are more rare. That most teachers in this study believe creativity to be present among all students supports the scholarly notions of democratic creativity (Craft, 2001a; NACCCE, 1999), everyday creativity (Richards, 2007), and little-c or mini-c creativity in the four c model of creativity (Beghetto & Kaufman, 2007, 2010), which stipulate creativity as a general ability of all children (Kampylis et al., 2009) and recognize that all pupils can be creative (Craft, 2001a). That many teachers (in this sample) indicated highly creative students as more rare appears consistent with the so-called big-C stereotype of creativity, which misperceives creativity to be an exclusive trait of the gifted (Kampylis, 2010) or a rare trait possessed only by a few (Fryer & Collings, 1991; Plucker et al., 2004). In fact, a number of scholars (Kampylis et al., 2009; Kowalski, 1997; Ward, Smith, & Finke, 1999), and the majority of creativity researchers (Kampylis, 2010), assume creativity is an innate potential in *all* people, although it is not expressed to the same degree or in the same way, and it utilizes ordinary cognitive processes even in its most remarkable expressions (Kampylis et al., 2009).

***Malleability of creativity.*** The third part of research question 1 concerned teachers' beliefs on the malleability of creativity, or the extent to which creativity can be developed in individuals. Of teacher participants, 73% indicated they agree or strongly agree with the statement, "Creativity can be developed in everybody" (survey item 18), and an even greater percentage (77%) of teacher participants indicated they agree or strongly agree with the related statement, "Student creativity can be developed in the classroom." These results are consistent with a number of other relevant studies, in which a strong

majority of teacher participants acknowledged that creative thinking or creativity can be developed in everybody (Diakidoy & Kanari, 1999; Diakidoy & Phtiaka, 2002; Fleith, 2000; Kampylis, 2010; Kampylis et al., 2009) and facilitated in the classroom setting (Aljughaiman & Mowrer-Reynolds, 2005; Andiliou & Murphy, 2010; Cheung et al., 2003; Fleith, 2000; Fryer & Collings, 1991; Park, Lee, Oliver, & Cramond 2006). In fact, decades of research on creativity *does* support the assumption that creative abilities *are* responsive to further development (Esquivel, 1995; Fasko, 2001; Plucker et al., 2004), and several theories of creativity have emphasized that all of us can fulfill our creative potential if we are given the appropriate means and opportunities (Cropley, 2001; Kampylis, 2010; Moran, 2010; Smith & Smith, 2010). It is a myth that people either have or do not have creativity, with no capacity for enhancement (Kampylis, 2010; Treffinger, Isaksen, & Dorval, 1996), and substantial research on positive training, educational effects, and techniques for fostering creativity strongly refute this myth (Plucker et al., 2004). This issue as to whether teachers see creativity as an all-or-none entity (Nickerson, 1999) or as something that could be expressed in different levels by all is vital, because teachers act in the classroom according to their implicit theories and beliefs (Beghetto, 2010a; Kampylis, 2010; Runco & Johnson, 1993), and those teachers who believe that creativity is an 'all or none entity' might not try to facilitate all students' creative potential (Kampylis et al., 2009).

However, while the vast majority of teacher participants in this study believed creativity can be developed in everybody in the classroom, with regard to *teaching* creativity, a different result emerged. With the statement, "Creativity can be taught," less than half (49%) of teacher participants agreed or strongly agreed. Some researchers

(Kampylis et al., 2009) have explained this discrepancy found in other studies (i.e., Aljughaiman & Mowrer-Reynolds, 2005; Kampylis et al., 2009) as an implicit support of the distinction between *creative learning* and *creative teaching* (Jeffrey & Craft, 2004). Other researchers (Aljughaiman & Mowrer-Reynolds, 2005) have explained it to mean teachers believe that if creativity exists as a trait within the student, then it can be developed, but *teaching* creativity where there is none is not as easily accomplished. It appears teachers may hold contradictory conceptions of creativity and strive to formulate consistent implicit theories for this multifaceted phenomenon (Beghetto, 2010a; Kampylis et al., 2009); though, contemporary research and theories emphasize that everyone has creative potential that can be nurtured through education and schooling (Kampylis, 2010; Starko, 2005).

***Specificity of creativity.*** The last part of research question 1 concerned teachers' beliefs on the specificity of creativity, or the extent to which creativity is domain or subject specific. A vast majority of teacher participants (87%) indicated they agree or strongly agree with the statement, "Student creativity can be manifested in any school subject" (survey item 22), yet, 68% agreed or strongly agreed, also, that "Some school subjects are more creative than others" (survey item 30). When responding to the statement (survey item 31), "Please select the school subject or subjects in which you consider it likely for a student to manifest his/her creativity (please choose one or more): reading, writing, mathematics, science, social studies, citizenship, health education, music education, drama, arts education, physical education, technology," an extreme majority of teacher participant responses indicated: arts (94%), drama (88%), and music (86%) as the "more creative" school subjects, as well as writing (98%), and only 27% of teacher participants indicated all

school subjects as creative (see complete results in Table 16). These results are consistent with those of several studies (Aljughaiman & Mowrer-Reynolds, 2005; Craft, 2003; Diakidoy & Kanari, 1999; Diakidoy & Phitiaka, 2002; Fryer, 1996; Kampylis, 2010; Kampylis et al., 2009) in which teachers connected creativity mainly with the arts and considered the most “creative” school subjects to be those that are artistic, such as music, drama or art education. However, creativity researchers and scholars have strongly asserted that students’ creative thinking can be fostered in all school subjects and curriculum areas (Craft, 2005; Craft et al., 2001; Fisher & Williams, 2004; Gardner, 2007; Kampylis, 2010; Starko, 2005; Sawyer, 2011). Teachers who believe that creativity is more likely to be exhibited in the context of artistic and/or literary endeavors may not expect or emphasize creative outcomes in subjects such as mathematics, science, and history (Diakidoy & Phitiaka, 2002); and, conversely, teachers who believe that different students can be creative in different subjects, including those traditionally thought of as more academic, may be more likely to attempt to incorporate the facilitation of creativity in the course of their regular instruction (Cropley, 2010; Diakidoy & Phitiaka, 2002).

Some researchers have argued that limiting creativity to the arts (or viewing creativity as an add on to the curriculum) may be another reason for the regular classroom teacher to ignore the responsibility of facilitating students’ creativity because it is regarded as the duty of the specialized art teacher (Aljughaiman & Mowrer-Reynolds, 2005; Beghetto, 2010a; Kampylis, 2010; Kampylis et al., 2009). This misconception requires caution since it connects the fostering of students’ creativity solely to the neglected, yet important, artistic school subjects that constitute only a small percentage of time (Kampylis, 2010). This researcher’s own experience as a teacher, as well as creativity

researcher, has shown her that we can foster students' creative thinking skills in all school subjects in every moment spent in class, and this researcher strongly believes that creativity can be a general function of education, integrating skills and knowledge from various school subjects.

**Characteristics of the creative student.** Research question 2 asked: What are public elementary school teachers' beliefs about the characteristics of the creative student? This question had subparts on the survey, aligned with the conceptual model on teachers' beliefs about creativity by Andiliou and Murphy (2010), and corresponding to: (a) characteristics of a creative student's personality, and (b) characteristics of a creative student's prior knowledge base.

**Personality.** In response to survey item 3, which stated, "Complete the sentence: Creative is the person who..." 60% of teacher participants in this study designated *originality* as the main theme in their response (e.g., "...does something unique") and 46% of sampled teachers designated *divergent thinking* as the main theme in their response (e.g., "...thinks outside the box."). Additionally, the characteristics of *originality* and *divergent thinking* were among the highest ranked (2<sup>nd</sup> and 3<sup>rd</sup> rank) by teacher participants, to survey item 4, "List the top five characteristics that you feel best describe the creative student" (survey item 4, Table 19). Teachers' responses to the questions on personality (research question 2a) in this study, then, are consistent with their definitions of creativity (research question 1a) presented earlier. Indeed, originality and divergent thinking are key elements in researchers' and experts' definitions of creativity and abilities of creative individuals (Baer & Garrett, 2010; Kampylis & Valtanen, 2010; Plucker et al., 2004; Runco, 1994; Starko, 2005), and these findings are consistent with previous relevant

research on teachers' conceptions of the characteristics of creative students (Aljughaiman & Mowrer-Reynolds, 2005; Chan & Chan, 1999) in which divergent thinking or originality were highly ranked. In fact, the majority of studies addressing creative characteristics stress the relative importance of divergent thinking, as well as originality (Aljughaiman & Mowrer-Reynolds, 2005; Isaksen, Dorval, & Treffinger, 2000).

However, the number-one ranked characteristic, provided by teacher participants in this study (to survey item 4), of creative students was *artistic* (Table 19). This is also consistent with previous similar studies (Aljughaiman & Mowrer-Reynolds, 2005; Chan & Chan, 1999) in which *artistic*, as a trait of creative students, was highly ranked. As mentioned previously, there is an excessive association between arts and creativity (Morais & Azevedo, 2011; Runco, 2008), and western teachers generally see being creative as epitomized by artistic creativity (Newton, 2012).

Other descriptions of creative students, which surfaced in the results of this research question (yet, had not surfaced in earlier research question responses), were: *intelligent/gifted* as the 5<sup>th</sup> ranked characteristic (survey item 4); and the integrated theme of: *lacks fear, takes risks, is confident* (24%; survey item 3). Indeed, as consistent with other studies, teachers often confuse characteristics of gifted high achievers with creative characteristics and describe creative students as possessing high intelligence (Aljughaiman & Mowrer-Reynolds, 2005; Chan & Chan, 1999). Research shows that creativity and intelligence (as measured by standardized IQ tests) are not necessarily related (Aljughaiman & Mowrer-Reynolds, 2005; Slabbert, 1994), and it has been said that intelligent people produce high quality products, but not necessarily novel ones (Aljughaiman & Mowrer-Reynolds, 2005; Sternberg, 2001). So, while teachers may have



erred in assuming high intelligence as a necessary trait of creative students, research has shown that there is, indeed, a strong relationship between *risk-taking* and creativity (Aljughaiman & Mowrer-Reynolds, 2005; Fasko, 2001), and previous studies have found similar results, with high rankings of this trait for creative students (Aljughaiman & Mowrer-Reynolds, 2005).

It is noteworthy that teachers frequently agree with experts in what they consider to be creative characteristics, but do not accurately weight the relative importance of these characteristics (Aljughaiman & Mowrer-Reynolds, 2005), which seems to be the case with this study. Furthermore, when asked to describe or list characteristics of creative students, teachers in this study mostly described students with positive traits (see Tables 18, 19), which is consistent with previous studies (Aljughaiman & Mowrer-Reynolds, 2005; Chan & Chan, 1999). It has been suggested that this result indicates that teachers may identify students as creative if they demonstrate likeable characteristics and are high achievers, but overlook creative students who manifest negative behaviors or low achievement scores (Aljughaiman & Mowrer-Reynolds, 2005).

**Knowledge base.** In response to survey item 24, which stated, “Creativity depends on possessing a high degree of prior knowledge,” 48% of teacher participants indicated they disagree or strongly disagree, while 28% indicated they agree or strongly agree, and 23% indicated they do not know. This differs somewhat from other research (Diakidoy & Phtiaka, 2002), in which a larger percentage of sampled teachers (50%) indicated they agree with the same statement. Indeed, creativity scholars agree that knowledge is a basis for creativity (Ericsson, 1998; Moran, 2010; Sternberg & Williams, 1996), and creativity requires a great deal of domain knowledge and skills (Baer & Garrett, 2010; Kaufman &

Baer, 2006). For example, one cannot break or bend the rules in a creative, yet appropriate, way if one does not know what the rules are in the first place (Boden, 1992 as cited in Diakidoy & Phtiaka, 2002). However, it has been argued that knowledge can also get in the way of creativity, if educators or students see knowledge as a static entity that is to be acquired, rather than a “dynamically organized body of tools to be employed” (Moran, 2010, p. 347).

Furthermore, that 48% of sampled teachers denoted disagreement with this statement (regarding the necessity for a high degree of prior knowledge for creativity), may indicate an erroneous belief about absolute freedom or no constraints on creativity, with no knowledge or critical evaluation necessary for creative outcomes (as mentioned earlier in discussion on research question 1). Teachers’ ambivalence about the role of prior knowledge in creativity (as shown in this study’s findings) may reflect the interaction between their beliefs about creativity and their beliefs about the nature of knowledge and learning (Diakidoy & Phtiaka, 2002). Teachers who view the acquisition of a large body of knowledge to be a hindrance to creativity may, consequently, perceive the facilitation of creativity as incompatible with core education objectives, in other words, knowledge and skills acquisition (Andiliou & Murphy, 2010; Beghetto & Plucker, 2006).

**Classroom environments and teaching strategies.** Research question 3 asked: What are public elementary school teachers’ beliefs about classroom environments and teaching strategies that promote or inhibit creativity? This question had subparts on the survey related to the conceptual model on teachers’ beliefs about creativity by Andiliou and Murphy (2010) and corresponding to: (a) attitudes and classroom environments, and (b) teaching strategies.

***Attitudes and classroom environments.*** In response to survey item 17, “Creativity is essential for enhancing student academic learning,” 76% of teacher participants indicated they agree or strongly agree. While this espoused belief may appear encouraging to educators wishing to promote creativity and is consistent with other research (Beghetto & Plucker, 2006; Moran, 2010; Runco, 2003b), results such as these have been linked with a so-called *creativity paradox* (Kampylis, 2010), describing how, on the one hand, teachers espouse to value creative thinking and performance, but on the other hand, follow practices that leave little room for creativity (Beghetto & Plucker, 2006; Kampylis, 2010). Indeed, when surveyed in this study about classroom environments, teacher responses were less than encouraging.

In response to survey item 14, “The school is the best environment for students to manifest their creativity,” a mere 8% of teacher participants indicated they agree (0% indicated strongly agree). And, in response to survey item 19, “Students have many opportunities in school to manifest their creativity,” a full 46% of teacher participants indicated they disagree or strongly disagree, while 22% indicated they do not know. This compares similarly with other research (Kampylis et al., 2009), in which a majority of teachers (55%) disagreed or strongly disagreed that school is the best environment for students to manifest their creativity, and an even higher percentage of teachers (74%) indicated they disagree or strongly disagree that there are many opportunities for students to manifest their creativity in school. As a result, some researchers have labeled such teachers’ beliefs as *school septic*, for the majority who believe school is not the best environment for students to express and develop their creativity or creative potential (Kampylis et al., 2009).

In response to survey item 8, “Students have enough time to manifest their creativity in the classroom,” 68% of teacher participants in this study indicated they disagree or strongly disagree, while only 17% of participants indicated they agree or strongly agree. And, similarly, in response to survey item 13, “State standards allow for the manifestation of creativity in the classroom,” 61% of sampled teachers indicated they disagree or strongly disagree, while only 17% of participants indicated they agree or strongly agree with this statement. These results are consistent with other similar research (Diakidoy & Phtiaka, 2002; Kampylis et al., 2009) on the issues of time, standards or curriculum and creativity. These results are also consistent with other research, in which more than half of teachers in various studies perceived schooling, the school climate, and the curriculum guidelines to constrain their efforts to develop students’ creativity (Aljughaiman & Mowrer-Reynolds, 2005; Andiliou & Murphy, 2010; Cheung et al., 2003; Diakidoy & Phtiaka, 2002; Fleith, 2000; Fryer & Collings, 1991; Morais & Azevedo, 2011; Park et al., 2006).

Additionally, in the present study, for response to open-ended survey item 7, which asked, “What barriers may keep you from effectively promoting student creativity in the classroom?” (see Table 28) the top three teacher responses included: time constraints (47%) to cover all curriculum, state standards (28%), and standardized testing (26%). And, according to other researchers, the most common teacher response to why teachers are not more creative or to what barriers to teaching for creativity exist, are that they haven’t the time (Moran, 2010), or that creativity isn’t on the test (Starko, 2005). In fact, time pressure has been shown to, indeed, reduce creativity (Moran, 2010; Tighe, 2003), and it has been asserted that tests and assessments signal what is *really* valued and

important (Beghetto, 2010a) to students and teachers. The following are samples of teacher responses to survey item 7, “What barriers may keep you from effectively promoting student creativity in the classroom?”:

- “Rush to get them the basics, got to cover it all!”
- “Having to get to all the standards.”
- “Sometimes we just need to move on and there isn’t time to let them (be creative).”
- “Too much teacher instruction and dependency.”
- “High stakes testing hinders creativity as teachers teach to the test.”
- “There is a huge emphasis on testing which allows little time, if any, for (creativity).”
- “Standardized testing, pressure to meet timelines, deadlines, and curriculum.”
- “Testing, implementation of ideas that have not been teacher driven, but forced on teachers to do.”
- “Standardized tests/test prep. Having to give assessments that require a right/wrong answer, no opportunity for thinking, giving explanations.”

In a time of heightened school accountability, teachers appear to feel that they cannot nurture student creativity within the constraints of the required curriculum and with the pressure to prepare students for standardized learning assessments. Indeed, researchers have argued that, with high stakes testing and accountability, teachers feel increasingly forced to race through as much material as quickly as possible, and that this need for speed fosters a more teacher-centered environment (Beghetto & Plucker, 2006), which is not conducive for creative experiences, because the creative environment is often not viewed as efficient (Makel, 2009). Thus, nurturing creativity often takes a back seat to more convergent, skill-and-drill approaches to teaching the curriculum (Aljughaiman &

Mowrer-Reynolds, 2005; Beghetto & Kaufman, 2010). These assertions appear consistent with the results of this study (and with observations from this researcher's own teaching experience). And, with the increased use of externally mandated, fact-based tests, many researchers believe that it should come as little surprise that teachers are more likely to use an approach to teaching that mirrors the convergent nature of these tests (Beghetto, 2010a; Darling-Hammond & Rustique-Forrester, 2005).

Furthermore, while creativity and educational scholars agree that the test-based accountability to standards have narrowed the focus of the curriculum and stripped it of its creativity (Beghetto, 2010a; Darling-Hammond, 2010; Smith & Smith, 2010), some researchers also feel it is important to note that the use of standards and standardized tests should not automatically be considered bad for education or creativity (Beghetto, 2010a; Baer & Garrett, 2010; Makel, 2009; Starko, 2005). Standards that accurately reflect values we seek to foster in education can be extremely useful (Darling-Hammond, 2010; Makel, 2009), but the development of creative behaviors does not typically fall under current education standards, and are therefore not measured on high-stakes tests (Makel, 2009; Moran, 2010). Teachers, schools, and schools of education are thus working in a system that does not reward them (and may even punish them) if they focus their attention on creative development (Cropley, 2001; Makel, 2009; Moran, 2010). Though, researchers argue that teaching for creativity and the use of detailed, high-quality, required content standards can coexist well and often work synergistically (Baer & Garrett, 2010; Starko, 2005), in that teaching for creativity helps meet content standards goals and teaching detailed content knowledge can reinforce and enhance student creativity (Baer & Garrett,

2010; Darling-Hammond, 2010; Smith & Smith, 2010). Students can and should learn required content while also enhancing their creative thinking.

Nevertheless, what several scholars call for is authentic assessment (Gardner, 1991, 1993, 2007; Treffinger, 2003) that does not just categorize students but scaffolds their future development (Tighe, 2003). They assert that evaluations should be done under as close to real-life situations or contexts as possible, and Gardner (1991) promotes the notion of over assessments, including the use of portfolios to show change over time. A number of these scholars advocate switching from assessing knowledge to assessing meaning-making (Blythe, 1998). Perhaps with the advancement of the new Common Core Standards, we will see this; although it is too new to say.

***Teaching strategies.*** In response to survey item 28 stating, “I employ many methods in my classroom to foster creativity,” 59% of teacher participants indicated they agree or strongly agree, and 31% indicated they did not know. This is somewhat less, though nearly consistent with other research, which has shown 75% of teachers to agree or strongly agree with this statement and 22% as uncertain (Aljughaiman & Mowrer-Reynolds, 2005). When asked to “List activities and strategies you can use in the classroom to support creativity” (survey item 6), the top two themes in teacher responses were: using open-ended assignments (54%) and providing art, music, drama activities (50%). Other responses included (see Table 33): writing activities (25%), allowing student choice (13%), allowing multiple answers or strategies (12%), providing a safe or encouraging environment (11%), as well as cooperative student groups (10%). Some examples of teacher responses include the following:

- “Open ended activities, varied groupings..., sing, art, and music.”

- “Open ended questions/writing assignments, ... activities which can have varied responses, open ended art activities.”
- “Friday art appreciation, Monday music appreciation.”
- “Offering choice, open ended activities and problems.”
- “...finding various ways for students to show how they are creative.”
- “Acceptance of all ideas, a welcoming environment, access to music and art supplies.”
- “ ‘Safe’ environment, won’t be criticized. Encouraged to take chances, not afraid to make mistakes. Able to cope and handle when mistake is made.”
- “Explain your thinking, talk to your neighbor, brainstorming, hands on activities, reading books.”
- “...partner learning activities, cooperative learning.”

These results are consistent with the results of other similar research in which teachers listed open-ended activities, art centers, drawing, creative writing, giving students choices, boosting students self-confidence, cooperative groups, brainstorming, and providing students opportunities to become aware of their creativity (Fleith, 2000; Fryer & Collings, 1991).

In deed, scholars and experts have articulated environments and strategies that enhance creativity, to include: an emphasis on open-ended questions; experiential activities (i.e., hands on, discovery learning, rather than lecture); cooperative learning; a student-centered classroom environment; allowing mistakes as a positive learning opportunity in a safe environment; well as providing students opportunities to engage in a variety of activities (Cropley, 2001; Fasko, 2001; Fleith, 2000). However, while teachers in



this study did list many of these, it is also notable their emphasis on art and music activities (as the second highest theme, 50%), which is consistent with previous research that delineates an excessive association between arts and creativity (Morais & Azevedo, 2011; Runco, 2008), and with research results, in this study and others, that show teachers connecting creativity heavily with the arts (Aljughaiman & Mowrer-Reynolds, 2005; Kampylis, 2010). Numerous scholars (e.g., Feldhusen & Treffinger, 1980; Kampylis, 2010; Newton, 2012; Sawyer, 2004a) urge educators to be aware of the many facets of creativity besides arts and crafts, and that creativity enters all curricular areas and disciplines.

With the statement, "Promoting creativity in students requires improvisation by the teacher," a majority of teacher participants in this study (69%) indicated they agree or strongly agree (while only 9% indicated they disagree and 0% strongly disagree). Perhaps this statement, by one teacher (in response to the earlier addressed, open-ended question item 6, to list activities to support creativity), "allowing chance in the way knowledge is expressed," is akin to this. According to researchers, creative ideas are unexpected ideas (e.g., Beghetto, 2007b; Sawyer, 2004a, 2004b), and the topic and flow of class discussion should emerge from teacher and students *together*, and is unpredictable (Sawyer, 2004a, 2004b, 2011). Researchers state that teacher behavior and qualities, such as flexibility and spontaneity, are effective in developing creativity in their students (Fairweather & Crammond, 2010), and that constructivist approaches to learning, which have been shown to promote creative thinking (Kampylis, 2010), emphasize the role of knowledge-creation as opposed to knowledge-transmission (Plucker et al., 2004) and are fundamentally a creative, improvisational process (Sawyer, 2004a, 2004b).

With these results, we can see what a number of researchers have outlined (Beghetto, 2010a; Craft, 2001a; Kamylyis, 2010; Moran, 2010); namely, the factors that interact and affect any learning process and, consequently, any attempt to foster students' creative-thinking skills are complex and dynamic. To be specific, these include: the *theoretical basis*, or the main principles of the dominant learning theories; the *means of implementation*, that include people (e.g., teachers), infrastructures (e.g., classrooms) and tools (e.g., textbooks); *students*, who are the target group of every education system; and *external factors*, like the school community (schoolmates, friends, parents, etc.), the environment (school, geographic region, climate, etc.), and the sociocultural, political, and financial conditions that exist during the time of the educational process (Kamylyis, 2010).

**Importance and role in fostering creativity.** Research question 4 asked: What are public elementary school teachers' beliefs about the importance of creativity and their role in fostering student creativity in the classroom? This question had subparts on the survey corresponding to teachers' beliefs about their (a) importance, (b) responsibility, and (c) training for fostering student creativity in the classroom.

**Importance.** In response to survey item 17, "Creativity is essential for enhancing student academic learning," 76% of teacher participants indicated that they agree or strongly agree with this statement. Additionally, an even greater majority of teacher participants (86%) indicated they agree or strongly agree with survey item 21, "Teachers should have knowledge about creativity." These results are consistent with (and quantitatively greater than) prior research (Aljughaiman & Mowrer-Reynolds, 2005), which shows teachers to believe creativity to be essential and important. While it is clear from this data that teachers overwhelmingly believe in the importance of promoting

creativity in academic learning, researchers have found that teachers often fail to translate their beliefs regarding the value of creative thinking into classroom practice (Beghetto, 2010a; Plucker et al., 2004). To explain this, some researchers have argued, and this researcher's opinion is that, teachers' beliefs about the demands and constraints of the school environment outweigh their beliefs pertaining to the importance of fostering creativity in the classroom. In other words, the complexities of the classroom, the lack of support by the school system, the strict curriculum, and the high-stakes testing procedures leave little room for teachers to focus on the development of their students' creativity (Andiliou & Murphy, 2010).

**Responsibility.** In response to survey item 10, "A regular classroom teacher is responsible for helping students develop creativity," a great majority of teacher participants (73%) indicated they agree or strongly agree. Furthermore, 72% of participants indicated they agree with the statement "There is no need for special programs (for creativity). The whole curriculum must promote creativity" in survey item 32. These data show that teachers believe it is their responsibility to promote creativity and creative thinking in their students, and this is consistent with prior research (Aljughaiman & Mowrer-Reynolds, 2005; Kamylyis, 2010; Kamylyis et al., 2009). However, as stated above, while teachers may believe it to be their responsibility to promote creative thinking in their students, teachers apparently feel constrained by the school environment and system in effectively carrying out this responsibility.

**Training.** In response to survey item 26, "I feel well-trained to promote creativity in students," less than half (49.9%) of teacher participants indicated they agree or strongly agree with this statement, and a sizable percentage (30%) indicated uncertainty about the

effectiveness of their training to promote student creativity. These results, while not a majority, are still quantitatively larger than previous research results, that found only 25% of teacher participants who felt well-trained to facilitate students' creativity (Kampylis et al., 2009). In this study, the percentage of agreement rose slightly to 58% in survey item 12, when teachers addressed their training in *recognizing* creative achievements in their students (as opposed to *promoting* it).

**Relationship between teacher years of experience and beliefs.** Research question 5 asked: What is the relationship between public elementary school teachers' years of experience teaching and their beliefs about creativity? As detailed earlier in Chapter 4, the results of the 23 Spearman Rho correlations (see Table 42) and the six Pearson correlations (see Table 43) conducted between years of experience and beliefs on creativity did not yield any statistically significant findings, which suggests that years of experience teaching does not have a statistical relationship with beliefs on creativity. Expert research has suggested that it takes approximately 10 years to become an expert within a domain or field (Cropley, 2001), and studies have been done with expertise that show how, in contrast to novices, experts not only have more knowledge, but also use qualitatively different strategies (Bereiter & Scardamalia, 1993 as cited in Moran, 2010; Berliner, 1987; Borko & Livingston, 1989; Erikson, 2011). The results of this study, however, cannot support this and find no significant differences between the responses of new and experienced teachers.

## **Conclusions**

Based upon the findings from this study, this researcher has drawn several conclusions. These conclusions express teachers' conceptions of creativity, beliefs about its

expression, and value in the classroom, as well as their sense of limitation to promote creativity in the classroom. I will delineate these conclusions below and relate them to scholarly research. Following, I will then suggest implications for practice based on these conclusions.

**Conclusion 1.** Teachers believe that creativity is primarily expressed in the form of originality of product, behavior or thought. This is demonstrated by the overwhelming presence of this theme in their definitions of creativity (73%) and characteristics of a creative student. While creativity researchers are in general agreement that originality is necessary for creativity, they also agree that it is not sufficient, alone, for creative outcomes (Beghetto, 2010a; Kamylyis & Valtanen, 2010). As discussed earlier, most expert definitions of creativity include the combination of originality *and* appropriateness (Beghetto, 2010a; Kamylyis et al., 2009; Plucker et al., 2004; Starko, 2005). That is, an idea or product is appropriate when it is useful or meets some goal or criterion (Beghetto, 2010a; Starko, 2005), and an outcome is considered creative only when it meets these *two* criteria, of originality *and* appropriateness (Kamylyis et al., 2009; Starko, 2005). Teachers do not appear to be aware of the necessity for appropriateness in creative outcomes, nor for the necessity of knowledge as a prerequisite for producing creative outcomes. This is demonstrated by the absence of these elements in their definitions of creativity or descriptions of creative students (items 1,4), and by their expressed uncertainty or disagreement when asked if a creative outcome must also be appropriate or if it depends on a high degree of prior knowledge (items 23, 24). This seems to indicate that teachers hold an erroneous belief about absolute freedom, or no constraints, in creativity, with no knowledge or critical evaluation necessary for creative outcomes. Researchers have

referred to this misconception as pseudo-creativity (e.g., Cropley, 2010) and assert that creativity is a type of higher order thinking that requires students to, for example, generate ideas, but also to critically evaluate their ideas and argue about the effectiveness and appropriateness of their proposed ideas (Andiliou & Murphy, 2010), and that creativity requires both divergent thinking (or productive thinking) to ensure originality and convergent thinking (or reproductive thinking) to ensure appropriateness (Dineen et al., 2005; Kamylylis et al., 2009). If teachers see creativity as simply unconstrained originality, then it is easy to understand how teachers may come to associate creativity with an incompatibility with academic curricular standards (Beghetto & Kaufman, 2010), as was found in this study.

**Conclusion 2.** Teachers' beliefs about creativity are connected mainly with the arts and they believe the most creative school subjects to be those that are artistic. This theme of creativity connected with the arts is demonstrated by several findings from this study, including: teachers offered "artistic" as the number one ranked characteristic of a creative student (item 4); aesthetic products were the most common type of example given for creative expressions by students in their classrooms (item 2); teachers overwhelmingly indicated art (94%), drama (88%) and music (86%) as school subjects that were the most creative (item 31). However, creativity researchers and scholars have strongly asserted that students' creative thinking can be fostered in all school subjects and curriculum areas (Craft, 2005; Craft et al., 2001; Fisher & Williams, 2004; Gardner, 2007; Kamylylis, 2010; Sawyer, 2011; Starko, 2005). Teachers who believe that creativity is more likely to be exhibited in the context of artistic endeavors may not expect or emphasize creative

outcomes in subjects such as mathematics, science, and history (Diakidoy & Phitiaka, 2002).

**Conclusion 3.** Teachers believe that creativity can be developed in all students, but that only a small percentage of students are highly creative. This is demonstrated in the findings by a large majority (77%) of teachers asserting that creativity can be developed in all students in the classroom (item 18), and by nearly half of teachers indicating only a small percentage (less than 10%) of their class students to be highly creative (item 5). These results seem to indicate that teachers believe creativity to be present and malleable in all students, but that highly creative students are more rare. In fact, decades of research on creativity does support the assumption that creative abilities *are* responsive to further development (Esquivel, 1995; Fasko, 2001; Plucker et al., 2004), and several theories of creativity have emphasized that all of us can fulfill our creative potential if we are given the appropriate means and opportunities (Cropley, 2001; Kamylyis, 2010; Moran, 2010; Smith & Smith, 2010). Furthermore, a number of scholars (Kamylyis et al., 2009; Kowalski, 1997; Ward et al., 1999), and the majority of creativity researchers (Kamylyis, 2010), assume that, while creativity is an innate potential in all people, it is not expressed to the same degree or in the same way, even though it utilizes ordinary cognitive processes even in its most remarkable expressions (Kamylyis et al., 2009).

**Conclusion 4.** Teachers recognize only the positive traits of creative students. In this study, when asked to describe or list characteristics of creative students, teachers described students with only positive traits (items 3 & 4). In fact, research has shown that some traits associated with creativity and its expression may not be pro-social or generally likeable (Cropley, 2001; Cropley, 2010). Extrapolating from this, it has been suggested by

researchers that, teachers may identify students as creative if they demonstrate likeable characteristics, but overlook creative students who manifest negative behaviors (Aljughaiman & Mowrer-Reynolds, 2005).

**Conclusion 5.** Teachers believe that creativity is essential in academic learning, and that it is their responsibility as teachers to help students develop creativity. This is demonstrated by findings in this study, where about 3 in 4 teachers (about 75%) indicate these beliefs (items 17, 10). Indeed, many scholars and researchers consider creativity to be an essential life skill today, which needs to be fostered by the education system (Craft, 1999; Florida, 2002; Robinson, 2001), and that teachers role in the development of elementary school students' creativity is very important (Beghetto, 2010a; Kamylyis, 2010), because they spend a considerable amount of time with students and act as role model and mentors (Kamylyis et al., 2009), as well as choose instructional methods and class activities. However, while teachers believe that creativity is important and that helping to develop it in their students is their responsibility, they also believe they are hindered in their efforts in the classroom.

**Conclusion 6.** Teachers have some expert knowledge of effective strategies to promote student creativity within the classroom, and also feel ambivalent about their training to effectively promote student creativity within the classroom. This is demonstrated by findings in this study, which teachers were asked to list activities and strategies they can use in the classroom to support student creativity (item 6). A majority of teachers listed the use of open-ended assignments or questioning (54%) as the top strategy to promote student creativity. In deed, creativity experts do agree that the use of open-ended questioning promotes student creativity (Fleith, 2000), yet, they also agree



that a number of other strategies are important as well, including: supporting and reinforcing unusual ideas; encouraging risk-taking and failure as a positive in a supportive climate; allowing time for students to think about and develop their creative ideas; giving students choice; adapting curriculum to student interests wherever possible; cooperative group work through projects; and incorporating creativity beyond arts and crafts (Cropley, 2001; Fasko, 2001; Feldhusen & Treffinger, 1980; Fleith, 2000). Teachers in this study showed explicit knowledge of a limited repertoire of strategies, compared to these expert suggestions. However, a much smaller percentage of teachers in this study did list: allowing student choice (13%); providing a safe or encouraging environment (11%); and cooperative student work (10%), as well as math problem solving (12%). Instead, teachers focused on art, music, and drama activities (50%, as the second ranked strategy to promote student creativity). As mentioned in an earlier conclusion, teachers' beliefs about creativity are connected mainly with the arts, and this is one further demonstration of that.

Furthermore, teachers feel ambivalent about the quality of their training to promote student creativity. Slightly more than half of teachers in this study disagreed or felt uncertain about the effectiveness of their training to promote student creativity (item 26).

**Conclusion 7.** Teachers feel impeded to promote student creativity in the classroom by the school system and environment. This is demonstrated by findings in this study, including: only 8% teachers believe that school is the best environment for students to express creativity (item 14); and the top three barriers listed (item 7) to effectively promoting student creativity in the classroom as, time constraints, state standards, and standardized testing. Teachers feel that they cannot nurture student creativity within the constraints of the required curriculum and with the pressure to prepare students for

standardized learning assessments (see quotes from teachers presented earlier for item 7). In fact, based on results such as these, in which teachers describe feelings of a need for speed and being forced to race through as much material as quickly as possible, researchers have argued that this fosters a more teacher-centered environment (Beghetto & Plucker, 2006), which is not conducive for creative experiences, because the environment is often not viewed as efficient (Makel, 2009). Therefore, nurturing creativity often takes a back seat to more convergent, skill-and-drill approaches to teaching the curriculum (Aljughaiman & Mowrer-Reynolds, 2005; Beghetto & Kaufman, 2010). It appears that teachers' beliefs about the demands and constraints of the school environment outweigh their beliefs pertaining to the importance of fostering creativity in the classroom.

### **Implications for Practice**

Implications for educational practice, based on this study's results and conclusions will be offered. They are related to the components of the conceptual framework on teachers' beliefs about creativity (see Figure 1) by Andiliou and Murphy (2010) in that they address teachers' knowledge, individual characteristics, skills, and dispositions, as well as the classroom and larger environment in which teachers operate. These implications concern teachers, as well as school practices and policies, which are necessary in order for truly creative and student-centered classrooms and schools to flourish.

First, teachers need more opportunities to reflect on their beliefs and practices with regard to creativity, to question how and why we should foster students' creative-thinking skills, and to develop their own creativity and proficiency to foster it in their students. As teaching is a highly creative occupation, teachers should possess key knowledge, skills, and

dispositions that characterize a creative person—such as imagination, flexibility, curiosity, self-confidence, a willingness to take risks, meta-cognitive awareness, interpersonal intelligence, and divergent thinking (Chan & Chan, 1999; Diakidoy & Kanari, 1999; Kampylis, 2010)—and; teachers need the ability to identify creative potential in their students, recognize creative outcomes, encourage personal characteristics and cognitive processes related to creativity, and structure a classroom environment that promotes creativity (Diakidoy & Phtiaka, 2002). As this research has shown, teachers possess incomplete knowledge or misconceptions about creativity, and how, or in what subjects, to effectively foster it in their students.

To this extent, pre-service teacher education and in-service teacher training should prepare and strengthen teachers to successfully foster creativity in all students. Specific courses and trainings that focus on fostering creative thinking in students should be required as part of the basic teaching credential and later professional development. State Departments of Education and the National Council for Accreditation of Teacher Education (NCATE) should legislate a coherent framework for promoting creativity within initial teacher training and continuing professional development. Educational authorities must design and implement training programs for teachers, using multiple models and approaches that integrate theory and practice. These trainings should be continuous, up-to-date, and comprehensive (Kampylis, 2010), based not only on the conclusions of creativity research, such as this, but also on teachers' needs and proposals—developed in a very practical way, taking into account teachers' experiences in their schools (Morais & Azevedo, 2011). Furthermore, they should employ as trainers not only researchers and

scholars, but also teachers who have successfully carried out classroom programs for fostering students' creative thinking.

Trainings should include access to current educational creativity theories, as well as the use of case studies, class observations, discussion with colleagues, both online and on-site opportunities to examine and reflect on their beliefs and practices related to creativity, and the development of structurally creative tasks, which should always be applicable to their own classroom situations (Morais & Azevedo, 2011). Trainings should generate and reinforce essential understandings of how creative thinking and problem solving can be incorporated into instruction across all subject areas (Andiliou & Murphy, 2010; Kamylyis, 2010) and need not be incompatible with curriculum and standards (Beghetto, 2007b).

Training should also include experiential opportunities for teachers, themselves, to develop personal characteristics associated with creativity, and teaching for creativity, such as flexibility, spontaneity, and divergent thinking, and could be accomplished through the use of improvisational classes (Sawyer, 2004a, 2004b), which could strengthen teachers' essential ability to attend to *micromoments* in the classroom and leverage them to promote student creativity (Beghetto, 2009).

Moreover—in order for this kind of quality teacher education and training to effectively and systematically come about—policy makers and educational authorities need to explicitly establish creative thinking as an important learning goal in the educational and school system. While policymakers recognize that creativity in education has been increasing in significance in the last 20 years (e.g., Craft & Jeffrey, 2008), an open and comprehensive dialogue about why, when, and how we must foster creative thinking through formal education is still necessary (Andiliou & Murphy, 2010; Kamylyis, 2010).

Creativity should be defined in the framework of elementary education—several scholars, including Smith and Smith (2010), have suggested mini-c creativity (Beghetto & Kaufman, 2007)—and, examples of how to foster it in all curricular areas should be provided, as well as specific education targets formulated (Kampylis, 2010). Based on this, appropriate programs can be designed and implemented, in order to achieve these targets (Andiliou & Murphy, 2010; Kampylis et al., 2009).

Additionally, schools, and educational institutions, should encourage and support teachers' efforts to promote student creativity. The establishment of a school culture based on trust, respect, collaboration, and shared responsibility is a necessity (Berki, Isomaki, & Salminen, 2007 as cited in Kampylis, 2010). Teachers must be given professional autonomy and flexibility in their implementation of instruction (Sawyer, 2004a, 2004b, 2010, 2011), and the curriculum must leave room for spontaneous and less-rigid learning experiences (Sawyer, 2010, 2011; Kampylis, 2010).

Less emphasis, by school administrators and officials, must be placed on the results of narrow, high-stakes tests, and more on the cultivation of higher-order thinking skills, such as creative problem solving, and its incorporation into regular instruction across domains, which reinforces meaningful understanding without undermining other achievement goals (Andiliou & Murphy, 2010). Teachers' dilemma of valuing creativity yet feeling they cannot support it due to the expectations of covering content and preparing students for standardized tests needs to be addressed. The development of creative thinking and problem-solving skills requires strategic adjustments in methods and tasks, rather than major changes (Diakiody & Phtiaka, 2002). Both teachers and administrators need to understand that supporting creativity and reaching other achievement goals can be

complementary rather than contradictory (Baer & Garrett, 2010; Beghetto, 2007b). Students can and should learn required content while also enhancing their creative thinking.

Lastly, educational authorities and policy makers need to reassess and redefine the kind of assessments that students are required to undergo. Creative thinking and behaviors are not measured on high-stakes tests (Makel, 2009; Moran, 2010), and the current test-based accountability to standards have narrowed the focus of the curriculum and stripped it of its creativity (Beghetto, 2010a; Smith & Smith, 2010). Though, the use of standards and standardized tests should not automatically be considered bad for education or creativity (Baer & Garrett, 2010; Starko, 2005); our standardized tests need to reflect the kind of higher order thinking skills needed for creative problem solving and living. (Perhaps assessments based on new, nationwide *common core standards* will reflect this, though it is too soon to tell.) Furthermore, many scholars call for authentic assessment (Gardner, 1991, 2007; Treffinger, 2003) and promote the notion of *performances* over assessments, including the use of portfolios to show change over time, and advocate switching from assessing knowledge to assessing *meaning-making* (Blythe, 1998). Educators need to encourage students to take intellectual risks and explore their understandings, and our assessments should reflect this.

### **Recommendations for Further Research**

Based on my investigation and study results, here are listed some recommendations for further research in creativity and education.

1. Studies in this same framework, within the United States public elementary education system, but with larger, more representative samples are recommended in order to verify and extend the research findings.
2. Further research on creativity in education should include the use of teacher and classroom observations. This would illustrate teachers' practices and broaden the basis for conclusions from the more narrow criteria of teacher self-reporting.
3. Since educational systems may differ with respect to the emphasis placed on creativity as an educational objective, and with respect to the support they provide for its accomplishment, further research could compare teacher beliefs and practices in varied school systems, including: public school systems in various urban or rural areas; independent charter schools; and private educational institutions (such as Reggio-Emilia, Montessori, or Waldorf).
4. Further research could examine factors such as class size and school infrastructures on teachers' beliefs of creativity.
5. While this study examined teachers' beliefs of creativity in a specific time framework, a longitudinal study of teachers' beliefs may offer more data on how their thoughts on creativity change over time.
6. This study focused on creativity in elementary education. Since creativity and creative thinking is a life-long process, further research in the frameworks of pre-school, secondary, and college education is recommended.
7. Since teachers interact with students, parents, principals, school advisors, and education authorities, these groups' beliefs of creativity should also be examined.

8. Investigation on the skills and dispositions that teachers need in order to effectively promote students' creative thinking is recommended.
9. Research on teacher preparation programs and the ways and extent to which they facilitate teacher understandings of creativity and methods to foster creative thinking in students is needed.
10. Lastly, a program assessment on the effects of improvisational training, in particular, with elementary school teachers is recommended. The results of these programs may prove to assist teachers in shifting from a teacher-centered style to a more student-centered facilitative style and enhance creative teaching (Sawyer, 2004a).



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## APPENDIX A

## Permission To Reprint Figure

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## APPENDIX B

## School District Recruitment Letter, Email, Or Phone Script

Dear Dr. [Name of School District Official],

My name is Dina Aish. I have been an elementary school teacher for 12 years, and I am currently working on my doctoral dissertation in education at Pepperdine University.

I am seeking to do research within your school district before the close of this calendar year. This research would involve the pencil-and-paper surveying of elementary school teachers, and would take about 20 minutes of their time to complete, in total.

The topic of the research I am conducting is on teachers' perspectives of creativity within the instructional program. Essentially, what do teachers believe to be creative thinking and creative instruction?

The information collected would be completely confidential and would not ask for any identifying information, such as name or school location. The results would be reported and summarized as a whole, and would not identify your school district or schools by name or other specific identifiers.

This research could be beneficial to your school district by presenting you with a clearer picture of the instructional perspectives that teachers within your district may hold, and may ultimately be useful in planning for in-service professional development of teachers, to bring about deeper student learning and higher student achievement.

I have selected your school district mainly due to the location within Los Angeles county and the calendar days of instruction this year, as well as the unique characteristics of your district population. I am working with the support and guidance of my doctoral committee chairperson, Dr. Diana Hiatt-Michael.

I eagerly look forward to completing research within your district and providing you with results that may prove useful in improving instructional practice. Please let me know if you need any other information.

Thank you very much,

Dina Aish, MS  
Certificated Elementary School Teacher  
Doctoral Student in Education, Pepperdine University, GSEP  
dinaaish@gmail.com [REDACTED]

## APPENDIX C

## Principal Recruitment Letter, Email, Or Phone Script

Dear Principal,

Hello, and I hope this finds you very well. My name is Dina Aish, and I have been an elementary school teacher for the last 12 years. I am currently working to complete my doctorate degree in education.

I am conducting a study for my doctoral dissertation to examine teachers' beliefs on the topic of creativity, creative students, and fostering creativity within the classroom, and would like to solicit your support in conducting my study at your school. I would like to request your permission to distribute and collect a survey questionnaire to your teachers during one of your faculty meetings.

Your participation in this study involves your teachers completing a paper-and-pencil survey entitled Teachers' Beliefs on Creativity Questionnaire (TBCQ). In total, it will take approximately 15-20 minutes to complete the survey instrument. There no risks associated with this study.

The results of the surveys will be summarized and reported as a whole. In this way, the district or school principals will not find out anything about how your teachers have personally filled out the survey. All information your teachers provide will remain confidential.

In return for your generous cooperation, I would offer your teachers a small token of my appreciation (e.g., a gift pen or an ice-cream certificate), and I could provide you with resources on cultivating creative thinking within the classroom.

I do hope that you will provide me with an opportunity for this activity to take place, before the close of this school year. I have been in communication with Dr. xxxxxxxx, Assistant Superintendent of Educational Services, who has encouraged me to contact you.

Thank you so much for your support.

Sincerely,

Dina Aish, MS  
Certificated Elementary School Teacher  
Doctoral Student at Pepperdine University, GSEP  
dinaaish@gmail.com





Instructions: Please read each statement carefully and circle appropriately.

1 strongly disagree, 2 disagree, 3 neutral (e.g., I don't know, I don't want to answer),  
4 agree, 5 strongly agree

Students have enough time to manifest their creativity in the classroom.	1	2	3	4	5
For an outcome to be creative it must be novel.	1	2	3	4	5
A regular classroom teacher is responsible for helping students develop creativity.	1	2	3	4	5
Creativity can be taught.	1	2	3	4	5
I feel well-trained to recognize creative achievements of my students in many subjects.	1	2	3	4	5
State standards allow for the manifestation of creativity in the classroom.	1	2	3	4	5
The school is the best environment for students to manifest their creativity.	1	2	3	4	5
Student creativity can be developed in the classroom.	1	2	3	4	5
A school environment which emphasizes competition, evaluation, and conformity discourages the manifestation of students' creativity.	1	2	3	4	5
Creativity is essential for enhancing student academic learning.	1	2	3	4	5
Creativity can be developed in everybody.	1	2	3	4	5
Students have many opportunities in school to manifest their creativity.	1	2	3	4	5
Promoting creativity in students requires improvisation by the teacher.	1	2	3	4	5
Teachers should have knowledge about creativity.	1	2	3	4	5
Student creativity can be manifested in any school subject.	1	2	3	4	5
For an outcome to be creative it must also be appropriate.	1	2	3	4	5
Creativity depends on possessing a high level of prior knowledge.	1	2	3	4	5
Teachers can inhibit creativity in students.	1	2	3	4	5
I feel well-trained to promote creativity in students.	1	2	3	4	5
Creative thinking is different from the thinking required to solve problems in school.	1	2	3	4	5
I employ many methods in my classroom to foster creativity.	1	2	3	4	5
Creativity is a characteristic of all students and is not a rare phenomenon.	1	2	3	4	5
Some school subjects are more creative than others.	1	2	3	4	5

PLEASE TURN PAGE OVER →

Please select the school subject or subjects in which you consider it likely for a student to manifest his/her creativity (please *choose one or more*):

Reading	<input type="checkbox"/>	Health Education	<input type="checkbox"/>
Writing	<input type="checkbox"/>	Music Education	<input type="checkbox"/>
Mathematics	<input type="checkbox"/>	Drama Education	<input type="checkbox"/>
Science	<input type="checkbox"/>	Arts Education	<input type="checkbox"/>
Social Studies	<input type="checkbox"/>	Physical Education	<input type="checkbox"/>
Citizenship	<input type="checkbox"/>	Technology	<input type="checkbox"/>

With which of the following do you agree? (please *choose only one*):

Students with high-level creative potential must attend special programs to enhance their potential.

.....

All students must attend special programs to enhance their creative potential.

.....

There is no need for special programs. The whole curriculum must promote creativity.

.....

Please indicate:

Gender: Male \_\_\_\_\_ Female \_\_\_\_\_

Age: \_\_\_\_\_ years

Years of Experience Teaching: \_\_\_\_\_ # years

Currently Teaching: Grade: \_\_\_\_\_ Other: \_\_\_\_\_

Highest Educational Degree: \_\_\_\_\_

Thank you very much for your time and cooperation!

## APPENDIX E

## Permission To Use Or Modify Survey Instrument (1)

**PANAGIOTIS KAMPYLIS**

Research fellow

European Commission

DG JRC

Institute for Prospective Technological Studies (IPTS)

Edificio Expo; c/ Inca Garcilaso, 3; E-41092 Sevilla, SPAIN

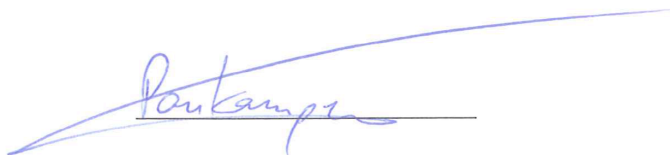
Phone: +34 954 48 84 12

Emails: [Panagiotis.Kampylis@ec.europa.eu](mailto:Panagiotis.Kampylis@ec.europa.eu), [pankabilis@gmail.com](mailto:pankabilis@gmail.com)

Seville, 21 March 2013

I hereby grant **Dina Aish** full permission to use and modify the survey instrument *Teachers' Conceptions of Creativity Questionnaire* (TCCQ) for her dissertation study as part of her doctoral degree at Pepperdine University's Graduate School of Education and Psychology, provided the source is acknowledged.

Panagiotis Kampylis, Ph.D.



## APPENDIX F

## Permission To Use Or Modify Survey Instrument (2)

Gmail - permission to use your 2005 research survey 3/27/13 11:32 PM

permission to use your 2005 research survey

Abdullah Aljughaiman [REDACTED] Thu, Mar 21, 2013 at 10:36 AM

To: dina aish [REDACTED]

Dear Dina,

Thanks for your interest in our research.

I hereby grant Dina Aish full permission to use and modify the survey instrument from our study entitled Teachers' Conceptions of Creativity and Creative Students (2005) published in the Journal of Creative Behavior for her dissertation study as part of her doctoral degree at Pepperdine University's Graduate School of Education and Psychology.

All the best,

Prof. Abdullah M. Aljughaiman

King Faisal University

Saudi Arabia

March, 21, 2013

لله الشكر

Abdullah Aljughaiman, Ph. D.

IRATDE President [www.iratde.org](http://www.iratde.org)

Special Education Department, College of Education

P O Box 755 Al-Ahsa, 31982

King Faisal University

Kingdom of Saudi Arabia

Email: [REDACTED]

Fax: [REDACTED]

## APPENDIX G

## Permission To Use Or Modify Survey Instrument (3)

re: request permission to use your research survey instrument  
Irianna Diakidou [REDACTED] Wed, Mar 20, 2013 at 9:02 AM  
To: dina aish [REDACTED]

I hereby grant Dina Aish full permission to use and modify the survey instrument from our study entitled Teachers' Beliefs about Creativity (2002), published in the journal Advances in Psychology Research, for her dissertation study as part of her doctoral degree at Pepperdine University's Graduate School of Education and Psychology.

I wish you success in your research,  
Irianna Diakidoy

Irene-Anna Diakidoy, Ph.D.  
Associate Professor & Chair  
Department of Psychology  
University of Cyprus  
Tel [REDACTED]  
email: [REDACTED]

From: dina aish [REDACTED]  
Sent: Wednesday, March 20, 2013 12:31 AM  
To: [REDACTED]  
Subject: request permission to use your research survey instrument  
[Quoted text hidden]

## APPENDIX H

## Permission To Reprint Table



dina aish &lt;dinaaish@gmail.com&gt;

---

**Permission**

---

**Emily Feistritzer** <emilyf@teach-now.com>  
To: dinaaish@gmail.com  
Cc: Katie McManus <katie@teach-now.com>

Thu, Jun 26, 2014 at 4:10 AM

I hereby grant Dina Aish full permission to use the entirety, or portions therein, of the table entitled, **Table 1. Demographic Profile of Teachers in the U.S.** found in the publication entitled, *Profile of Teachers in the U.S.2011*, published by our National Center for Education Information in 2011, for her dissertation research and publication at Pepperdine University's Graduate School of Education and Psychology.

Typed name indicating signature: C. Emily Feistritzer

Date: June 26, 2014

Please reference.

All the best with your dissertation,

Emily Feistritzr

--



C. Emily Feistritzer, Ph.D.  
Founder and CEO  
TEACH-NOW  
Washington, DC 20008

## APPENDIX I

## Informed Consent

Dear Participant,

The survey you are about to complete is for the purpose of my dissertation research on the topic of teachers' perspectives on creativity in elementary education. Your thoughtful responses are very valuable to this research. It should take only about 20 minutes of your time to complete, in full.

Your responses to the survey will be kept completely confidential, and there are no personal identifiers on your survey instrument. The results of this research will be summarized as a whole, as so no persons will identify you or your responses, individually.

Your participation in the research study is completely voluntary, and you have the right to withdraw or refuse to participate at any time, with no negative consequences to you. There are no risks to you in participating in this study.

Your participation in this study will help to benefit student teachers by contributing information to improve professional preparation and in-service training programs. Your participation may also help policymakers, curriculum designers, educational authorities and creativity researchers by providing valuable information on teachers' perspectives.

Your initials here will indicate your willingness to participate. \_\_\_\_\_

Date: \_\_\_\_\_

If you would like a summary of the results of this research or would like to contact me for further information, you may reach me, the primary researcher, using the below information.

Thank you very much for your time and cooperation in this research!

Sincerely,

Dina Aish, MS  
Certificated Elementary School Teacher  
Doctoral Student, Graduate School of Education and Psychology  
[REDACTED]

## APPENDIX J

## IRB Exemption Notice

# PEPPERDINE UNIVERSITY

## Graduate & Professional Schools Institutional Review Board

April 23, 2013

Dina Aish [REDACTED]

**Protocol #:** E0413D09 **Project Title:** Public Elementary School Teachers' Beliefs About Creativity in the Classroom: A Descriptive, Mixed-Methods Study

Dear Ms. Aish,

Thank you for submitting your application, Public Elementary School Teachers' Beliefs About Creativity in the Classroom: A Descriptive, Mixed-Methods Study, for exempt review to Pepperdine University's Graduate and Professional Schools Institutional Review Board (GPS IRB). The IRB appreciates the work you and your faculty advisor, Diana Hiatt-Michael, have done on the proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations (45 CFR 46 - <http://www.nihtraining.com/ohsrsite/guidelines/45cfr46.html>) that govern the protections of human subjects. Specifically, section 45 CFR 46.101(b)(2) states:

(b) Unless otherwise required by Department or Agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:

**Category (2) of 45 CFR 46.101**, research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: a) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and b) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

In addition, your application to waive documentation of consent, as indicated in your **Application for Waiver or Alteration of Informed Consent Procedures** form has been **approved**.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit a **Request for Modification Form** to the GPS IRB. Because your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the GPS IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the GPS IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the GPS IRB and the appropriate form to be used to report this information can be found in the *Pepperdine University Protection of Human Participants*



*in Research: Policies and Procedures Manual*(see link to “policy material” at <http://www.pepperdine.edu/irb/graduate/>).

Please refer to the protocol number denoted above in all further communication or correspondence related to this approval. Should you have additional questions, please contact me. On behalf of the GPS IRB, I wish you success in this scholarly pursuit.

Sincerely,

A handwritten signature in grey ink, appearing to be 'DL' with a horizontal line extending to the right.

Doug Leigh, Ph.D. Chair, Graduate and Professional Schools IRB Pepperdine University Graduate School of Education & Psychology 6100 Center Dr. 5th Floor Los Angeles, CA 90045 [Doug.Leigh@pepperdine.edu](mailto:Doug.Leigh@pepperdine.edu) W: 310-568-2389 F: 310-568-5755

cc: Dr. Lee Kats, Vice Provost for Research and Strategic Initiatives Ms. Alexandra Roosa, Director Research and Sponsored Programs Dr. Doug Leigh, Chair, Graduate and Professional Schools IRB Dr. Diana Hiatt-Michael, Graduate School of Education and Psychology