

# Chapter 17

## Children's and Teachers' Conceptions of Creativity: Contradictions and Implications in Classroom Instruction

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**Abstract** Personal beliefs about a construct are formed based on individuals' experiences in sociocultural contexts. Personal beliefs are powerful as individuals tend to plan, take actions, and evaluate their own and others' actions based on their belief system. In this chapter, we review pervasive creativity myths, followed by an examination of teachers' implicit theories of creative children and creativity and children's views of creative people and creativity. Contradictions found between teachers' conceptions of creativity and classroom practices and discrepancies between teachers' and children's creativity conceptions are discussed along with instructional implications. Themes of contradictions include: (a) Yes, developing creativity in students is important, but no, not my priority; (b) I may do it if things are ready for me; (c) I am almost there, but they are not; (d) Creativity is art; (e) Amicable trait, but not in my class; (f) Not in our culture; (g) Anyone can be creative; sounds good, but really?; and (h) Assessment of creativity? I have no clue. We underscore the need for professional development and offer a few items that might help in teacher preparation for classroom instruction.

### 17.1 Introduction

To most people the word “creativity” means goodness, making new things, and enriching and advancing humanity. Yet, creativity is elusive, mysterious, and inexplicable to many. This phenomenon has persisted even though creativity has been a subject of dialogues among philosophers throughout human history and a subject of research by scholars from various fields. Ancient cultures developed mythical

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stories about things and events that cannot be explained by existing knowledges. Myth generation has continued throughout human history as humans have encountered inexplicable phenomena. Although research has advanced the understanding of creativity, there is still ample evidence of the pervasiveness of creativity myths in today's society. In this chapter, we review pervasive myths, followed by explication of contradictions demonstrated in children's and teachers' beliefs about creativity and their implications in classroom instruction.

## 17.2 Creativity: Everlasting Myths and Stereotypes

Views of creativity as expressed by Plato (divine inspiration), Aristotle (human nature, improvisations and gradual improvements), Kant (inborn predisposition), and Schopenhauer (skill mastery and immersion) (Aristotle, 1951; Kant, 2000; Paul & Kaufman, 2014) are still present in today's popular conceptions of creativity. Shattering long-held myths is not easy. It is tempting to think that perhaps early education for creativity may help break the hold of persistent misconceptions. Unfortunately, children's creative potential is largely uncultivated in today's schools.

Children in preschool and kindergarten are incipient scientists and artists. As they enter formal schooling, room for creative thinking shrinks. Many reasons have been put forward to explain this shrinking of creative space, for instance, pressure of content coverage and lack of teacher training (e.g., Chien & Hui, 2010; Hong & Kang, 2010). Another prevalent reason that is not unrelated to schooling is the misconceptions and myths about creativity that permeate our society. Most laypeople associate creativity with big name artists, scientists, and inventors. It is not surprising that the creative process seems enigmatic to most people. In this section, we briefly discuss the types and sources of pervasive creativity myths.

### 17.2.1 *Art Bias*

Creativity is essential in all areas of human endeavor. Yet, art has dominated when it comes to creativity for a very long time. Art bias regards the misunderstanding that occurs when creativity is equated with artistic talent (Runco, 2007). Immanuel Kant (2000), defining genius as the capacity to produce ideas that are original and exemplary, maintained that genius occurs only in the fine arts and that scientists just follow rules required for scientific method. This notion persists to the current day. In education, science subjects have rarely been linked to the utilization of creative thinking (Hu & Adey, 2010).

However, the art bias seems to be diminishing. A recent article, "Revisiting the 'art bias' in lay conceptions of creativity" (Glăveanu, 2014), shows some evidence. Glăveanu found that although artistic professions were scored the highest in creativity by research participants, when they were asked to generate questions to determine

whether an object is creative, the questions were not as focused on generating art-related items. This was a further development from Glăveanu's (2011) earlier research where he found a predominant art bias when participants were asked to propose a symbol for creativity (e.g., paintbrush) and statements linking symbols with creativity.

### ***17.2.2 You Have It or You Don't***

The old nature-or-nurture issue in regard to intelligence applies to creativity as well. Views about creative ability in early human history progressed from the notion of divine inspiration in ancient Greek culture to the inborn-talent conception of Romantic idealism in the nineteenth century (Cooper & Hutchinson, 1997; Singer, 2011; Weiner, 2000). These early views did not leave much room for the developmental capacity of human creativity (Boden, 2004; Kant, 2000).

Fast forwarding to the current era, the notion that “people are born creative or uncreative” is still discussed in literatures (Plucker, Beghetto, & Dow, 2004; Treffinger, Isaken, & Dorval, 1996). For decades, creativity literatures have been replete with stories of eminent creators (e.g., Simonton, 1984, 2015). Unfortunately, this enduring notion leaves no room for awareness or appreciation of the creative potential that all individuals have. This is particularly unfortunate given the numerous published works that have documented positive effects of creativity instruction on increasing creative ability (e.g., Amabile, 1983, 1996; Torrance, 1972, 1987; Westberg, 1996) and literatures that directly or indirectly challenge the idea of being born creative or uncreative (Kaufman & Beghetto, 2013). As much as the eminence bearers, also called the Big-*C* creatives, have made significant contributions to society, this conception has become a source for continued mystification of creativity, as Big-*C*s are often viewed as mysterious people who do marvels. However, recent work on Four *C*s (Big-*C*, pro-*c*, little-*c*, and mini-*c*) helps researchers and educators re-conceptualize creativity (Beghetto & Kaufman, 2007, 2010a).

### ***17.2.3 Teachability***

Whether creativity is teachable or learnable is closely related to the topic discussed above, that is, you are born with it or not. Most people who presume that creativity is inborn will likely think that creativity cannot be taught. Philosophers such as Kant (2000) who consider learning as nothing but imitation (i.e., incongruous with creativity) deny the possibility of teaching creativity. Contemporary philosophers have different views. Gaut (2014), analyzing two arguments regarding learning—imitation and rules—produces a convincing general argument as to why some people can be taught to be more creative. He utilized two constructs as component dispositions for learning creativity: intrinsic motivation (that he described as not hard to teach)

and the ability to produce new and valuable things and to evaluate products. We appreciate the effort of philosophical arguments in support of the teachability of creativity. However, there also have been quite a few research evidences that people can learn to be more creative (Bolden, Harries, & Newton, 2010; Cheng, 2011).

#### **17.2.4 *Madness, the Creatives***

The traditional or stereotypical concept of the “mad genius” has been disputed in the literature (e.g., Eysenck, 1993; Schlesinger, 2009), although there have been quite a few cases that demonstrate the existence of the relation between creativity and mental disorder (e.g., Ludwig, 1995; Nettle, 2006). Methodological problems aside in the study of this association (Schlesinger, 2003), there are also moderating variables that muddy mad-genius claims (Ludwig, 1998; Richard & Kinney, 1990). Nevertheless, from Plato’s description of genius as a state of divine insanity (Abel, 2013) to Lombroso, a philosopher and psychiatrist in late nineteenth century (Rothenberg & Hausman, 1976) and James, a philosopher and psychologist (Burton, 2009), who related genius to psychopathy, the notion of madness and creativity has persisted.

Maslow (1968), unlike the contemporary creativity scholars, viewed creativity (“creativeness” in his word) as a component of self-actualization. Distinguishing special talent creativeness from self-actualizing creativeness, he describes the latter emanating from personality. He portrays creative people as being less inhibited and open to new experience and as expressing ideas without fear, like happy and secure children. They may be a bit nutty and crazy as Maslow described them, but he did not go so far as to characterize creativeness as madness.

#### **17.2.5 *Individual or Group***

While some scholars discuss the myth of the lone genius, arguing that individualism and methodological reductionism have prevented researchers from examining sociohistorical context and its relation with creativity (Montuori & Purser, 1995), others (Plucker et al., 2004) argue that it is individual creativity that has suffered due to the notion that creativity is enhanced within a group. Based on creativity work on group-related factors (Simonton, 1984; Stein, 2003), Adarves-Yorno, Postmes, and Haslam (2006) find that creativity in groups varies depending on social identity and group norms. An individual’s idea is not creative until it is perceived as such by group members or society, emphasizing the importance of social processes, for example, evaluation of creative processes and products, for the recognition of creativity.

Although societal influences on creativity generate unique perspectives of creativity, Rao (2005), analyzing a scientist, a mathematician, and a novelist from

different countries, identified the transcultural nature of creativity. Then again, numerous cross-cultural research studies have shown cultural and societal influence on creativity (e.g., Niu & Kaufman, 2013; Ramos & Puccio, 2014; Zhou, Shen, Wang, Neber, & Johji, 2013) and how sociocultural contexts promote and constrain individual's experience of creativity (Csikszentmihalyi, 1999; Lubart, 1999; Sternberg, 2007). Even within similar ethnic groups, differences are found in creativity perceptions across countries due possibly to the ways individuals were raised in different societies and educational systems (Rudowicz & Yue, 2000; Seng, Keung, & Cheng, 2008).

### ***17.2.6 Knowledge: Facilitate or Impede***

The notion of divine inspiration lends an impression that creative ideas just occur by chance and that one does not need to work hard to get them. Expert knowledge in a particular domain influences idea generation and idea modification in response to demands within the domain (Boden, 2004; Johnson-Laird, 1987). Although too much knowledge was viewed by some scholars as an impediment to creative development (Simonton, 1984; Sternberg, 2006), the general consensus is that profound knowledge and extensive skills are necessary for creativity to emerge (Bilalić, McLeod, & Gobet, 2008; Csikszentmihalyi, 1997; Gardner, 1993; Weisberg, 1999). Abel (2013), rejecting the “lazy genius” myth, gave a few examples of the creative eminent; Picasso, for example, mastered the painting techniques of his time well before he developed his own techniques. In-depth analyses of how the presence and absence of domain knowledge leads to the development of different patterns of creative process, and in what ways domain knowledge benefits or constraints the creative process, beyond well-known expertise examples such as chess, warrant further investigation.

### ***17.2.7 Section Reflection and Prelude***

As conceptions of creativity have seen changes over time and with genius myths on the wane, we believe that it is time we focused on how we can advocate for a more democratic conceptualization of creativity, so all humans can begin to be aware of their own creative potential and to exercise actualizing it. The term “creative economy” has been showing up in books and articles (Florida, 2006), even in early childhood education (Eckhoff & Urbach, 2008) and educational policy literature (Yeh, Tobin, & Karasawa, 2004), following the trend set with the term “knowledge economy” as a part of restructuring global economy by strengthening awareness of the relation between education and labor force. One wonders who is benefiting from this orientation, especially in education (see Giroux, 2013 for extensive discussion). We wish to emphasize that we do not see our advocacy of creativity as associated

with a global-economy restructuring that focuses on developing human capital. On the contrary, literatures on creativity in education have also underscored creativity as a source of personal fulfillment and social good (Banaji, Burn, & Buckingham, 2010; Gibson, 2005), and our intention is aligned with this orientation. It is not necessary to tie all human endeavors with economic imperative. This may sound antithetical in the current climate of creativity and innovation, but whether constant fast-paced changes and innovations that breed generations of followers of innovations is a desirable way to portray creativity is a good question to ask.

Although contributions of creativity work to society have been expanded to various areas beyond the arts (Plucker et al., 2004), support for creativity in education, especially in the classroom, seems to be emerging very slowly. While various nations have recognized the importance of creativity in education and have called for infusing creativity into curriculum and instruction (e.g., Chien & Hui, 2010; Choe, 2006; Craft, 2001, 2003; Shaheen, 2010; Tan & Law, 2004; Thompson, 2009), how much the call has been translated into implementations in schools is not clear (e.g., Park, Lee, Oliver, & Crammond, 2006). Furthermore, high-stakes, mandated testing as well as content standards have been adopted increasingly in various nations, and these mandates pose major barriers for implementing creativity in education (Beghetto & Kaufman, 2009; Hong & Kang, 2010; Meyer & Lederman, 2013; Wiliam, Lee, Harrison, & Black, 2004). Although there have been earnest efforts to encourage and nurture creativity in the classroom (e.g., Barron, 1988; Beghetto & Kaufman, 2010b; Hennessey & Amabile, 1987; Sternberg, 1996), it is difficult to know how much impact they have produced.

There are various reasons for the lack of meaningful adoptions of creativity in schools. In an effort to understand this phenomenon from children's and teachers' standpoints, we examined their personal beliefs or personal theories, also called implicit theories (Runco & Johnson, 2002), about creativity in the following section.

### **17.3 Teachers' and Children's Conceptions of Creativity**

Personal beliefs are powerful, as they are not obvious but work rather instinctively. Teachers bring their beliefs and values to teaching in addition to their content and pedagogical knowledge and skills. Likewise, students bring their beliefs to the classroom, along with different personality types and ability levels. It is the instinctive and unconscious nature of implicit theories that make them influential in the classroom. Thus, it is not surprising to find that there have been quite a few studies investigating teachers' implicit theories of creativity, although research on children's theories is quite limited.

Most individuals engaging in creative activities do not likely think about theories defined by scholars, called explicit theories, but they are more likely guided by their own implicit theories when planning, implementing, and evaluating creative abilities and activities of their own and others. Personal beliefs about creativity are

formed based on their experiences in sociocultural contexts and are powerful in predicting creative performance. Saunders-Wickes and Ward (2006), for example, found that implicit theories of creativity were a more consistent predictor of later creative activities (hobby participation and performance on creative task) than performance on paper-and-pencil tasks, demonstrating the impact of personal beliefs of creativity on creative behaviors.

This is not to say that explicit theories are not as valuable as implicit theories. It is an acknowledgement, however, that knowledge from research findings is seldom shared with laypeople, as they do not have easy access to research literature and rarely read research articles, as these research products seem to speak languages understood by scholars and are shared almost exclusively amongst them (Jacoby, 1987; Kristof, 2014). Although it is acknowledged that teachers' classroom practices are based on many factors beyond their beliefs and past experiences, the focus on implicit theories is an important step towards increasing teaching of and for creativity. We discuss teachers' conceptions of creativity, followed by findings of a recent study on middle school children's conceptions.

### ***17.3.1 Teachers' Conceptions of Creativity and Creative Children***

Although the importance of integrating creativity in education has been called for since decades past (Guilford, 1950; Torrance, 1976), the call seems to have been largely ignored by the educational community (Kaufman, Beghetto, Baer, & Ivcevic, 2010; Torrance, 1995). Various research evidences showing a strong relation of early creative thinking and creative activities with adult accomplishments (Hong & Milgram, 2008; Milgram & Hong, 1999; Plucker et al., 2004) seem to have had no impact on classroom practice. To change this scenario and to foster student creativity in the classroom, teachers should be ready for the task.

Yet, regarding this preparation we have more questions than answers at this time. Are teachers aware of the importance of creativity as an important human endeavor? Can they recognize creative potential, creative personalities, creative processes, creative products, and creative environments? Has teacher education paid attention to these issues or even begun to think of creating courses for teaching for creativity and for creative teaching? Given that it is well past time that educators from preschool to higher education give serious thoughts on these issues, a certain urgency is needed in beginning to address these questions.

Teachers hold a critical role in efforts to foster children's creativity in schools through shaping learning environments that are conducive for developing creativity. Efforts to marginalize and mechanize the role of educators aside (e.g., Giroux, 2014; Ravitch, 2013), teacher's beliefs still have a large impact on the choice of tasks, communication of concepts to students, instructional approaches, and recognition and assessment of student work (Pajares, 1992). Thus, understanding teachers'

beliefs about creativity and creative children are important before designing and implementing educational programs for the development of creative ability (Chien & Hui, 2010). We discuss teachers' conceptions of creativity and classroom practices where available.

**Teachers' Descriptions of Creative and Uncreative Students** Quite a few studies have examined teachers' conceptions of creative and uncreative children (Aljughaiman & Mowrer-Reynolds, 2005; Chan & Chan, 1999; Diakidoy & Kanari, 1999; Runco & Johnson, 2002; Runco, Johnson, & Bear, 1993; Zhou et al., 2013). Although teachers' descriptions of creative children depended on the nature of questions and the measures used in research, some common characteristics emerged across studies.

Teachers viewed creative children as imaginative, original/unique, curious, intelligent, artistic, and independent/autonomous (these were shown at least four times across studies), and innovative, with wide interests, confident, constant questioning, quick in responding, and active (shown at least three times across studies). Other descriptions of creative children reported in at least two studies included risk-takers, adventurous, enthusiastic, humorous/witty, talented, active, flexible, self-directed, expressive, and deep-thinker. Teachers also expressed creative characteristics as negative, including non-confirming/challenging/rebellious, impulsive/uninhibited, dreamy, self-centered, and arrogant. Teachers characterized the following as uncreative for those children who are: cautious/timid, conventional, conforming, or pessimistic (shown at least two times across studies). Teachers viewed arrogant and self-centered children as creative as well as uncreative across different studies (Chan & Chan, 1999; Crow, 2008; Runco et al., 1993). These findings indicate that although teachers agree on many characterizations of creative children, teachers as a whole are not certain about what constitutes creativity.

### **Teachers' Conceptions of Creativity**

Several studies examined teachers' conceptions of creativity (Aljughaiman & Mowrer-Reynolds, 2005; Cheung & Mok, 2013; Diakidoy & Kanari, 1999; Hong & Kang, 2010; Panaoura & Panaoura, 2014; Park, 2013; Runco & Johnson, 2002; Runco et al., 1993; Zhou et al., 2013). Not surprisingly, teachers perceived creativity as originality/novelty/uniqueness, imagination, artistic ability/products, divergent thinking, tangible products (e.g., creative writing), inventiveness, or problem solving (these were shown at least three times across studies). Teachers expressed that creativity can be developed or taught (shown at least four times across studies).

When teachers were prompted to express their views about factors that facilitate or impede creativity, independence and motivation were considered important characteristics for the development of creativity. Chinese teachers identified critical thinking, independence, and motivation as important attributes, while German



teachers regarded encouragement and feedback, independence, and initiatives as important (Zhou et al., 2013). Greek preservice teachers considered autonomy and independence, followed by intrinsic motivation as crucial attributes (Diakidoy & Kanari, 1999). Creating teaching environments such as providing opportunities to correct mistakes, for assignment choices, and to question assumptions were considered as important conditions for fostering creativity. Also mentioned by the same research participants, however, were some questionable approaches, including use of frequent praise, external rewards, competition, evaluation, and following instructions. Although these are not necessarily detrimental (e.g., if rewards were matched with creative performances), teachers should understand the ramifications of these teaching practices. Chinese teachers thought the evaluation system and lack of resources were hindrances for fostering creativity, whereas German teachers placed pressure in work, lack of resources, and disciplinary matters as hindrances (Zhou et al., 2013).

In the U.S., Teachers not only thought creativity can be taught in the classroom, but viewed knowledge about creativity as important for teachers to foster creativity (Aljughaiman & Mowrer-Reynolds, 2005). Furthermore, more than half of teacher participants in their study reported that their school places importance on fostering student creativity and that they employ strategies to foster creativity in their classroom. However, the rate of agreement was decreased when these teachers were asked if developing creativity is the classroom teachers' responsibility. Characteristics of teachers who may foster creativity in the classroom also depend on teachers' beliefs on other factors. Hong, Hartzell, and Greene (2009) found that teachers with sophisticated beliefs about knowledge and with high intrinsic motivation for "creative work" reported supporting student creativity through their instructional practices (e.g., facilitate the development of multiple perspectives, transfer, task commitment, creative skill use), as compared to teachers who have high intrinsic motivation for "challenging work" and performance goals. In addition, teachers in gifted programs reported more sophisticated epistemological beliefs, higher learning-goal orientation, and lower performance-goal orientation than did teachers in general education classrooms (Hong, Greene, & Harzell, 2011). Whether these differences in the two groups of teachers were results of preservice and inservice education or from some other sources are not known at this time.

### ***17.3.2 Children's Conceptions of Creative People and Creativity***

There are very few studies that have examined children's general conceptions of creativity that did not focus on particular elements associated with creativity. One study examined gifted adolescents' conceptions, in which they viewed creativity as artistic abilities and motivation, whereas risk-taking and inquisitiveness were

identified as important elements of their own creativity (Saunders-Wickes & Ward, 2006). In this section, we present a recent study that examined conceptions of creativity in middle school children.

### **Participants and Measures**

Two middle schools participated. The first school was a private Catholic school and the second school was a public charter school in large southwest metropolitan areas in the U.S. Sixth-grade (30 males and 28 females) and seventh-grade students (25 males and 32 females) from the private school and sixth-graders (34 males and 31 females) of the public charter school participated. About 65% of the participating students of the private school were Caucasian-Americans, 12% Hispanic-Americans, 12% Asian-Americans, and 11% others. Participating students of the public school consisted of 72% Hispanic-Americans, 13% African-Americans, 13% Caucasian-Americans, and 2% others. About half of the students from the participating public school received free or reduced lunch and about 30% of the students had limited language proficiency.

Students were asked to write their perceptions of creativity on a paper, with one item asking “How can you tell someone is creative? Write all you can think of.” In addition, a 5-item questionnaire on creativity myths was distributed. The items were: (1) People are born creative or uncreative; (2) People don’t have to learn to be creative because creativity just happens; (3) Creativity is about arts like music, painting, and so on, but not about science; (4) Creative people work alone rather than work in groups, and (5) The smarter people are, the more creative they are. Students rated the items on a 4-point Likert scale: (a)=not true at all; (b)=somewhat true; (c)=often true; and (d)=very true. Students read the directions, “The following items ask your views about creativity. Read each item and indicate how you generally think or feel by circling a, b, c, or d. There are no right or wrong answers” and filled out the questionnaire.

Students’ narrative responses were analyzed using the following procedure: category elicitation, mapping, revising categories and subcategories elicited, and remapping as necessary. To quantify data, student responses were mapped onto categories and counted. For the 5-item questionnaire data, multivariate and univariate analyses of variance were conducted.

### **Findings 1: Students’ Conceptions of Creative People**

Characteristics of creative people described by the sixth- and seventh-graders from the private school were very similar, with slight differences in the order of some characteristics (see Table 17.1). The words used to describe a creative person with six or higher frequencies in both grade levels included: are artistic, have good ideas or are thoughtful, produce original/unique/unusual answers or products, have creative personality (e.g., extrovert, optimistic, open), express/make things, have

**Table 17.1** Children's conceptions of creative people by grade

Grade 6		Grade 7	
Original/new/unique/unusual	38	Artistic	80
Artistic	32	Ideas/thoughts/thinkers/thoughtful	41
Ideas/thoughts/thinkers/thoughtful	27	Personality	30
Demonstrate/express/build/make	23	Original/new/unique/unusual	27
Different, multiple ideas	15	Different, multiple ideas	21
Personality	11	Demonstrate/express/build/make	18
Imagination	8	Imagination	9
Resourceful/inventive/improving	6	Intelligent/ability/quick thinker	6
Intelligent/ability/quick thinker	6	Resourceful/inventive/improving	3
Quality of work	4	Quality of work	3
Risk taker	3	Risk taker	3
Skills	2	Skills	3
Emotion into work	2	Emotion into work	3
Elaboration/details	1	Elaboration/details	3
<b>Total responses</b>	178	<b>Total responses</b>	250

*Note.* The first 14 categories of conceptions expressed by students of private school are presented. Sample sizes: Grade 6 = 58; Grade 7 = 57

different/multiple ideas, have imagination, are intelligent, and are resourceful (only 6th graders). Other items with less than 5 counts in both grades included: produce high quality work, are risk-takers, put emotions to work, are detailed, have good skills, have good knowledge, and have hobbies (only 7th graders). Seventh graders expressed a greater number of conceptions than sixth graders, indicating that growing and schooling provide more opportunities to experience creativity and the ability to describe their viewpoints in general.

When themes were compared across the two schools for sixth graders, some significant differences were revealed, although similarities across the schools were still apparent (see Table 17.2). First, when themes with five or more frequencies were examined, there were 7 themes that emerged in the public-school sixth graders, as compared to 9 themes in the private-school sixth graders. Those 7 themes about creative people included: artistic, original/unique/unusual, good ideas/thoughtful, express/make things, personality, and imagination. The two themes that showed only in the private-school sixth graders were: produce different/multiple ideas and are intelligent. When the frequencies for the 14 themes were aggregated, the difference between the two schools was vast, with 95 and 178, for public and private school, respectively. Second, of all elicited themes, 12 themes were mentioned by the public-school sixth graders, with the unmentioned themes including have good skills, are risk-takers, and are detailed.

Students' conceptions of creative people corresponded to those characteristics found in the creativity literature (Feist, 1998; Feist & Barron, 2003), although some creative characteristics were not expressed (e.g., autonomy). The highest responses regarded arts, and none were distinctly about other subject domains, indicating the

**Table 17.2** Children's conceptions of creative people by school type

Public charter school		Private catholic school	
Artistic	32	Original/new/unique/unusual	38
Original/new/unique/unusual	12	Artistic	32
Resourceful/inventive/improving	12	Ideas/thoughts/thinkers/thoughtful	27
Demonstrate/express/build/make	12	Demonstrate/express/build/make	23
Ideas/thoughts/thinkers/thoughtful	7	Different, multiple ideas	15
Personality	6	Personality	11
Imagination	5	Imagination	8
Emotion into work	3	Resourceful/inventive/improving	6
Quality of work	3	Intelligent/ability/quick thinker	6
Different, multiple ideas	1	Quality of work	4
Intelligent/ability/quick thinker	1	Risk taker	3
Knowledge	1	Skills	2
Skills	0	Emotion into work	2
Risk taker	0	Elaboration/details	1
<b>Total responses</b>	<b>95</b>	<b>Total responses</b>	<b>178</b>

Note. The first 14 categories of conceptions expressed by sixth graders of public and private schools are presented. Sample sizes: Public charter school=65; Private catholic school=58

art bias in these students. The school difference in total responses warrants a comment. The sixth-graders of the private school expressed not only more variety of conceptions but in a greater number (about 85 % more) of responses than those of public school. This disparity between the two schools may be associated with socio-economic status coming from different demographics of the two different types of the schools, likely presenting different life experiences, with children with more means having more opportunities to experience and express creativity.

When students' responses were compared with the five themes of teachers' conceptions that emerged across different studies (minimum six studies), three of the five, imaginative, original/unique, and artistic were mentioned by both students and teachers. The two themes that were mentioned by teachers but not by students were curious/exploratory and intelligent (by sixth graders of one school). There were many characteristics of creative people that teachers mentioned (minimum three studies) that did not emerge in students' themes and were rather conspicuously classroom behavior-related: nonconforming/challenging, independent, always questioning, quick responses, active, wide interests, innovative, confident, and self-centered.

## Findings 2: Students' Conceptions of Creativity

When sixth and seventh graders within the private school were compared, significant differences were not demonstrated either at the multivariate,  $p > .84$ , or univariate results,  $ps$  ranging from .25 to .99. The sixth graders of the two different schools

demonstrated statistical significances at the multivariate level,  $p = .005$ ,  $\eta^2 = .15$ , and three of the univariate results (Items 1, 3, and 4),  $ps < .02$ , with  $\eta^2$  ranging from .05 to .06.

For Item 1, "people are born creative or uncreative," with the private school sixth graders rating lower ( $M = 2.10$ ;  $SD = 0.78$ ) than those of the public school ( $M = 2.52$ ;  $SD = 1.03$ ). On Item 3, "creativity is about arts like music, painting, and so on, but not about science," a similar pattern was noted, with the private-school students rating lower ( $M = 1.72$ ;  $SD = .92$ ) than the public-school students ( $M = 2.19$ ;  $SD = 1.09$ ). On Item 4, "creative people work alone rather than work in groups," the private-school students again agreed less ( $M = 1.80$ ;  $SD = .84$ ) than those of the public school ( $M = 2.25$ ;  $SD = 1.04$ ). Follow-up interviews with participating students could have helped understand reasons behind these discrepancies, but circumstances did not allow us to gather follow-up data.

The two items that did not show school differences are described here. Regarding Item 2, "people don't have to learn to be creative because creativity just happens," the participating sixth graders from both schools rated high (between somewhat-true and often-true), with mean scores in the private and public school, respectively,  $M = 2.65$ ;  $SD = 1.09$ , and  $M = 2.94$ ;  $SD = 1.23$ . Item 5, "The smarter people are, the more creative they are," showed that on average, students rated between not-true-at-all and somewhat-true, with mean scores of the private and public school, respectively,  $M = 1.67$ ;  $SD = 0.90$ , and  $M = 1.71$ ;  $SD = 0.80$ .

These findings indicate that students of less affluent families in general were more inclined to agree with creativity myths. Perhaps students of affluent background have more opportunities to develop creativity while they were growing up. Even for those students who might have thought that they were born uncreative or not artistic, the environment in which they were brought up might have helped them experience creative thoughts and behaviors through play or school activities. On the other hand, students of lower socio-economic status may have had less chance to experience creativity-encouraging environments. This speculation should be verified in future studies, especially whether living in poverty or near poverty necessarily deprives students of creativity.

The children's view on intelligence and creativity not being closely related might have come from students' experiences, especially those who may not have achieved highly but see themselves as creative thinkers or as artistic. More students from both the private and public school tended to believe that creativity just happens than not. Although private-school students were less likely to think that people are born either creative or uncreative, they believe more strongly that creativity just happens. This slight contradiction within the private-school students might have been related to reading Big-Cs and observing young talents on the Internet and TV, causing them to think that learning to be creative is hard to accomplish. These findings highlight the importance of creativity education in schools.

## 17.4 Contradictions: Understanding and Incorporating in Classroom Instruction

Creativity and innovation have become the first and most important construct in the business sector. Breen (2004) states that hardly any mission statements of business organizations do not herald creativity. In educational research, although continued efforts have been made to conduct scientific studies of creativity and its educational and psychological correlates (e.g., Amabile, 1996; Cropley, 2006; Hong, Peng, & O'Neil, 2014; Marziyeh, Ejei, Hejazi, & Tabatabaee, 2014), educational research on creativity seems to have been tangential to classroom applications, and schools have been very slow to incorporate creativity in teaching and learning. Of the various reasons, the conceptions of teachers and children still remain as one of the most influential factors facilitating or impeding the incorporation of creativity in classroom instruction. Based on the literatures we reviewed on teachers' conceptions of creativity and the findings on children's conceptions, we discuss contradictions between conceptions and practices and offer some suggestions for classroom applications where possible.

### 17.4.1 *Yes, Developing Creativity in Students Is Important, But No, Not My Priority*

Many teachers believe that cultivating creativity in students is important, children can be taught to develop creativity in the classroom, and teachers should increase knowledge about creativity. However, some of these teachers also think that developing student creativity is not their responsibility (Aljughaiman & Mowrer-Reynolds, 2005). In the present dominant educational environment, teachers are overwhelmed with other pressing responsibilities such as content coverage for high-stakes tests and do not think that there is enough class time for students to explore and enhance creativity (e.g., Crow, 2008; Hong & Kang, 2010; Kamylyis, Berki, & Saariluoma, 2009). Understanding this problem, creativity scholars have written some how-to literatures, although not for all subject domains. These literatures can support teachers to not only foster student creativity but also fulfill curricular standards by integrating creativity into the curriculum so students can increase both creative-thinking ability and academic achievement (e.g., Baer & Garrett, 2010; Beghetto, 2009; Beghetto & Kaufman, 2010a, 2010b; Fairweather & Cramond, 2010).

Note, however, that other studies portray a somewhat different version of the realities faced by teachers. Almost all teachers in Greece who participated in the Kamylyis et al. (2009) study agreed that fostering student creativity is a teacher's responsibility. The difficulty here is teachers' competency, as only about 20% thought that they were trained for facilitating student creativity. Some teachers in

Li's (2006) study also thought that they were not qualified enough to foster students' creativity on their own. Hoping for teachers to be motivated enough to learn more about creativity by themselves in this not-enough-class-time situation is not realistic. Integrating creativity in classroom instruction requires robust teacher education presence and professional development support for teachers. However, information is not available on the extent to which teacher education programs offer creativity-related courses and the quality of courses, if offered.

### ***17.4.2 I May Do It If Things Are Ready for Me***

Due to the recent recognition of the importance of creativity, many countries have issued policy documents underscoring the importance of creativity in education and addressing instructional possibilities to increase creative ability (Shaheen, 2010; Thompson, 2009). There has been an increasing emphasis on developing creativity-driven curriculum (Choe, 2006; Zhu & Zhang, 2008) and teachers are expected to follow the implicit and explicit demands contained in new policies (Yeh et al., 2004). Whereas new curriculum focuses on student-centered experiences for fostering creativity as an important goal in education, there is little substance as to guidelines or curricula materials that teachers can use for practical application, and pedagogy on fostering creativity are left to teachers' discretion (Hong & Kang, 2010; Park, 2013). Moreover, most current teachers have not had any formal training on creativity during their teacher-education program or inservice professional development (Bolden et al., 2010; Cheung & Mok, 2013; Newton & Newton, 2009a, 2009b), thus teachers feel that they are not equipped to teach for creativity. Even when professional development is available, the opportunities are rare and inadequate (Park et al., 2006). That is, although there may be plenty of rhetoric about creativity, little substantive action is found at present.

Classroom teachers will not be able to help students increase creative-thinking ability when they do not know what creativity means in the subjects they teach and when well-designed materials and activities to utilize for teaching and assessment of creativity are not readily available. Related to the first issue, Not My Priority, the same provisions regarding how-to literatures and substantial professional development opportunities are required.

### ***17.4.3 I Am Almost There, But They Are Not***

A dilemma and tension generated by the mix of a high level of knowledge about creativity and environmental inadequacy was described by Chien and Hui (2010) in their descriptions of early childhood teachers' conceptions. Taiwanese teachers, who were more knowledgeable about factors affecting creative performance than other groups of teachers from Hong Kong and Shanghai, chose teaching method and

curriculum design as the most important factors for implementing creativity instruction. The presence of less conducive environment and other barriers for facilitating creativity in students were more visible to Taiwanese teachers due to high expectations based on their knowledge and professionalism, creating a dilemma for these teachers. The clash that these teachers felt, as frustrating as it sounds for them, in fact, was intriguing and rather hopeful as these teachers seemed rather well educated for creativity instruction. Having awareness of the environmental inadequacy may trigger them to seek solutions.

#### ***17.4.4 Creativity Is Art***

Although creativity means more than arts for most teachers, many teachers relate creativity with artistic and literary endeavors (e.g., Aljughaiman & Mowrer-Reynolds, 2005). For these teachers it is the art instructor's responsibility for enhancing creative abilities, and they may not underscore creative processes and creative outcomes in domains they teach. Those teachers who hold the view that creativity manifests in various domains may put forth efforts to foster creativity in their regular classroom teaching. The flip side of this view is that teachers' awareness of the multi-domain nature of creativity, especially for kindergarten and primary teachers, may engender teachers' feeling of incompetence and skepticism concerning their ability to foster creativity in children (Kampylis et al., 2009). This issue again brings up the question of adequate materials and activities for creativity instruction in various subject areas.

#### ***17.4.5 Amicable Trait, But Not in My Class***

Some teachers know that certain traits are related to creativity, some even report that they enjoy working with creative students, but they think that some of those traits are not desirable in the classroom. Often, personality characteristics of teachers' favorite students were inversely related to creativity, and some teachers tend to discourage certain behaviors that are related to creativity traits (Runco & Johnson, 2002; Westby & Dawson, 1995). Whereas some teachers are not aware of behaviors related to creativity, other teachers think uncreative behaviors such as conforming are creative, and these behaviors often desired by classroom teachers (Runco & Johnson, 2002).

The discrepancies in creativity conceptions between children and teachers reported earlier deserve attention. Whereas some views of creativity, such as imaginative, original, and artistic, were overlapping across students and teachers, a large number of teachers' conceptions about creative children were not indicated in students' conceptions. Teachers' views such as nonconforming/challenging, always questioning, quick responses, active, wide interests, innovative, confident, and self-



centered, present a tinge of negativity and appear contradictory to students' views in which they did not see creativity in such a light. As teachers' personal beliefs about creativity and creative traits will be applied when judging children's behaviors in the classroom, it is important that the research findings on creativity reach practicing teachers.

### ***17.4.6 Not in Our Culture***

Recent emphasis on creativity education is ubiquitous across nations. However, in some areas of the world, barriers for creativity education seem more culturally bound. In mainland China, for example, early childhood educators are expected to develop teaching competencies in creativity and promote learning of creativity in classrooms (Chien & Hui, 2010). However, Chinese culture may lack a supportive environment for teachers to explore new methods in the classroom. In the traditional classroom culture, students are expected to obey the teacher's authority. Deviations from this expectation may be viewed as signs of disrespect or rebelliousness. Thus, implementing creative teaching and teaching for creativity may be challenging to teachers in these cultures (Cheng, 2004; Ng & Smith, 2004).

Sternberg (2007) found that Eastern cultures consider contributions to society and the ethicality of creativity as important elements for creative work. When creativity was used for an unethical purpose, some teachers (Hong & Kang, 2010) denied that creativity was present, with the denial four times more likely in Korean teachers as compared to the U.S. teachers who had the tendency to separate ethicality from creativity. How should educators process this aspect? Kaufman, Cropley, Chiera, and White (*in press*) found that Western people, the U.S. in their study, view morally ambiguous acts as more creative. We recommend work by Cropley, Kaufman, White, and Chiera (2014) and Kaufman's (2009) chapter on "Does creativity have a dark side?" that shed light on this important element of creativity.

One caveat regarding cultural difference in conceptions and practices associated with creativity needs to be discussed here. It is noticed in literatures that when findings on cultural impact cannot be cleanly interpreted, authors tend to rely on outdated interpretations that might have been applicable sometime in the past. For instance, teaching for creativity is considered incompatible with the traditional Asian cultural value of social contribution and the prejudice against individuality (Kwang & Smith, 2004; Rudowicz, 2004; Rudowicz & Yue, 2000). Admittedly, there may be some teachers thinking in this fashion even now, but the train seems to have departed to meet the newer world some time ago (our best guess is one to two decades) and most teachers as well as students are riding on that train. In other words, great cultural shifts are taking place alongside changes in educational policy and practices. Although the value of social contributions to creativity should not be diminished in any cultural context, such a value does not need to rule out the value of individuality in the development of social and cultural capacities for addressing challenges of the modern world. As we have no hard data to support our discussion

but are writing based on anecdotal information (observations and informal interviews and discussion), this is an important topic for future research in education, psychology, and sociology.

### ***17.4.7 Anyone Can Be Creative; Sounds Good, But Really?***

To most laypeople, unless otherwise educated, creativity means innate ability or eminence. Classroom teachers are not exceptions to this understanding. The good news is that although there are teachers who think only a few can be creative, teachers in general hold the view that most students can be creative (Hong & Kang, 2010). The rather old-by-now topic about the relation between creativity and intelligence gives some clue as to teachers' conceptions regarding who can be creative. Preservice teachers' views that anyone can be creative was contradicted by their beliefs that intelligence is a requisite trait for creativity (Seng et al., 2008). Some researchers indicate that although weak to moderate association between creativity and intelligence has been evidenced to a certain level of intelligence, high intelligence does not necessarily enhance creativity (e.g., Baer & Kaufman, 2005; Hong & Milgram, 1996; Walberg & Herbig, 1991).

The creativity-achievement relation also sheds light on the issue of anyone-can-be-creative. Although some teachers, seeing low-achieving students manifesting creativity, believe that anyone could be creative, other teachers think that only high-achieving students are creative; fortunately, many teachers have observed the inconsistent relation between achievement and creativity (Hong & Kang, 2010; Park, 2013; Zhou et al., 2013). A related topic is the relation of knowledge to creativity. Creativity is not a knowledge-free skill (Craft, 2002). In a study by Diakidoy and Kanari (1999), the majority of preservice teachers thought that creative outcomes rely on knowledge. Contradictorily, however, only about a quarter of the same research participants thought that students' creativity will be manifested when students have relevant knowledge, showing their uncertainty in understanding the relation between knowledge and creativity.

### ***17.4.8 Assessment of Creativity? I Have No Clue***

If educators in the trenches were encouraged or required to implement creativity instruction in their practices, another important element needed for this implementation will be to make available instruments to assess creativity. The assessment of creativity is rather difficult as compared to that of standardized tests for which correct answers are predetermined. Imagine a mathematics teacher, who tried to increase creative-thinking in mathematical problem-solving, but then applies conventional criteria to assess creative solutions to mathematical problems.

Domain generality and specificity in creativity have a close relation with the measurement of creativity (Baer, 2003; Hong, 2013; Plucker, 1998). As creative outcomes are manifested in various domains such as science, music, and so on, one might think that the domain issue may not be applicable for assessment of creativity. However, data from the measures used for domain-general creative-thinking ability (i.e., generating original and divergent ideas in many domains) produced predictive-validity evidences with creative behavior in the real world as criterion (e.g., Cramond, Matthews-Morgan, Bandalos, & Zuo, 2005; Hong, Milgram, & Whiston, 1993; Torrance, 1993). A strong association between domain-general and domain-specific creative-thinking ability was found in various age levels, gender, ethnicity, and learning disabilities status, but different life experiences afforded by schooling, gender, and culture had stronger impacts on domain-specific creative thinking (Hong & Milgram, 2010). These studies indicate that measures for both domain-specific and domain-general creativity have contributions to make in assessing students' creativity in the classroom.

Beyond the divergent-thinking measures that have been widely used (e.g., Jellen & Urban, 1986; Torrance, 1974, 1999), there are various measures for creative personality, attitude, motivation, and activities, including from biographical information, inventories,, nominations, product ratings, self-reports, to biological methods such as functional magnetic resonance imaging (fMRI) or quantitative electroencephalogram (qEEG), which are beyond the scope of this chapter.

On the domain-specific creativity side, measures used in research studies include creating mathematical word problems, story-telling, writing poetry or short stories, making collages, musical compositions, and everyday problems (Baer, 1996, 1998; Han, 2003; Hickey, 2001; Hong, Peng, O'Neil, & Wu, 2013; Reiter-Palmon, Illies, Cross, Buboltz, & Nimps, 2009). Self-report assessment of creative activities and accomplishments (e.g., Carson, Peterson, & Higgins, 2005; Hong & Milgram, 2009) are also relevant for classroom use. Another useful measure that classroom teachers may adopt is *Creative Real Life Problem Solving* (CRLPS) (Hong, 2013). Each CRLPS measure represents a particular topic/context, involving real-life problems to solve. That is, each item describes a problem situation that arises in a specific life situation. When the problem-solving items are being developed for students, students' life situations are described in scenarios that could occur in their lives. Each student should be able to imagine him- or herself in the scenario while solving the problem. Students are asked to generate as many or unique solutions as they can to each real-life problem presented to them. That is, CRLPS can be created by any classroom teacher interested in assessing creative-thinking ability in their students. Scoring CRLPS responses are similar to those for divergent thinking tests, or expert judges (e.g., classroom teachers) can assess the quality and quantity of the responses.

## 17.5 Summaries, Recommendations, and Thinking Forward

There seem to be a few important contradictions surrounding creativity conceptions that educators may find valuable for practical uses. As implicit conceptions of creativity play an important role in teaching practices, they should be addressed to help teachers check their assumptions and misconceptions. We summarize contradictions between creativity conceptions and classroom practices discussed earlier:

- (a) Most teachers think that developing student creativity is important, but they also think that it is not their priority.
- (b) Teachers may engage in classroom implementations of creativity instruction but only when curricula and instructional materials are readily available for them.
- (c) Even for those teachers who are ready for classroom implementation of creative education, barriers for facilitating creativity prevents them from moving forward.
- (d) Many teachers relate creativity with artistic and literary endeavors, thus relegating creative education to art or literature instructors.
- (e) Some teachers think that creativity traits are not desirable in the classroom and view creative children unfavorably.
- (f) Cultural and societal differences in teachers' views about creativity need to be understood for proper implementation of creativity instructions.
- (g) Although research literatures indicate that most teachers believe that students can be creative, when their views on the relations of creativity with intelligence, with achievement, and with knowledge are taken into account, the "anyone can be creative" view does not seem to hold.
- (h) Assessment of creativity needs to be addressed before teachers are requested to facilitate creativity in the classroom.

Beyond the need for monitoring their own personal beliefs, it is important that teachers acquire robust content and pedagogical knowledge of creativity to incorporate creativity into their classroom instruction. Indeed, all items discussed in the contradiction section point to the need of substantive professional development. As reviewed above, numerous articles, presenting various predicaments in creativity education, call for teacher training not only during teacher education programs, but also through ongoing professional development, including workshops, seminars, and other forms (Aljughaiman & Mowrer-Reynolds, 2005; Cheung & Mok, 2013; Cheung & Leung, 2013; Chien & Hui, 2010; Newton & Newton, 2009a, 2009b; Park et al., 2006). Many countries have put forward policies encouraging or requiring inclusion of creativity in education. However, unless it is practiced in schools, it will remain a hollow gesture. There has been a modicum of signs that creativity training has worked somewhat (Bolden et al., 2010; Cheng, 2011; Panaoura & Panaoura, 2014), albeit authors of these studies strongly expressed the need for further teacher training.

We offer a few items for professional development that may help teachers prepare for fostering creativity in students:

- (a) Provide opportunities to increase awareness of personal beliefs by making them explicit so that they are open to personal challenge and reflection, pointing to contradictions between implicit beliefs and formal knowledge.
- (b) Provide various examples, materials, strategies, activities, and opportunities to instantiate their knowledge in the classroom during and after teacher education.
- (c) Utilize mini-*c* concepts when preparing materials and activities with which students can have experiences of producing novel and personally and interpersonally meaningful interpretations of experiences, and curtail habitual neglecting of unexpected moments of emerging creativity in the classroom.
- (d) Provide various kinds and types of problems and “explicit instruction” for creative responses, so students can be motivated to produce more creative ideas and products.
- (e) Help teachers understand classroom-environment elements that stimulate or impede the development of creativity.
- (f) Share with teachers various correlates of creativity to help them get interested and remain open to reading more literatures to increase their knowledge about creativity (Amabile, 1996; Baas, Koch, Nijstad, & De Dreu, 2015; Beghetto, 2009; Beghetto & Kaufman, 2007, 2009; Eckhoff & Urbach, 2008; Chan, 2005; Hong, O’Neil, & Peng, *in press*; Kaufman, 2006; Marziyeh et al., 2014; Rietzschel, Nijstad, & Stroebe, 2014; Runco, 1996, 2003; Vygotsky, 1967/2004).

The discrepancies found in students of public and private schools warrant consideration. Although demographic factors such as socioeconomic status, gender, and so on, in their relations with creativity were not highlighted in this chapter, creativity education would require understandings of these phenomena. Students’ views on creativity myths were more strongly aligned with the item, “creativity just happens; people do not need to learn creativity because it just happens,” followed by “people are born creative or uncreative.” Surprising or not, some children in the twenty-first century still believe in these myths. Understanding children’s conceptions of creativity can help teachers prepare to tackle these issues, especially with beliefs on these two items, as they can impede students’ receptivity to creativity instruction.

Educational systems should invest in the identification and development of creative potential and develop institutional cultures where investment in educating creative minds is recognized as beneficial to society in the long-term and to the wellness of individuals by enabling them to lead more satisfying lives. We need to develop a culture where creativity and creative thinking is highly valued and acknowledged as a critical resource for human advancement. How researchers and teacher educators make literatures on creativity available for professional develop-

ment will make a large difference in the implementation of creativity instruction in schools. Otherwise, creativity myths and contradictions will remain unresolved and will continue to implicitly contribute to the consignment of some students to roles associated with enriching and advancing humanity and others to roles associated with rote behaviors and unsatisfying adulthoods.

It is important to be reminded that this chapter addresses what the field of creativity understands today. Conceptions of creativity change as sociocultural environments change perhaps based on the combination of tradition, ideology, wealth, and orientation towards globalization. For instance, technology, the Internet, and social media and their relations to creativity emerged as relevant topics for consideration only recently (Hong & Ditzler, 2013; Pepler & Solomou, 2011). This development may help expand and enhance the sharing and promoting of creativity with virtual communities, including training through the Internet, allowing needed information to reach many practitioners in an efficient manner (Al-Balushi & Al-Abdali, 2015). Although the online environment will create additional challenges, we hope in the end that it will help more individuals and groups actualize their potential. Creativity researchers have put forth significant efforts in producing new knowledge on creativity. However, when it comes to the effects of new knowledge produced by scholars on classroom instruction, it is a woefully inadequate record. We advocate that practitioners be encouraged and recruited for producing practice-based research evidence on creativity and share their work through the Internet (Rowell & Hong, *in press*). This effort will increase not only knowledge base of what-works in specific contexts in which practitioners best understand the problems and challenges, but is an excellent way to democratize knowledge related to strengthening the place of creativity in educational systems.

Finally, the teachers' conceptions of creativity and creative children described in this chapter are based on the close scrutiny of published literatures. Although we were careful about matching research questions presented by the original researchers, the research contexts of and measures used in the research studies were not identical. It is recommended that readers exercise caution in interpreting findings and utilize references where warranted. Children's conceptions of creativity has rarely been studied, thus we relied on one empirical study conducted by the senior author of this chapter. More research studies with children, as well as teachers, are needed to understand their conceptions now and in the future to determine whether creativity instruction and societal/cultural changes make differences in improving the understanding of creativity.

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