

12 Creativity in K–12 Schools*

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INTRODUCTION

Do schools support or suppress creativity? Almost everyone has an opinion about this question. These opinions are informed, in part, from our prior schooling experiences as well as representations of school in the media and internet. Consider Sir Ken Robinson’s wildly popular and influential TED talk, “Do schools kill creativity?” People who have watched this talk may come away with the impression that schools kill, or at least suppress, creativity. What do you think?

The purpose of this chapter is to explore the question of whether schools support or suppress creativity and highlight how addressing this question is much more nuanced than a simple “yes” or “no” answer. Prior to doing so, it is first important to recognize that student learning is the primary goal of K–12 schools (i.e., schools that serve students in kindergarten through 12th grade). Anything that is viewed as competing with that goal, even something that seems potentially beneficial (such as creativity), likely will be viewed as secondary or ancillary to the primary goal of supporting student learning.

Even though academic learning typically represents the primary goal of school, there have been a long line of educators and creativity researchers who have recognized and demonstrated that creativity can complement academic learning. Creativity researchers have, for instance, documented a positive albeit modest relationship between measures of creativity and academic learning (Gadja, Karwowski, and Beghetto, 2016). Creativity researchers have also demonstrated that academic learning environments can serve as an important context for helping students simultaneously develop their academic learning of subject matter and their creative potential (Beghetto, 2016a). School-based creativity is therefore not only possible but probable in conditions where educators recognize and actively work to support the complimentary relationship between creativity and academic learning. Indeed, **school-based creativity** can be defined as *different ways of meeting predetermined teaching and learning goals or criteria*.

This definition has its basis in commonly agreed upon definitions of creativity (Plucker, Beghetto, and Dow, 2004; Runco and Jaeger, 2012), which define creativity as a combination of originality (e.g., doing things differently) and usefulness (e.g., meeting task constraints). This definition is important because it highlights how school-based creativity can

* This chapter is based on the previously published chapter R. A. Beghetto (2019). Creativity in Classrooms. In J. C. Kaufman and R. J. Sternberg (Eds.), *The Cambridge Handbook of Creativity*, 2nd ed. New York: Cambridge University Press.

complement student learning by still focusing on meeting the primary academic goals of schooling; but the definition broadens the focus to include new and different ways of doing so. Equipped with this definition, the question of whether schools support or suppress creativity is less about a simple “yes” or “no” answer and instead focuses on where, how, and under what conditions might teachers and students be creative in schools.

Where Can Teachers and Students Be Creative?

Although creative expression can occur in almost any context, following the definition of school-based creativity presented earlier, classrooms represent the context that is most relevant for understanding creative expression in schools. This is because classrooms are environments designed to support academic learning and school-based creativity as it pertains to meeting academic learning goals in new and different ways. Consequently, classrooms will serve as the primary setting of interest in this chapter, while recognizing that other settings in schools also offer opportunities for students and teachers to be creative (e.g., lunchroom, gymnasium, auditorium, and outdoor spaces). In order to understand how and under what conditions creative expression can occur in classrooms, it is important to take some time to consider the unique features of classrooms and how these features might constrain or enhance creative expression.

Let us first consider how the features of classrooms can constrain creative expression. You likely are quite familiar with classrooms, but if you stop and think about the typical K–12 classroom setting in the United States, then you will soon realize that they are unique and somewhat constraining environments. Classrooms tend to be relatively small spaces (approximately 900 square feet; Abramson, 2015), which tend to house a relatively large group of people (twenty-five students and one teacher; NCES, 2013) over a long duration of time (approximately 13,000 hours over 12 years of schooling; Jackson, 1990). Students typically are grouped together in K–12 classrooms by age and generally are required to do much the same thing, in the same way, and at the same time as each other. Also, even though students are often seated in close proximity to each other, they often are required to work quietly and individually (e.g., “No talking,” “Keep your eyes on your own paper”). Moreover, students typically are required to solve problems that have already been solved and work on tasks that tend to have one correct or expected way of completing them. In this way, sameness tends to be privileged in classrooms (Glăveanu and Beghetto, 2016).

Classrooms also serve as sites of continuous monitoring and assessment of students and teachers. Teachers continually monitor whether students are meeting expectations. One of the most persistently documented ways this monitoring of expectations occurs is during classroom discussions. Typically, classroom talk follows a repeating, three-part **IRE pattern** of Initiate, Respond, and Evaluate (Mehan, 1979). More specifically, teachers *initiate* discussions by asking students questions and looking for an expected answer, students then *respond* by trying to provide that expected response, and teachers quickly *evaluate* whether those responses match what they expected to hear and how they expected to hear it

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(Beghetto, 2013). This IRE pattern of talk is so commonly associated with school that even young children playing school often follow the pattern (Cazden, 2001).

The monitoring of expected patterns of behavior is so widespread in school that the **prototypical formula for school success** can be thought of as doing what is expected and doing it how it is expected (Beghetto, 2018a). In some cases, continual monitoring and assessment is informal (e.g., “Pay attention,” “Who can tell me the names of the main characters of this story?”); in other cases, it occurs in formal exams, tests, and performance expectations. In many cases, students are required to demonstrate their ability to meet expectations without the assistance of others and without the assistance of supports that would otherwise be readily available in any other setting (e.g., talking to other people, calculators, online instructional videos, internet searches, and so on). Students are not the only ones undergoing monitoring and assessment in schools. Teachers and educational leaders also undergo continual formal and informal assessment of their ability to meet expectations in expected ways by district administrators, colleagues, students, external stakeholders, and even themselves (Ingersoll, 2003; Smaller, 2015).

Understanding these unique and constraining features of classrooms provides an important backdrop to understanding why teachers and students may not be willing to demonstrate creative thought and behavior in classrooms. Indeed, depending on the situation and context, doing so may be viewed as too risky, particularly if they are being evaluated for not only meeting expectations but meeting those expectations in expected ways. This continual monitoring and ongoing evaluation of meeting expectations can stifle creative expression in classrooms (see also Amabile, 2006; Hennessey, 2017).

Even with these somewhat unique features and constraints, students and teachers can still develop and express their creativity in classrooms. Indeed, creativity can and often does thrive in constraints (Stokes, 2006, 2010). There are at least two key requirements to be met in order for this to happen. The first is that the typical expectations of meeting expectations need to be broadened to include allowing students and teachers to meet expectations in different and even unexpected ways. The second is that teachers and students need to know how to be creative in classroom contexts and be willing to take the risks necessary for creative expression. The remainder of this chapter explores how and under what conditions teachers and students can be creative in classroom contexts.

How Can Teachers and Students Can Be Creative?

When it comes to creativity in schools and classrooms, there are two major ways that teachers and students can be creative. The first is creative teaching and the second is creative learning. Table 12.1 summarizes these different ways teachers and students can be creative, including the requirements and opportunities for these forms of creative expression.

As displayed in Table 12.1, creative teaching and learning represent the primary ways in which teachers and students can develop and express their creativity in schools and classrooms. In the sections that follow, I elaborate on the summary provided in Table 12.1,

Table 12.1 Different ways teachers and students can be creative in schools and classrooms

Types of creative expression	Brief description	Requirements	Opportunities
Creative teaching	Creative teaching takes one of three forms: teaching <i>about</i> creativity, teaching <i>for</i> creativity, and teaching <i>with</i> creativity.	Teachers need to believe that they can teach creatively in their classrooms, know what it means to be a creative teacher, and be willing to assume that role.	Because creative teaching in schools involves infusing creativity and creative content into existing academic curricula, there are numerous opportunities for creative teaching.
Teaching about creativity	Helping students learn what creativity is (and is not), how it develops in and across different activities and subject areas, and the role creativity plays in learning and life.	Understanding of the field of creativity studies and incorporation of examples and activities that highlight creative expression in specific subject areas.	Teaching about creativity can occur in most any subject area by incorporating biographies, case studies, and examples of creative work in the subject area.
Teaching for creativity	Developing students' creative potential into creative achievement.	Understanding of strategies and approaches for infusing creative learning activities and experiences in the existing curriculum.	Numerous opportunities for students' creative expression in the curriculum, ranging from encouraging students to develop their own ways of doing things to projects that enable students to identify their own problems to solve and their own ways of solving them.
Teaching with creativity	Teaching academic subject matter in a creative fashion.	Knowledge of what is being taught coupled with attributes of creative behavior (e.g., openness, sensible risk-taking, possibility thinking).	Teachers can teach most any subject area in a creative way. This involves being willing to explore unexpected moments that emerge during a lesson and establishing openings for creative expression.

Table 12.1 (cont.)

Types of creative expression	Brief description	Requirements	Opportunities
Creative learning	The combination of individual and socio-cultural processes that result in new and personally meaningful understandings for oneself and others.	A classroom environment that allows for students to develop, share, and engage with different ways of understanding subject matter.	Creative learning can occur in most any subject area.
Creativity-in-learning	Focuses on the creative process involved in how individual students develop their understanding of new academic subject matter.	Students need opportunities and support to engage with academic subject matter in ways that promote a new and personally meaningful understanding.	Creativity-in-learning can occur in any subject area and with almost any topic as long as the concepts or experiences being presented are sufficiently novel to the students.
Learning-in-creativity	Focuses on having students share and test out their new and meaningful understandings with those of their teachers and peers.	Students need opportunities to share and test out their new and personally meaningful understandings with others. Teachers and peers need to be willing to engage with unexpected or different ideas, insights and understandings.	Learning-in-creativity can occur in situations where teachers have the time and willingness to explore different perspectives (i.e., not feeling too pressured to cover topics and quickly move on) and students have the confidence, willingness, and understanding of when it might be most beneficial to share their unique perspectives.

starting with various forms creative teaching can take and the challenges and opportunities that come with each of these forms of creative expression.

Creative Teaching

Creative teaching can take one of three forms (Beghetto, 2017): *teaching about creativity*, *teaching for creativity*, and *teaching with creativity*. **Teaching about creativity** refers to helping students learn what creativity is (and is not), how it develops in and across different activities and subject areas, and the role creativity plays in learning and life.

Teachers who teach about creativity will, of course, need to have a deep understanding of creativity, based on the work from the field of creativity studies. Knowledge of the field of creativity studies, however, is just a starting point. Given that K–12 teaching has a primary goal of promoting academic learning, teachers likely will not have the time or curricular space to teach a separate “creativity class.” Rather, they will need to be able to find ways to blend creativity content within their regular academic subject matter teaching. Doing so can be challenging (Lassig, 2012), but it is possible to take a *both/and* approach (Beghetto, 2013) and infuse information about creativity in the teaching of core academic subject matter (e.g., Beghetto, Kaufman, and Baer, 2015; Renzulli, 2017).

One way teachers can take this both/and approach is to incorporate examples and models of creativity in their teaching. Root-Bernstein and Root-Bernstein (2016), for example, describe how teachers can go beyond simply teaching the “what” of academic topics and also explore the creative work of people in those subject areas, including the *who, how, when, why, and where* of that work. Teachers can also include mini-biographies of people doing creative work, relevant examples from various news and media sources, and even have their students develop “biographies of ideas” (Clapp, 2016) to develop an understanding of how creative ideas and innovations occur in and across academic subject areas. Teachers and students can invite and virtually interview professionals and experts (from poets to plumbers) to discuss examples of how creativity and learning play a role in their professional work (Beghetto, 2013).

Finally, and somewhat ironically, it is of course possible for a teacher to teach about creativity in very uncreative ways. When creativity becomes the subject or an integrated aspect of the subject being taught, it is still possible to be taught in traditional ways such as lectures and learning activities that simply require that students memorize and reproduce what they have learned about creativity. Consequently, it is also important for teachers who plan to teach about creativity to also understand how they might also teach about creativity more creatively (Simonton, 2012).

Teaching for creativity refers to efforts aimed at developing students’ creative potential into creative achievement. Teaching for creativity in the context of K–12 classrooms is less about using general creative thinking activities (e.g., “Come up with 100 creative uses for a brick”) and more about working with specific academic subject matter to cultivating students’ potential to think creatively in the context of learning and real-world problems

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(e.g., “Come up with as many different ways of accurately solving this math problem” and “How might we come up with a creative way of addressing the problem of the bullying that goes on in the lunch room?”).

Given that teachers have a lot of predetermined curriculum to cover and are working with large numbers of students, it is sometimes difficult to imagine how they might use curricular time to support students’ creative ideas (Aljughaiman and Mowrer-Reynolds, 2005; Davies et al., 2012; Paek and Sumners, 2017). One promising direction for making room in their curriculum to support creative expression is called lesson unplanning. Lesson unplanning involves establishing openings in teachers’ existing lessons and activities by replacing predetermined aspects of the curriculum with to-be-determined opportunities for students to share their own unique ideas and insights (Beghetto, 2018b).

A teacher could, for example, use lesson unplanning when assigning math practice problems to students. Rather than having students complete twelve math problems using one taught procedure, the teacher could have students complete six problems with the taught procedure and then spend time coming up with as many different ways as they can to solve one problem and share their different ways with other students in the class. Doing so can result in students generating multiple different ways of solving a problem, which can deepen their learning and creatively contribute to the learning of others (Niu and Zhou, 2017).

Teachers could also use as little as five minutes a day to engage students in identifying and solving problems that matter to them in their school, neighborhood, or surrounding community. Spending time on “five-minute projects” requires a small investment of time but over the course of a typical school year (180 days) can add up to meaningful opportunities for students to make creative contributions to their learning and lives.

Teaching for creativity in K–12 classrooms requires teachers to think differently about their curriculum and how they use curricular time. It also involves occasionally partnering with outside experts and community members. It also involves establishing a creativity supportive classroom environment that encourages students to productively work with uncertainty. The following is a brief overview of considerations for how teachers might teach for creativity (Schacter et al., 2006; Reeve, 2009; Davies et al., 2012; Beghetto, 2013, 2019; Beghetto and Kaufman, 2014; Hennessey, 2017; Sternberg, 2017), including:

- *Plan for and expect creative expression from students.* As mentioned, teachers can make openings in their lessons by replacing predetermined aspects of their lesson with opportunities to share their own unique ideas and insights. This includes establishing expectations for students to use what they are learning in creative ways as well as opportunities to identify their own problems to solve and their own ways of solving them. Doing so can be risky for both teachers and students, so it is important that teachers stress that even if ideas don’t work out, students can still learn that such setbacks are part of the creative learning process.
- *Provide students with autonomy support.* In order for students to take the risks necessary for creative expression, they need to feel supported in sharing their own perspectives, making choices, and working through the consequences of those choices. When engaged in

creative learning, students can experience a range of emotions, including negative emotions. Part of supporting students' autonomy and learning involves acknowledging and accepting such emotions (e.g., "I can understand that you are extremely frustrated and angry that this didn't work out") rather than dismissing them (e.g., "Don't be upset. This is supposed to be fun."). Supporting autonomy still occurs in a context of clear expectations and guidance to help structure the uncertainty that students encounter.

- *Provide students with opportunities to view topics from different perspectives and engage in possibility thinking.* Given that school-based creativity involves meeting goals and expectations in new and different ways, it is important that students and teachers approach learning tasks and challenges from multiple perspectives. This includes challenging assumptions, asking "What if?" to explore new possibilities, being open to different perspectives, making the familiar unfamiliar, and imagining how the way things currently are experienced or understood could be experienced or understood in new and different ways.
- *Provide students with opportunities to view creativity and academic learning as means to other ends, rather than ends in themselves.* Typically, students are asked to learn academic subject matter as a means to its own end (e.g., "We will be learning how to write a persuasive argument this week so that you can write your own persuasive argument by the end of the week"). A creativity-supportive environment provides opportunities for students to experience using academic subject matter learning and their own creative ideas as a means to some other end ("You will be presenting your project idea to the Mayor's leadership team; you therefore need to know how to write and deliver a persuasive argument"). As mentioned, an example of this would be to provide students with opportunities to identify and creatively solve complex challenges in their schools, neighborhoods, and communities. Doing so allows students to realize that they are capable of working through ill-defined challenges and even of make a lasting, creative contribution that benefits others.

Teaching with creativity refers to teaching academic subject matter in a creative fashion. Teaching with creativity focuses on how teaching can be a creative action in itself. This is not to say that teaching with creativity has no impact on students. In fact, creativity scholars have described how teaching with creativity is tightly connected with teaching for student creativity (Jeffrey and Craft, 2004). One reason why teaching with creativity can impact student creativity is because when teachers demonstrate creative thinking and behavior, they are modeling and indirectly encouraging creative thought and behavior in their students (Lilly and Bramwell-Resjskind, 2004; Kaufman and Beghetto, 2013).

Like all forms of creative teaching, teaching with creativity requires that teachers have deep knowledge of what they are teaching. Teaching with creativity therefore involves teaching specific subject matter while at the same time approaching the act of teaching with openness, flexibility, sensible risk-taking, possibility thinking, and related attributes of creative behavior. This is often easier said than done (Simonton, 2012). Not only do

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aspiring teachers have limited exposure or experience with creative teaching (see Schacter et al., 2006), they may also come to believe that creative teaching takes more time and energy than more traditional approaches (Mullen, 2017). It is thereby not surprising that research exploring creative teaching practices has indicated that teaching with creativity may be difficult to maintain over the duration of an entire lesson (Gadja et al., 2017). Also, given that there are ever-persistent accountability pressures for K–12 teachers to ensure that their students perform well on standardized exams, teachers may feel little incentive to devote time and energy to teaching in more creative ways (Baer and Garrett, 2017).

One way that K–12 teachers can navigate these pressures and constraints is to recognize that they need not always be creative when they teach (Kaufman and Beghetto, 2013). Indeed, in many cases, teaching with creativity involves designing lessons and activities that provide occasional openings in the lesson for students to share their own creative ideas and perspectives. It also includes being willing to explore and navigate unexpected moments that emerge during a lesson (Aoki, 2005; Beghetto, 2013). Doing so is not about following wild ideas down a curricular rabbit hole, but rather being willing to listen carefully to students' unique perspectives while still keeping an eye toward the learning goals of a particular lesson. Teaching with creativity can thereby be thought of as a skillful blend between knowing when and how to improvise while still working within the academic constraints of the lesson or activity (Sawyer, 2004; Beghetto and Kaufman, 2011).

In some cases, this will involve spending additional time drawing out and exploring how an unexpected idea or turn in the lesson connects to what is being learned. In other cases, it will involve postponing the exploration of an idea for a later lesson or activity. In cases where teachers postpone the exploration of student ideas, it is important that the teacher actually returns to that idea, otherwise it will be experienced by students as a form of creative suppression or what has been called **killing ideas softly** (Beghetto, 2013). Killing ideas softly refers to gently, but still effectively dismissing and suppressing unexpected and potentially creative ideas (e.g., "That's a creative way of looking at it, but we need to get back on track").

Teachers should also be aware of how students are experiencing failures and setbacks and the messages they are receiving following such setbacks. Although it is true that failure, even painful failures, are part of the creative process, it is also true that students may experience creative mortification if they do not believe improvement is possible (Beghetto, 2014; Beghetto and Dilley, 2016).

Creative mortification refers to the indefinite suspension of a creative aspiration following a negative performance outcome. This seems to occur when students feel a combination of shame and a belief that they are not able to improve (Beghetto, 2014). A student who aspires to be a singer may stop pursuing singing following an embarrassing solo performance at a school recital if they are not prepared to take creative risks and to learn how to productively work through failures, even public and painfully embarrassing failures.

Teaching with creativity thereby also includes supporting students' creative identity development by modeling creative attitudes and frankly discussing the risks and setbacks that are often involved in creative work with their students. Doing so can go a long way in helping students hear and receive honest feedback about their current abilities in light of their goals and aspirations *and* the amount of sustained effort and deliberate practice necessary to improve upon their current creative abilities. In sum, teaching with creativity can be thought of as having the subject matter knowledge and willingness necessary to teach creatively and model creativity supportive attitudes for students.

Regardless of the form that creative teaching takes, it requires that teachers believe they can be creative in their classrooms (Paek and Sumners, 2017), understand what it means to be a creative teacher (Schacter et al., 2006; Davies et al., 2012), and be willing to assume their role as a creative teacher (Gralewski and Karwowski, 2016; Beghetto, 2019).

Creativity in Learning

Having discussed different ways that teachers can be creative, we can now turn our attention to how students can engage in creative learning. As discussed, supporting creativity in schools involves recognizing that creativity and learning can be compatible and interrelated goals (e.g., Sefton-Green et al., 2011; Littleton and Mercer, 2013; Beghetto, 2016). This recognition is perhaps best captured in the concept of creative learning.

Creative learning is defined as the combination of individual and socio-cultural processes that result in new and personally meaningful understandings for oneself and others (Beghetto, 2016; Beghetto and Schuh, in press). Creative learning has two components: creativity-in-learning and learning-in-creativity. **Creativity-in-learning** focuses on the creative process involved in how individual students develop their understanding of new academic subject matter. Whenever students encounter something new in their learning, they engage in a meaning-making process that involves attempting to make sense of the new information in light of what they already know. Not all forms of individual learning are creative learning. A student who, for instance, memorizes a new concept and is able to accurately identify that concept on a multiple-choice exam, but has not developed a personally meaningful understanding of that concept has not engaged in creative learning. Rather, the student has simply memorized a new concept. Only when students are able to develop a new and personally meaningful understanding of what they have been taught, can we say that they have engaged in creative learning.

Creativity-in-learning occurs at the subjective or mini-c level of creativity (Stein, 1953; Runco, 1996; Kaufman and Beghetto, 2009). **Mini-c creativity** refers to new and meaningful ideas, insights, and interpretations (Beghetto and Kaufman, 2007). Importantly, mini-c

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creativity need not be recognized as creative by others to still be considered creative by the person experiencing it. A student's mini-c insight about the role historical analysis can play in predicting future events can still be considered an example of creativity-in-learning, even if that insight is already known by that student's teacher and peers. In this way, individual creative learning has a subjective aspect to it but this not to say that anything goes when it comes to creative learning.

Creative learning, like all classroom learning, also has an evaluative aspect to it. Specifically, students' developing understanding is often checked to ensure that it is correct or at least fits with how ideas and concepts are understood by the teacher and a broader field of study. Consequently, a student's creative insight still needs to meet the academic criteria in order for it to be considered an example of creative learning.

When students share their unique understanding with others, creativity-in-learning can move into the second phase of creative learning called learning-in-creativity (Beghetto, 2016a). **Learning-in-creativity** refers to the creative contributions that students can make to the understanding of their teachers and peers. Learning-in-creativity can happen when a student shares a creative insight, interpretation, or perspective that is recognized as contributing to the learning and understanding of others. A student who shares a creative metaphor for understanding a scientific concept can support the understanding of others. In this case, the student's creative metaphor can be thought of as making a little-c creative contribution.

Little-c creative contributions refer to new and meaningful contributions that others recognize as creative. Little-c contributions are considered to be at the everyday level of creative expression, meaning that they may be viewed as creative in the context of a classroom, even if they are not recognized as creative by experts in a domain (Kaufman and Beghetto, 2009). An 8th grade student who shares a novel and mathematically accurate way of solving a story problem in math would be an example of a little-c creative contribution. Although a professional mathematician may view the insight as somewhat ordinary, in the context of the 8th grade math classroom, it can still be recognized as creative and beneficial to the learning of others.

In this way, creative learning can be thought of as occurring at two levels: the individual and social level. Consequently, supporting creative learning in schools requires that teachers and students need opportunities and support to engage with academic subject matter in ways that promote not only their ability to accurately demonstrate their understanding but also develop a personally meaningful understanding of that subject matter. They also need opportunities to share, test out, and receive supportive feedback on their understanding. Doing so not only helps ensure that they are developing an accurate understanding but also allows students to have the opportunity to make a creative contribution to others (Beghetto, 2016a).

Creative learning can be constrained or undermined in classroom settings that place too much focus on simply reproducing expected responses in expected ways. This can happen for

a variety of reasons, even in classrooms where teachers might otherwise value creativity. When teachers feel overwhelmed by the amount of content they need to cover and the limited amount of time that they have to cover it, they may feel that spending any time on different ideas and perspectives would be too risky or disruptive (Kennedy, 2005; Beghetto, 2013).

Similarly, students who lack confidence in their ideas or do not see the value in behaving creatively may feel it is not worth the risk to share their unique perspectives and understanding with others. Indeed, valuing creativity and having a healthy sense of **creative confidence**, which refers to people's belief that they can successfully think and act in creative ways, seems to play an important role in transforming creative potential into creative achievement (Karwowski and Beghetto, 2019).

Even if students have a healthy sense of creative confidence and their teachers encourage creative expression, they may still run into roadblocks if they are not able to successfully "read the situation" and determine whether it might be beneficial to think and act creatively. Students need to know when it is beneficial to think and act creatively and when it is best to conform to expected ways of behaving. Even the most creativity supportive teacher would likely frown on a student taking creative license with safety procedures when conducting a potentially dangerous chemistry experiment.

The self and situational knowledge and awareness necessary to read a situation and determine whether creative behavior is worth the risk is called **creative metacognition** (Kaufman and Beghetto, 2013). Creative metacognition seems to play an important role in the development of creative competence as well as the development of a healthy creative identity. Consequently, teachers can play a key role in helping their students not only develop their creative confidence but also learn how and when it might be appropriate to think and act creatively in schools and classrooms.

One way of doing this is for the teacher to establish structured openings in their curriculum for students to think and act creatively. Such **creative openings**, which can be planned or emerge unexpectedly, provide students with opportunities to develop new insights, share and test out those insights, receive supportive feedback, and potentially contribute to the learning of others. These openings can occur in virtually any subject area, including topics that may be viewed as having little room for creative expression, such as mathematics (see Niu and Zhou, 2017) or in lessons that are designed to meet externally developed academic content standards (Beghetto, Kaufman, and Baer, 2015).

Opportunities for creative learning can range from small scale everyday academic lessons to learning experiences that are designed specifically to promote creative problem solving and creative expression beyond the walls of the classroom, such as design challenges and real-world problem solving projects (Hathcock and Dickerson, 2017; Renzulli, 2017; Saorín et al., 2017; Beghetto, 2018b). Whatever the scale, creative learning opportunities should occur in an otherwise supportive and structured environment so that students can receive the feedback and guidance they need to learn how to think and act creatively when it is

beneficial to do so and also recognize when it might be best to conform to existing ways of thinking and acting.

Conclusion

This chapter opened with the question of: *Do schools support or suppress creativity?* Although some people may answer this question with an unequivocal “yes” or “no,” the ideas presented in this chapter offer a more nuanced response to this question. Whether creativity is supported or suppressed in schools depends on a variety of factors, starting with whether creativity is viewed as being in competition with academic learning or whether it is viewed as being compatible.

As discussed, creativity is possible and likely in classroom settings where educators recognize and work to infuse creative opportunities within the context of academic learning. This is because school-based creativity is defined as meeting learning goals in new and different ways. Still, in order for creative expression to be supported in schools, it is important to also understand how the unique features of classroom environments can constrain creative expression both in terms of the physical and socio-psychological characteristics of classrooms.

Although it is true that students’ and teachers’ prototypical experiences in classrooms place real constraints on creative expression, it is still possible for creativity to occur in such settings in the form of creative teaching and creative learning. With respect to creative teaching, there are several ways that teachers can infuse creativity into instruction, including teaching about creativity, teaching for creativity, and teaching with creativity, or some combination thereof. Teachers, of course, need to believe that they can teach creatively, know what it means to be a creative teacher, and be willing to assume the role of a creative teacher.

When teachers approach teaching creatively, they, in turn, directly and indirectly support students’ creative learning. One reason this happens is because teachers model creative behaviors to students. Another reason this happens is because creative teachers plan for and allow openings in their curriculum to learn in new, different, and personally meaningful ways. Indeed, creative learning is all about providing students with an opportunity to engage with and understand academic subject matter in new and different ways. This involves providing students with opportunities to share and test out their unique perspectives, receive feedback on those perspectives, and make alterations to those perspectives.

When students have an opportunity to engage in creative learning in and outside of the walls of the classroom, they have opportunities to develop their creative confidence, recognize the value of creativity, and develop an awareness of when to be creative and when not to be. Creative learning is also about providing students with opportunities to contribute to the learning and lives of others. It is in these ways that schools can support creative expression for students and teachers in and beyond the walls of schools and classrooms.

My Research Contribution

Professor Ronald Beghetto is an internationally recognized expert on creative thought and action in educational settings. Dr. Beghetto's work has contributed to understanding the role uncertainty plays in creativity, learning, instruction, and innovation; the relationship between creativity and academic learning; the development of more dynamic methods for studying creative expression in and beyond educational contexts; and how making principled changes to existing teaching, learning, and leadership practices can result in more creative, productive, and sustainable innovations.

He has also contributed to creativity theory, practice, and research with the development of the Four-C model of creativity with James C. Kaufman. The Four-C model provides a way of understanding different levels of creative magnitude and how creativity can develop from personally meaningful creative insights, ideas, and experiences (mini-c creativity) can, with feedback, develop into everyday creative contributions recognized by others (little-c creativity). The model also describes how, with the development of domain specific expertise and deliberate practice, professional creative contributions can be made, which are recognized as creative and significant by experts in a field (Pro-c creativity) and how, in rare instances, legendary creative contributions can be made that stand the test of time and are recognized as having made profound and transformative impacts on fields of study, societies, and, occasionally, humanity itself (Big-C creativity).

Critical/Creative Thinking Questions

1. Having now read this chapter, how would you respond to someone who made the claim to you that schools “kill creativity”?
2. What has been your experience with creative support and creative suppression in schools? Have you ever witnessed or experienced the “killing of ideas softly” or “creative mortification”? What do you think schools could do better to support rather than suppress student and teacher creativity?
3. Recall your own experiences with current and prior teachers. Can you provide examples of whether and how your teachers approached teaching creatively? Do you feel there may be other ways that teachers can be creative in the classroom beyond the ways discussed in this chapter?
4. Can you think of some instances in your own prior learning experiences in school when you feel you engaged in creative learning and maybe even contributed

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creatively to the learning of others? What factors seemed to support your creative learning?

5. In what ways have creative confidence and creative metacognition skills influenced your own willingness to think and act creatively in schools and classrooms? What other factors do you think are important in determining whether teachers and students would be willing to take the risks necessary for creative expression in classrooms?

GLOSSARY

creative confidence: People's belief that they can successfully think and act in creative ways.

creative learning: The combination of individual and socio-cultural processes that result in new and personally meaningful understandings for oneself and others.

creative metacognition: Personal and situational knowledge necessary to read the situation and weigh the potential costs against the potential benefits before taking creative action.

creative mortification: The indefinite suspension of a creative aspiration following a negative performance outcome.

creative openings: Planned or unexpected opportunities in the curriculum for students to develop creative insights, interpretations and ideas, share and test out those insights, and potentially contribute to the learning of others.

creative teaching: A term referring to one of three forms: teaching about creativity, teaching for creativity, and teaching with creativity.

creativity-in-learning: The creative process involved in how individual students develop their understanding of new academic subject matter.

IRE pattern: A common pattern of classroom discourse that refers to teachers Initiating known-answer questions, students attempting to Respond in expected ways, and teachers Evaluating whether students match those expectations.

killing ideas softly: Gently, but still effectively, dismissing and suppressing unexpected and potentially creative ideas.

learning-in-creativity: Having students share and test out their new and meaningful understandings with those of their teachers and peers.

lesson unplanning: The process of establishing creative openings in existing curricular experiences by replacing predetermined elements with to-be-determined elements.

little-c creative contributions: New and meaningful contributions, at the everyday or classroom level, that others recognize as creative.

mini-c creativity: New and meaningful ideas, insights, and interpretations.

prototypical formula for school success: Doing what is expected and doing it how it is expected to be done.

school-based creativity: Different ways of meeting predetermined teaching and learning goals or criteria.

teaching about creativity: Developing students' creative potential into creative achievement.

teaching for creativity: Developing students' creative potential into creative achievement.

teaching with creativity: Teaching academic subject matter in a creative fashion.

REFERENCES

- Aljughaiman, A., and Mowrer-Reynolds, E. (2005). Teachers' Conceptions of Creativity and Creative Students. *Journal of Creative Behavior*, 39, 17–34.
- Amabile, T. M. (1996). *Creativity in Context: Update to the Social Psychology of Creativity*. Boulder: Westview.
- Aoki, T. T. (2004). Spinning Inspired Images. In W. F. Pinar and R. L. Irwin (Eds.), *Curriculum in a New Key: The Collected Works of Ted T. Aoki* (pp. 413–225). Mahwah: Lawrence Erlbaum Associates.
- Baer, J., and Garrett, T. (2017). Accountability, the Common Core, and Creativity. In R. A. Beghetto and J. C. Kaufman (Eds.), *Nurturing Creativity in the Classroom*, 2nd ed. (pp. 45–66). New York: Cambridge University Press.
- Beghetto, R. A. (2007). Ideational Code-Switching: Walking the Talk about Supporting Student Creativity in the Classroom. *Roeper Review*, 29, 265–270.
- (2013). *Killing Ideas Softly? The Promise and Perils of Creativity in the Classroom*. Charlotte: Information Age Publishing.
- (2014). Creative Mortification: An Initial Exploration. *Psychology of Aesthetics, Creativity, and the Arts*, 8, 266–276.
- (2016). Creative Learning: A Fresh Look. *Journal of Cognitive Education and Psychology*, 15, 6–23.
- (2017). Creativity in Teaching. In J. C. Kaufman, J. Baer, and V. P. Glăveanu (Eds.), *The Cambridge Handbook of Creativity across Different Domains* (pp. 549–564). New York: Cambridge University Press.
- (2018a). Taking Beautiful Risks in Education. *Educational Leadership*, 76, 18–24.
- (2018b). *What If? Building Students' Problem Solving Skills through Complex Challenges*. Alexandria: ASCD
- (2019). *Beautiful Risks: Having the Courage to Teach and Learn with Creativity*. Lanham: Rowman and Littlefield
- Beghetto, R. A., and Dilley, A. E. (2016). Creative Aspirations or Pipe dreams? Toward Understanding Creative Mortification in Children and Adolescents. *New Directions for Child and Adolescent Development*, 151, 85–95.
- Beghetto, R. A., and Kaufman, J. C. (2007). Toward a Broader Conception of Creativity: A Case for mini-c Creativity. *Psychology of Aesthetics, Creativity, and the Arts*, 1, 73–79.
- (2011). Teaching for Creativity with Disciplined Improvisation. In R. K. Sawyer (Ed.), *Structure and Improvisation in Creative Teaching* (94–109). Cambridge: Cambridge University Press.
- (2014) Classroom Contexts for Creativity. *High Ability Studies*, 25, 53–69.
- Beghetto, R. A., Kaufman, J. C., and Baer, J. (2015). *Teaching for Creativity in the Common Core*. New York: Teachers College Press.
- Beghetto, R. A., and Schuh, K. L. (in press). Exploring the Link between Imagination and Creativity: A Creative Learning Approach. In D. Preiss, D. Cosmelli, and Kaufman, J. C. (Eds.), *Mind Wandering and Creativity*. San Diego: Elsevier
- Clapp, E. P. (2016). *Participatory Creativity: Introducing Access and Equity to the Creative Classroom*. New York: Routledge.
- Cazden, C. B. (2001). *Classroom Discourse: The Language of Teaching and Learning*, 2nd ed. Portsmouth: Heinemann.
- Davies, D., Jindal-Snape, D., Collier, C., Digby, R., Hay, P., and Howe, A. (2012). Creative Learning Environments in Education: A Systematic Literature Review. *Thinking Skills and Creativity*, 8, 80–91.

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- Gajda, A., Beghetto, R. A., and Karwowski, M. (in press). Exploring Creative Learning in the Classroom: A Multi-Method Approach. *Thinking Skills and Creativity*, 24, 250–267.
- Gajda, A., Karwowski, M., and Beghetto, R. A. (2016). Creativity and School Achievement: A Meta-Analysis. *Journal of Educational Psychology*, 109, 269–299.
- Glăveanu, V., and Beghetto, R. A. (2016). The Difference That Makes a Creative Difference. In R. A. Beghetto and B. Sriraman (Eds.), *Creative Contradictions in Education: Cross-Disciplinary Paradoxes and Perspectives* (pp. 37–54). Switzerland: Springer
- Gralewski, J., and Karawoski, M. (2016). Are Teachers' Implicit Theories of Creativity Related to the Recognition of Their Students' Creativity? *Journal of Creative Behavior*. doi:10.1002/jocb.140.
- Hathcock, S. J., and Dickerson, D. (2017). Design-Based Challenges As a Means of Encouraging Creativity. In K. S. Taber, M. Sumida, and L. McClure. (Eds.), *Teaching Gifted Learners STEM Subjects* (pp. 198–209). New York: Routledge.
- Hennessey, B. A. (2017). Intrinsic Motivation and Creativity in the Classroom: Have We Come Full Circle? In R. A. Beghetto and J. C. Kaufman (Eds.), *Nurturing Creativity in the Classroom*, 2nd ed. (227–264). New York: Cambridge University Press.
- Ingersoll, R. M. (2003). *Who Controls Teachers' Work?: Power and Accountability in America's Schools*. Cambridge, MA: Harvard University Press.
- Jackson, P. W. (1990). *Life in Classrooms*. New York: Teachers College Press.
- Jeffrey, B., and Craft, A. (2004). Teaching Creatively and Teaching for Creativity: Distinctions and Relationships. *Educational Studies*, 30, 77–87.
- Karwowski, M., and Beghetto, R. A. (2019). Creative Behavior As Agentic Action. *Psychology of Aesthetics, Creativity, and the Arts*, 13(4), 402–415.
- Kaufman, J. C., and Beghetto, R. A. (2009). Beyond Big and Little: The Four C Model of Creativity. *Review of General Psychology*, 13, 1–12.
- (2013). In praise of Clark Kent: Creative Metacognition and the Importance of Teaching Kids When (Not) to Be Creative. *Roeper Review*, 35, 155–165.
- Kennedy, M. (2005). *Inside Teaching: How Classroom Life Undermines Reform*. Cambridge, MA: Harvard University Press.
- Lassig, C. J. (2012) Creating Creative Classrooms. *The Australian Educational Leader*, 34, 8–13.
- Lilly, F. R., and Bramwell-Rejskind, G. (2004). The Dynamics of Creative Teaching. *Journal of Creative Behavior*, 38, 102–124.
- Littleton, K., and Mercer, N. (2013). *Interthinking: Putting Talk to Work*. London: Routledge.
- Mehan, H. (1979). *Learning Lessons: Social Organization in the Classroom*. Cambridge, MA: Harvard University Press.
- Mullen, C. A. (2017). *Creativity and Education in China: Paradox and Possibilities for an Era of Accountability*. Abingdon: Taylor and Francis.
- National Center for Education Statistics (NCES). (2013). *2011–2012 Schools and Staffing Survey*, table 7. https://nces.ed.gov/surveys/sass/tables/sass1112_2013314_t1s_007.asp.
- Niu, W., and Zhou, Z. (2017). Creativity in Mathematics Teaching: A Chinese Perspective (an Update). In R. A. Beghetto and J. C. Kaufman (Eds.), *Nurturing Creativity in the Classroom*, 2nd ed. (pp. 86–107). New York: Cambridge University Press.
- Paek, S. H., and Sumners, S. E. (2017), The Indirect Effect of Teachers' Creative Mindsets on Teaching Creativity. *Journal of Creative Behavior*, doi:10.1002/jocb.180.
- Plucker, J., Beghetto, R. A., and Dow, G. (2004). Why Isn't Creativity More Important to Educational Psychologists? Potential, Pitfalls, and Future Directions in Creativity Research. *Educational Psychologist*, 39, 83–96.

- Reeve, J. (2009). Why Teachers Adopt a Controlling Motivating Style toward Students and How They Can Become More Autonomy Supportive. *Educational Psychologist*, *44*, 159–175.
- Renzulli, J. (2017). Developing Creativity across All Areas of the Curriculum. In R. A. Beghetto and J. C. Kaufman (Eds.), *Nurturing Creativity in the Classroom*, 2nd ed. (pp. 23–44). New York: Cambridge University Press.
- Root-Bernstein, R., and Root-Bernstein, M. (2017). People, Passions, Problems: The Role of Creative Exemplars in Teaching for Creativity. In R. A. Beghetto and B. Sriraman (Eds.), *Creative Contradictions in Education* (pp. 143–180). Switzerland: Springer
- Runco, M. A. (1996). Personal Creativity: Definition and Developmental Issues. *New Directions in Child Development*, *72*, 3–30.
- Runco, M. A., and Jaeger, G. J. (2012). The Standard Definition of Creativity. *Creativity Research Journal*, *24*, 92–96.
- Saorín, J. L., Melian-Díaz, D., Bonnet, A., Carrera, C. C., Meier, C., and De La Torre-Cantero, J. (2017). Makerspace Teaching-Learning Environment to Enhance Creative Competence in Engineering Students. *Thinking Skills and Creativity*, *23*, 188–198.
- Sawyer, R. K. (2004). Creative Teaching: Collaborative Discussion As Disciplined Improvisation. *Educational Researcher*, *33*, 12–20.
- Schacter, J., Thum, Y. M., and Zifkin, D. (2006). How Much Does Creative Teaching Enhance Elementary School Students' Achievement? *The Journal of Creative Behavior*, *40*, 47–72.
- Sefton-Green, J., Thomson, P., Jones, K., and Bresler, L. (Eds.). (2011). *The Routledge International Handbook of Creative Learning*. London: Routledge.
- Simonton, D. K. (2012). Teaching Creativity: Current Findings, Trends, and Controversies in the Psychology of Creativity. *Teaching of Psychology*, *39*, 217–222.
- Smaller, H. (2015). The Teacher Disempowerment Debate: Historical Reflections on “Slender Autonomy”. *Paedagogica Historica*, *51*, 136–151.
- Stein, M. I. (1953). Creativity and Culture. *The Journal of Psychology*, *36*, 311–322.
- Sternberg, R. J. (2017). Teaching for Creativity. In R. A. Beghetto and J. C. Kaufman (Eds.), *Nurturing Creativity in the Classroom*, 2nd ed. (pp. 394–414). New York: Cambridge University Press.
- Stokes, P. D. (2006). *Creativity from Constraints: The Psychology of Breakthrough*. New York: Springer Publishing Company.
- (2010). Using Constraints to Develop Creativity in the Classroom. In R. A. Beghetto and J. C. Kaufman (Eds.), *Nurturing Creativity in the Classroom* (pp. 88–112). Cambridge: Cambridge University Press.