Chapter 3
The Difference That Makes a 'Creative' Difference in Education

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Abstract The perspective of creativity as rooted in difference opens up new questions for researchers and educators concerning the sharing of perspectives and, most importantly, the role of contradiction between perspectives within the educational act. While differences of perspective between students, teachers, or students and teachers, can be considered a precondition for the emergence of new and valuable ideas or practices, this condition is necessary but not sufficient. The process of engaging with difference in a productive or creative manner includes,being aware or, recognising, and valuing different perspectives, but this process itself doesn't explain how exactly novelty emerges in classroom settings. Furthermore, not any kind of difference fosters creativity under any circumstances. What type of difference is favorable for creative action in educational settings? The present chapter addresses this question based on a series of theoretically-informed empirical examples.

3.1 Introduction

Difference is not only fundamental for the 'fruits' of creativity but it also stands at its 'root' (Glăveanu, 2015a; Glăveanu & Gillespie, 2014). Indeed, difference has long been thought of as a core feature of the creative process. The combination of different (even opposing) stimuli has served as the basis for various prominent models of creative cognition (Rothenberg, 2014; Ward & Kolomyts, 2010). Moreover, we often think of creative products as different, one way or another, from what already exists. The 'size' of this difference (often understood as degree of originality) is even taken as a key marker of creativity itself (see Runco & Charles, 1993). Although difference traditionally has been conceptualized as an attribute of creative persons and products, there is growing recognition that difference might be more

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R.A. Beghetto, B. Sriraman (eds.), *Creative Contradictions in Education*,
Creativity Theory and Action in Education 1,
DOI 10.1007/978-3-319-21924-0_3

fruitfully conceptualized as a social and cultural phenomenon (Glăveanu & Gillespie, 2014; Pelaprat & Cole, 2011). This perspective highlights how difference is not a static feature of people and objects. Rather, difference is a dynamic, situational feature of everyday social contexts and encounters, including the contexts and encounters found in schools and classrooms. The question, then, is not whether students and teachers experience difference in educational settings, but rather what type of difference is favorable for creative action in those settings? The purpose of this chapter is to explore this question. More specifically, we attempt to highlight and untangle the role that difference plays in both creativity and education. We also highlight key tensions and contradictions that can support (or inadvertently undermine) students' and teachers' ability to creatively act on the difference afforded to them in the day-to-day classroom. We close with a brief discussion of future directions for research and practice.

3.2 Varieties of Educational Difference

Difference is a ubiquitous feature of school contexts. Even highly formal and somewhat prescriptive educational settings afford students and teachers with opportunities to encounter and experience different ideas and perspectives. There is, for instance, a clear and socially instituted difference between teachers and students. Societies have established scripts and well-defined positions for teachers and students, scripts and positions that are represented in sociomaterial arrangements of the classroom. More specifically, the material arrangement of the objects of the classroom (desks, chalkboards, screens, computer projectors) establishes hierarchical relations whereby teachers are positioned as holding expert knowledge that needs to be acquired and reproduced by students.

At a more basic level, students and teachers have different personal and cultural experiences that shape their worldviews, interests, and types of knowledge. This applies as well, of course, to students and teachers taken separately. Given these individual and socio-cultural differences, no two students are ever completely alike. Different students have different interests and strengths and they are assigned different 'roles' within the dynamic of the classroom (i.e., the "know-it-all," "bully," "teacher's pet," "class clown," "scape goat," etc.). The material resources available and how they are used also influence social relations and experiences in classrooms. These differences can be observed in different classrooms between schools and regions and even in different classrooms within the same school. Two teachers in the same school, teaching the same subject area, can for instance differ substantially in how they use resources. One teacher relies entirely on a textbook and materials provided by the text book company to design and deliver lessons. The other uses a blend of internal and external resources to design lessons (e.g., the Internet, student interests, and the various sociocultural and material resources found in the local community). Last but not least, there are clear differences between education as it was performed decades ago and its profound transformation today under the

influence of information technologies and globalization processes. What is the future of education? And how are the differences we notice between what education was, is and what it could or should be and how are they used to shape current classroom practices?

Illustrated above are a few key types of difference that permeate all classroom contexts at all times: the difference between self and other, between person and material setting, and between past, present and future arrangements (Glăveanu, 2014, 2015a). The basic value of such differences (and many others) for education can be easily revealed by simple thought experiments (see also Glăveanu, 2015b). How would a classroom look without different social roles such as those of teacher and student? Without differences of knowledge and opinion between the participants involved? With the same material conditions and the same understanding and use of these materials? With no perceived difference between how things were done, are done, and will be done in the future? Collapsing differences would bring perhaps stability and uniformity, but it would certainly exclude change and creativity. It is because of experiencing difference that we are confronted with a challenge in our understanding of and action in the world, a challenge that is at the root of creative expression. To be sure, these differences don't always lead to creative outcomes. Teachers might be very much aware of the fact that their students see the world differently than they do but either ignore or reject such difference; indeed, many criticize the unidirectional movement of traditional education, whereby the knowledge and views of the teacher are transmitted to and shape student's knowledge and views (Beghetto, 2013a). Or, to take another example, noticing a difference between how education was carried out in the past and what it is today might lead some teachers and parents to lament the loss of valuable educational ideas and practices rather than contribute to their renewal. This effort to level difference out while living in a world of difference does require its own 'creativity', but this is another topic of discussion. For the moment we can conclude that difference is a *necessary but not sufficient condition* for creativity to occur. More than this, we can notice that the ways in which we notice difference (or not), we recognize and legitimize it (or not), and act upon it (or not), foster (or block) creative action within and outside the classroom. In short, difference is experienced in varied ways across various educational contexts. On one end of the continuum, we have educational settings that suppress difference and, thereby, undermine opportunities for creative thought and action. On the other end of the continuum we have educational contexts that are more supportive of acting on difference and, in turn, help foster creative thought and action.

3.3 Erasing Difference: Privileging Sameness

Although we have just asserted that difference is *always and already* present in all educational settings, we also recognize that schools have been used to systematically suppress and, in some cases, eliminate difference. The American Indian

Boarding schools of the late 1800s and early 1900s, for instance, represent some of the most extreme and tragic examples of this. As Adams (1995) has explained:

> From the policymakers' point of view, the *civilization* process required a two fold assault … [1] the school needed to strip away all outward signs of the children's identification with tribal life…[2] the children needed to be instructed in the ideas, values, and behaviors of white civilization…the boarding school was designed to systematically carry out this mission.

The explicit assimilationist aims carried out by the American Indian Boarding Schools serves as a disturbing (and recent) reminder of how an emphasis on sameness – when taken to the extreme – can manifest in cultural genocide. Although the prototypical model of schooling in the twenty-first century is not characterized by such explicitly brutal assimilationist aims, there are still features of the modern schooling experience that emphasize and privilege sameness.

Students, for instance, are typically grouped in the same classroom with same-age peers, provided with the same learning materials, and exposed to the same curricular topics at the same time, in the same place, and with the same teacher. Why might this be the case? One reason is because standardization can be appealing to designers of complex systems like comprehensive public schools. Consider, for instance, the design of public schooling during the early twentieth century in the United States. During that time, the designers of public schools were heavily influenced by the industrial-age logic of standardization (Schank, 2004). Specifically, standardization was viewed as one of the most efficient and feasible ways to manage the complexity of mass schooling. Moreover, because a primary goal of school was to prepare young people for the world of work, it was believed that minimizing differences between schools and factories would ease the transition from school to work.

The standardization of early twentieth century Schooling whereby "all students were to memorize and master the same core curriculum" was, according to Sawyer (2010), "reasonably effective" at easing the "transition from school student to factory worker" (p. 176).[1] Although modern day curriculum designers no longer view preparing students for factory work as a primary goal of education, several curricular writers continue to emphasize the virtues of sameness. "Teaching for sameness" is, for example, viewed as one way to help reduce the complexities of teaching and help learners make conceptual connections between differing tasks. Consider, for instance, the following excerpt from *What works in Schools: Translating Research into Action* by Robert Marzano[2]

[1] It is important to point out that Sawyer is not an apologist for standardization. Rather, he was simply explaining one reason why standardized practices took hold in U.S. schools. In fact, he also asserts that the standardized model of schooling is "particularly ill-suited to the education of creative professionals who can develop new knowledge and continually further their own understanding" (p. 176).

[2] Marzano is one of the United States most popular educational consultants and writer of professional development books aimed at classroom teachers and school administrators.

> In short, learning is enhanced when students are presented with tasks that are similar enough for them to ascertain their sameness (2003, p. 12).

The importance of sameness is further underscored by Douglas Carnine (cited in Marzano) who writes,

> If sameness is the psychological key for organizing curriculum, the content itself must be the lock. The mechanism that allows the lock to function is the organization of the content in ways that highlight important sameness (p. 12).

Finally, Ellis and Worthington (1994) assert that teaching for sameness is a key principle of effective teaching. Paraphrasing the work of Edward Kameenui, Ellis and Worthington assert that teaching for sameness can help:

> (a) eliminate students uncertainty about a new and relatively unknown topic, (b) assist students in making associative links in their cognitive structures, and (c) teach more in less time (p. 73).

The logic of "teaching for sameness" can be summarized as follows: If teachers structure the curriculum to make sameness salient, then students will have consistent and explicit exposure to the concepts and skills that teachers intend for them to learn; which, in turn, will help them develop the ability to identify those concepts and skills in varied examples, and ultimately allow students to transfer their school-based learning to out-of-school applications.

This logic has appeal to it. It can help allay anxiety that teachers feel when faced with the sheer enormity and uncertainty of the pedagogical task they face. It can also help structure a seemingly chaotic array of difference. Moreover, it serves as the basis for popular instructional design strategies, such as *backwards planning*.[3] These strategies encourage teachers to identify fixed outcomes and work backwards to design the steps that students need to take to attain those outcomes. The potential universe of different outcomes and different ways at arriving at those outcomes is thereby reduced into a clear and efficient path for teachers and students to follow.

The problem with such an approach is that difference is positioned as a potential inefficiency or distraction. Teachers may therefore feel compelled to design such distractions out of their lessons and dismiss them when they arise during the act of teaching. In such an arrangement, students are positioned as more or less "successful" based on how well they are able to *match* the teachers' predetermined expectations. Students who have similar sociocultural and historical experiences as their teachers are at an advantage in such an arrangement because they are more likely to be able to match what their teachers expect and how they expect it (Beghetto, 2016).

Learning and life are, of course, never that tidy, clear, or precise. There is always surplus difference (even in seemingly aligned conceptions between people). Moreover, as we have already asserted, the surplus in how people experience and understand events is rich with creative possibilities. Anyone who has ever taught

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[3] Backwards planning is an instructional strategy that is also called "backward design" and is often attributed to the work of Wiggins and McTighe (2005). Wiggins and McTighe outlined a three stage process for designing lessons (i.e., identify desired results, determine acceptable evidence, and plan learning experiences).

recognizes that even in the most tightly planned of lessons, difference always emerges. There is always a difference between the lesson-as-planned and the lesson-as-lived (Aoki, 2005; Beghetto, 2013b). Moreover, teachers who have spent time reflecting on and dwelling in those encounters with difference can recognize the generative possibilities that inhere in such moments. Consider Vivian Paley, the early childhood educator and author, who beautifully describes how her perspective changed when she reflected on such "distractions":

> In my haste to supply the children with my own bits and pieces of neatly labeled reality, the appearance of a correct answer gave me the surest feeling that I was teaching.... [I] wanted most of all to keep things moving with a minimum of distraction. It did not occur to me that the distractions might be the sounds of children thinking (Paley, 2007, p. 122).

How then might we conceptualize an educational environment that views difference as an asset? What would it mean to act on (rather than minimize) difference?

3.4 Acting on Difference: Making and Taking Perspectives

From our standpoint, creativity can be defined as *a process of recognizing, valuing and acting on difference within concrete material and socio-cultural settings*. But what are we actually acting on when working through difference? To understand this better we need to introduce another key notion for our discussion – that of perspective (Glăveanu, 2015c). Perspectives are relational in that they relate the person with something else in the world. Perspectives thus 'bridge' the difference between the one who constructs the perspective and the object, person, or phenomenon the perspective is about. Students develop perspectives regarding their teachers, colleagues, including perspectives on themselves as participants in the educational act. Equally, they have certain perspectives when it comes to the objects that surround them as well as the educational system as a whole and its evolution over time. Important to notice, these perspectives shouldn't be understood simply as ideas or mental constructions (of self, others, school, etc.) but action orientations (Gillespie, 2006). Indeed, any perspective fundamentally designates a way of relating to other things, people or situations and this relating is both grounded in and conducive for human action. Since perspectives actively construct the world for us, they also reveal our potential for acting within this world and orient us towards it in a particular way.

To take a hypothetical (but not uncommon) example, let's imagine a student's perspective of math classes as being difficult. To begin with, this perspective mediates the relation between person (student) and context (math class). This context includes other people (the math teacher, for example), certain material arrangements (i.e., tools used to solve math problems), and certain temporal orientations (i.e., 'I have never been good at math and will never be'). More than this, the perspective constrains the student's area of possibility for action, in this particular case a restriction of possibilities when it comes to mathematics. This perspective is not singular,

however, but exists within a plural universe of perspectives within which the math teacher might be 'scary', math homework 'tiring', parents' expectations 'exaggerated' and colleagues good at math 'nerds'. Most importantly, these perspectives are also in dialogue with those of others. What does the math teacher make of our student? And how does his or her perspective relate to that of the student? Is there perspective-taking involved, on both the side of student and teacher, or they do not communicate with each other, even clash? And, if they clash and exclude each other, what is the chance of reaching a creative outcome in the relationship?

Creativity and perspective-taking are deeply inter-related processes (Glăveanu, 2015d). This is so because perspective-taking allows one to take distance from one's position in the world and see both self and world through the eyes of an other (i.e., as an other person would). Of course, there is an imaginative dimension involved in this process as one can never, literarily, 'take' the perspective of an other (i.e., become an other). However, perspective-taking is not a fully fictional process either but one grounded in our social and physical experience of the world. As children, for example, we often exchange positions during play episodes becoming, recurrently, the doctor and the patient, the hider and the seeker, the thief and the policeman, etc. (Gillespie, 2012; Gillespie & Martin, 2014). This embodied exchange is not reserved to childhood however. As adults, we often experience changing roles such as speaker and listener, teacher and learner, care-giver and take-care, so on and so forth. In fact, if we get the chance to participate in creativity workshops, we might use this process through role-play or techniques such as the Six Thinking Hats (de Bono, 1987). Why is perspective-taking used to stimulate creativity? It is precisely because, when adopting the position of an other we get to see and understand more about our current situation. In this sense, perspective-taking is one key process leading to an expansion of experience (Zittoun & Cerchia, 2013), allowing us to notice alternatives, construct hypothetical scenarios, and make our actions more flexible.

In addition, the capacity to 'take' the perspective of the other is a momentous achievement in human development and is discussed at length by social and developmental scholars. For Piaget (1954), de-centration allows the child to overcome an egocentric, self-centered perspective and facilitates the development of abstract forms of intelligence. For Mead (1934), the birth of a human self and reflexivity relates to the possibility of seeing oneself as other person would. This includes being capable of taking the perspective of the 'generalized other', of society, making us sensitive to what is expected of us in a given situation. However, society is never monolithic but made up of a variety of persons, groups and, more importantly, various social positions. Bakhtin (1981) makes this point clearly in his dialogical approach to society and mind, in which a multiplicity of voices (polyphony) defines our use of language at every moment. Applying these theories to the area of education we can think about the possibility, for teachers and students alike, to take the perspective of the other. What would happen if the student afraid of math classes would try to understand the position and perspective of the math teacher? How would the class look from this perspective? What kind of new insight or understanding

might emerge, if the math teacher understood his/her class as a (frightened) student does? What kind of teaching methods and strategies would we develop from this symbolic form of position exchange? Above all, how easy or hard is it for teacher and students to take each other's perspective in order to mediate the difference between their positions?

This is a question that leads us not only to issues of ability and practice, but most of all to questions related to social relations and culture. Let's begin by reflecting on the first. The social field of relations, including in educational contexts, is not a 'flat' universe of horizontal connections and dialogues. On the contrary, just like most human contacts, the school is marked by power relations and hierarchies that make certain perspectives dominant and legitimate, while marginalizing or even excluding others. Institutionalized arrangements prioritize, for example, the perspective of teachers over that of their students. The school curriculum is, in practice, set by adults with little or no input from students. This practice speaks not only about particular inter-personal relations (student – teacher), which can vary from case to case, but also about the societal position of children as 'un-finished' persons (D'Alessio, 1990), as becoming rather than being. The general 'deficit model' of childhood (Shaw, 1996) permeates developmental and educational models within both psychology and education: one can even think here about Piaget's (1963) linear development of intelligence in which children progressively move from lower to higher levels of ability and understanding. This type of positioning doesn't value children's voice as competent or legitimate and it carries wide repercussions in education and in the public sphere. If, going back to our example, the child doesn't do well in math, what is typically listened to is the perspective or point of view of the teacher, the parents and even the school as an institutions in order to make sense of the situation. How often is it for the perspective of the child to come to the fore? What kinds of resources for creativity are being missed here due to these asymmetric relationships?

3.5 Openness to Difference

This is a good moment to recapitulate our argument so far. We started by placing difference (between self and other for example) at the root of creative expression. Such difference is a necessary but not sufficient condition for creativity to emerge. Rather it is *acting on difference* that generates novelty. But how do we act on difference? By building and putting in dialogic perspectives that bridge (or, on the contrary, widen) difference in educational settings. Perspective-taking is a process particularly useful for creative action since it can open us to new possibilities of understanding the world as other people do. However, perspective-taking as a way of bridging difference cannot be taken for granted in everyday interactions. There are not only individual differences that we might consider here but we need to be sensitive as well to the greater socio-historical context of relations between individuals, groups and communities. Asymmetries and relations of power make

certain perspectives salient while silencing others both within and outside the classroom. These mark the way we construct otherness and constrain our openness towards new perspectives which, at a minimum, disturb our feeling of certainty or violate our expectations and, at times, deeply shake our convictions and make us question our chosen path. The question, for education, is how exactly we can cultivate these processes of embracing otherness and difference that are so central for creativity.

This leads us to introducing a final notion, that of *openness to difference* (OtD). In general terms, we use this concept to designate *those situations in which differences in perspective are made salient and experienced in ways that lead to the emergence of new ideas, objects, or practices*. From the beginning it is important to note the fact that openness to difference is not entirely intra-psychological or mental property or trait. We are well familiar, for instance, with the long tradition in creativity studies of focusing on openness to experience as a possible predictor of creativity (Kaufman, 2013; McCrae, 1987). There certainly is a conceptual connection between these two 'types' of openness (as, in fact, difference defines our experience). However, and this is a crucial aspect, for us OtD is a construct that applies to a fusion between people and situations, what might be called *people-situations*, rather than people and their situations (or even situations and their people). In this sense, it includes an assemblage of persons and their relationships while placing both within socio-material and historical contexts that structure their (physical and symbolic) positions and the relations between them. At the same time, openness to difference is a dynamic construct in the sense that it is never given it advance but constructed within the situation.

Going back to the example of the classroom, we can ask whether the classroom setting itself can be defined as one marked by openness to difference and this is a legitimate question in its own right. Our interest though is more micro-genetic. We are primarily concerned with how OtD is constructed within moment-to-moment interactions between people, in this case, between participants in educational contexts. This represents a much more dynamic conceptualization of creativity-in-context (see also Beghetto, 2016; Tanggaard & Beghetto, 2015) than what creativity researchers have typically considered (e.g., focusing on more static features of creative people, places, and products). Second, by using the notion of openness to difference we want to emphasize the fact that the existence of difference itself is not enough. Indeed, as we have already noted, difference is always and already a feature of every social arrangement. People therefore need to acknowledge, value, and act on different perspectives in order to realize the emergent and creative potential of difference.

It is interesting to notice here that, within everyday contexts, we often take the views of the other into account without fully engaging with them. Alex Gillespie (2008) discussed in this regard the notion of alternative representations and pointed to the ways in which other positions and views are reflected in discourses just to be quickly dismissed (through rigid oppositions, transfer of meaning, undermining of the motive, bracketing, and so on). An authentic engagement with difference is specific for what Jovchelovitch (2007) defined as *dialogical encounters* between

people and their knowledge systems. Such encounters are characterized not only by mutual recognition but also by mutual respect. Non-dialogical encounters, on the other hand, are based on strict hierarchies that dismiss the position of the other as a way of enforcing the superiority of one's own position and view of the world.

3.6 Openness to Difference in the Classroom

What features of classroom situations might encourage (rather than suppress) openness to difference? This is an important question both for researches and practitioners. For researchers, the question requires us to consider how OtD might be observed and studied. For practitioners, the question requires us to consider how OtD might be cultivated or encouraged. In short, addressing this question will help us take a step toward understanding, classifying, and possibly nurturing OtD in different classroom arrangements. Where might we begin? One place to start is to recall that perspective plays a key role in OtD. As we discussed, OtD requires acknowledging and engaging with differing perspectives. There are many classroom situations in which differing perspectives are at play. Classroom discussions serve as a particularly promising example. In fact, classroom discussions are one of the most common instructional strategies used by teachers (Cazden, 2001). Moreover, teachers typically use classroom discussions as a means for inviting students to share and engage with different perspectives and insights.

Of course, not all classroom discussions are supportive of differing perspectives. Indeed, they can be used as a vehicle for moving participants toward adopting a more singular perspective. Even in discussions where students are invited to share their perspectives, there is always the risk that such perspectives will be dismissed in favor of more narrow or what might be called *monocular* perspectives. It therefore might be helpful to think of classroom discussions ranging along a continuum.

On one end of the continuum we might have discussions that emphasizes a *monocular* perspective and on the other end *polyocular* perspective. In the sections that follow, we will briefly define each perspective and discuss two classroom examples.[4] Prior to doing so, we want to caution against viewing monocular and polyocular perspectives as static or fixed categories. We would assert that even in seemingly rigid monocular situations, there are still polyocular features and ruptures that can (and do) emerge (cf. Beghetto, 2013a). Put another way, the potential to engage with difference is always present in any educational encounter. In predominately mon-

[4] The classroom examples that we drawn on are based on footage from actual classroom discussions (Hannah & Abate, 1995; Kamii, 2000). These examples have been used elsewhere to illustrate features of classroom interactions between teachers and students that are more or less supportive of creative expression (see Beghetto, 2013a, 2013b). In the context of the present chapter, we elaborate on the previous use of these examples to illustrate monocular and polyocular features of classroom encounters.

ocular situations, however, we would expect to see less recognition of and openness to difference.

Finally, given that OtD is a dynamic feature of *people-situations*, it is not sufficient to attempt to classify a classroom and the people who populate that situation by measuring static features of a classroom or more or less stable personality traits and dispositions of students and teachers. Rather, we would argue that it is important to consider the microgenetic or moment-to-moment features of classroom interactions. This requires acknowledging the temporal dimension of such interactions. In this conceptualization, time, is not a variable to be controlled or manipulated, but recognized as a contextual and inextricable feature of the classroom situation (Cf. Tateo & Valsiner, 2015). Indeed, classroom discussions are dynamic situations that move students and teachers into various encounters with difference. Even in the most monocular dominant situations, polyocular ruptures can (and often do) occur, but tend to collapse back into a more singular perspective. Similarly, in more polyocular situations, there are still singular perspectives put forth, however, the situational features of the encounter encourage taking differing perspectives and even changing previously held perspectives. The following sections provide further discussion and actual classroom examples to help illustrate these assertions.

3.7 Monocular Dominance

In the context of a classroom discussion, monocular dominance refers to a classroom arrangement that enforces and privileges one perspective, typically the teacher's perspective. In such an arrangement, teachers use their positional power to funnel different student perspectives into a more singular or monolithic perspective. In monocular situations, the teacher's perspective is experienced as somewhat fixed and predetermined. When differences emerge, teachers work to resolve those differences by attempting to move students' perspectives into alignment with their own perspective. The "learning" that happens in such an arrangement tends to be unidirectional (only students are the learners) and aimed at helping students align their perspectives with that of their teacher. Difference is viewed as an unnecessary surplus and thereby dismissed or discounted.

We also recognize that teachers are not the only people who might adopt a monocular perspective during classroom discussions. Students can also hold rigidly to a particular idea or perspective (e.g., "This is the way it is because my parents told me so"). Student's can also dismiss the perspective presented by the teacher by focusing on "unsanctioned" (Matusov, 2005) side-discussions with peers (e.g., having a side-discussion about the upcoming school dance, who is dating who, last weekend's football game) or by focusing on "unsanctioned" objects (e.g., texting on their phone, playing with a small toy from home, reading a comic book during the lecture).

Finally, as we have discussed, the dominance of a monocular perspective in such situations is not the result of teachers possessing a tyrannical personality trait or the

result of a fixed environmental feature of the classroom. Rather, we would assert that monocular dominance results from a *confluence* of situational and personal factors (e.g., the sociomaterial arrangement of the classroom; the inherited rules, norms and scripts of the context, the roles assumed by the participants in that situation, and so on). At this point, an example from an actual classroom dialogue may help illustrate.

3.7.1 Monocular Dominance in the Classroom: Example 1

The following excerpt is from video-footage of a sixth grade science lesson (Hannah & Abate, 1995). In this excerpt, the teacher is reviewing the definition of a hypothesis (a concept that has been previously introduced to the students) prior to engaging students in a hypothesis testing activity:

Teacher: I need someone to tell me what a hypothesis is.
Student: A what…a what?
Teacher: [stressing each syllable] A Hy – Poth – E – sis. What do you THINK that word is? We have talked about it a little bit before. Andrea, what do you think it means?
Andrea: [softly] A plant.
Teacher: A plan. That's a good guess…
Andrea: [louder] Plan-T.
Teacher: A plant!? *[look of surprise]* Ok, we'll put that up. *[writing "plant" on the chalkboard]*. I'm going to put every answer up and we'll try to see…what we've got. What else, Tim?
[After several more students share their ideas the teacher calls on a student named Rob]
Teacher: Rob what do you think?
Rob: I think it's a kind of idea.
Teacher: Ok, kind of an idea…I'm gonna stop right there 'cause Rob did come up with it…

We might classify the above interaction as monocular dominant. Although differing perspectives are explicitly invited and even written on the board (i.e., "What do *you* think this word means… I'm going to put every answer up and we'll try to see…what we've got), the purpose of these invitations does not seem to be focused on a willingness to actually encourage or explore different perspectives. Indeed, even though differing perspectives are elicited and even written on the board, the teacher and students never fully explore or return to those perspectives in an effort to understand them. Rather, the teacher seems to be using her invitations for students to share their perspective as an effort to align or collapse those perspectives into a more monocular and predetermined perspective. She signals this intention in her responses (e.g., look of surprise, "We have talked about it a little bit before"; "I'm gonna stop right there 'cause Rob did come up with it…").

We recognize that in a situation such as attempting to quickly review a previously introduced concept, a more closed pattern of interaction is not uncommon and may even be justified (cf., Cazden, 2001). Still, even in such situations, we would argue that the potential benefits from even briefly exploring differing perspectives are lost because such perspectives are viewed as leading to potential confusion (e.g.,

obscuring the clarity of the view the teacher is trying to get across). Consider, for instance, the moment in turn 6 of the above dialogue. In that moment, Andrea disrupts the monocular momentum of the interaction by "speaking out of turn" and stating that what she actually said was "*plant*" not "*plan.*" As has been discussed elsewhere (Beghetto, 2013a, 2013b), this rupture represents a micromoment opportunity. Andrea presents her teacher (and the entire class) with a subtle opportunity to engage with a different perspective. In this moment the teacher has several options, including deciding to briefly explore this perspective or dismiss it.

In the above excerpt, the teacher chooses to write Andrea's response on the chalkboard. However, because she never returns to the response, writing it on the chalkboard is actually a way of gently dismissing it. Moreover, because the teacher eventually states that Rob "did come up with" the perspective she was looking for, Andrea's perspectives (along with the other responses on the board) might be viewed as unacceptable and eventually erased (literally and figuratively) from the interaction. This pattern of interaction can establish situational norms of engagement that reposition teacher invitations for students *to share their perspectives* as actually a request for students *to align their perspectives* with that of their teacher. Consequently, any potential benefits that might come from exploring differing perspectives are likely to be lost.

What if, instead, the teacher took time to engage with Andrea's perspective? Doing so might reveal a large universe of possibilities. One possibility might be that Andrea made an association with the term photosynthesis because it sounded similar to hypothesis. Exploring such an association, even though it might initially seem "incorrect," could still yield generative possibilities and discussions. Yet another possibility might be that Andrea was attempting to share a prior learning experience she had (e.g., "Last year, I used a plant to test a hypothesis. I hypothesized that different amounts of water would…"). Unfortunately, when different perspectives are immediately (even if gently) dismissed, the possibilities for new thinking and action are lost (Beghetto, 2013a). We therefore assert that classroom discussions that encourage and explore polyocular perspectives (even in the context of a more monocular arrangements) can result in generative possibilities.

3.8 Polyocular Opportunities

We define polyocular opportunities as situations that encourage and reinforce perspective taking. In such situations, difference is encouraged and respected–even when those differences represent disagreements and breakdowns in understanding. Polyocular situations encourage people to engage with differing perspectives in a good faith effort to understand those differences. When this happens the difference can serve as a catalyst to transform one's and others' perspectives, and in turn, result in creative thought and creative action. In the context of polyocular classroom discussions, teachers are conscious of the tendency of interactions to collapse into

monocular perspectives and thereby actively work to elicit and encourage engagement with differing perspectives. An example may help illustrate.

3.8.1 Polyocular Opportunities in the Classroom: Example 2

The following example is drawn from Kamii's (2000) video footage of second graders working through a double-column addition problem. This

Teacher: *[Writes 87 + 24 on chalkboard, waits 20 seconds and then calls on a Student]* Celici?
Celici: Hundred and one.
Multiple Students: *[loudly]* Disagree! Disagree!
Teacher: Brian what did you get?
Brian: Hundred and ten.
Multiple Students: *[loudly]* Disagree! Disagree! Disagree!
Teacher: Jaycee?
Jaycee: Hundred and eleven.
Multiple students: *[loudly]* Agree! Agree! Agree!
Teacher: Okay. Who wants to try to explain how to get the answer? Alright, Jaycee?
Jaycee: I know that eighty and twenty is one hundred. And then I knew that six and four was ten. So I took the seven and four and that made eleven…hundred and eleven.
Multiple Students: Agree. That's how I did it…
Brian: I disagree with myself.
Teacher: You disagree with yourself? Which do you think it is now, Brian?
Brian: Hundred eleven.
Teacher: Okay. Celici, what about you? Do you still think it's …
Celici: Hundred and eleven.
Teacher: Okay, let's go on to another.

We would classify the above interaction as polyocular. Even though the math problem has one correct answer (i.e., 111), students actively and vigorously engage with differing perspectives and approaches and consequently are able to see and understand the problem in new ways. The teachers seems to be aware of her situational power and thereby uses her positional role to elicit and facilitate engagement with differing student perspectives (rather than impose her perspective). This results in a situation in which students share their perspectives (e.g., "Hundred and one", "Hundred and ten"), actively disagree with each other (e.g., "Disagree! Disagree!") and, most importantly, publicly disagree with themselves (e.g., "I disagree with my self"). In such an arrangement, students are encouraged to actively (and passionately) share and consider different perspectives on a particular object of interest (in this case, a double column addition problem).

When this happens, difference can serve as a catalyst for not only seeing something in a new way but can actually transform one's prior understanding ("I disagree with myself"). Of course, it might be the case that in some arrangements students may feel the pressure to simply acquiesce to a prevalent perspective (even though they do not share or understand it). This is where teachers (and peers) can play a key role in gently checking in with the students, as the teacher did in the above excerpt

("You disagree with yourself? What do you think it is now…"). Cultivating openness to difference, however, goes well beyond a set of strategies used by teachers or a particular set of dispositions held by teachers and students. We would assert that OtD is manifest in situational norms that become established through the opportunities, encounters, and effort put forth by students and teachers to take, share, and even abandon different perspectives. It is only through frequent and active engagement with difference that OtD is supported in classroom discussions amongst teachers and students.

In sum, the kind of difference that makes a difference in student learning and classroom creativity is one in which new and personally meaningful (i.e., creative) perspectives can be shared and thereby contribute to the learning and understanding of others (Beghetto, 2016). In this way, both teachers and students have opportunities to share and potentially transform their own and each other's perspectives.

3.9 What Difference Makes a 'Creative' Difference?

We now to return to the question we set for ourselves in this chapter. If difference is a necessary but not sufficient condition for creativity and not every kind of difference at any particular time is productive for creativity then we can legitimately ask what difference makes a 'creative' difference. This question is all the more importance since, if we are to agree with the relation we postulated here between creativity and difference, then we need to ask ourselves how many moments of experiencing difference are lost and end up being missed opportunities for both learning and creativity (see Beghetto, 2013a, 2016).

Unfortunately, as the illustrations we offer in this chapter come to show, this question cannot be answered in a definitive way or, rather, in a universal manner. There is no absolute set of guidelines that pre-define which differences 'work' and 'do not work' for creativity. However, having said this, there are some clear prerequisites for instituting a situation defined by us here as openness to difference:

Pre-requisite 1. To begin with, openness to difference thrives in contexts defined by *a plurality of co-existing perspectives*. Classrooms are, by definition, such contexts. It is not only that classrooms include a multitude of people, each with their own life trajectory and particular experience of diverse socio-cultural contexts, but they necessarily put their perspectives in relation to each other. This is a consequence of the multiple communication processes and forms of interaction instituted within school settings;

Pre-requisite 2. These settings need, in addition, to *cultivate sensitivity to otherness and difference*. Well intended, but misguided, efforts to "focus on commonalities among people" can impose a view of educational practice that tries to be blind to difference and collapse it into sameness or monocular dominance. The fear that difference might lead to prejudice and discrimination obscures the reality of omnipresence and its potential to be the engine of learning and creativity. True sensitivity to difference keeps the tension between self and other productive for both without creating hierarchies and power asymmetries between them;

Pre-requisite 3. The third essential condition relates to *valuing difference of perspective* as a resource for creative work (polyocular opportunities). This implies not only recognizing different, even opposite perspectives from one's own, but trying to consider the situ-

ation from their position and in their terms. Such an exercise in perspective-taking is not meant to replace one's perspective with that of an other but to stimulate reflexivity and the development of a creative meta-position from which different perspectives are placed in dialogue (Glăveanu, 2015d; de Saint-Laurent & Glăveanu, 2015).

As such, in light of the above, we can conclude that all those differences that end up being observed, legitimized and valued are, at least in potential, 'creative' differences. In order to study such differences we need a contextual and micro-genetic type of analysis (Abbey & Diriwächter, 2008; Wagoner, 2009), one that is capable of capturing dynamic phenomena grounded in ongoing communication and interaction. Tanggaard and Beghetto (2015) have, for instance, introduced an approach that might be adapted for this purpose. Specifically, they introduced a diagramed approach to trace the movement of more or less determinate ideas along a temporal horizon. In the case of OtD, the focus would be on tracing how interactions in classroom discussion move in and between more monocular and polyocular horizons of perspective. Regardless of the specific method used, such an analysis would need to take into account the structural conditions (historical and institutional) that shape everyday interactions such as those between students or between students and teachers within the classroom. The opposite of openness to difference is closeness to difference. It is equally important for such analyses to understand this type of closeness and its particular conditions and consequences. More than this, we need to observe how openness and closeness co-exist within one and the same situation depending what kind of difference we observe and whose perspective we are focusing on. This raises important and difficult ethical questions for creativity researchers and educators: what perspective am I adopting in defining and constructing situations of openness to difference? Ultimately, what kind of openness and social responsibility do we have, as researchers and teachers, when it comes to building educational contexts that can be described, not only by us but our students as well, as open to difference, otherness, and creativity?

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