Chapter 8
Dynamic Creativity: Influential Theory, Public Discourse, and Generative Possibility

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Abstract This conceptual essay introduces dynamic creativity, bridging with influential theory, public discourse, and generative possibility. The concept of dynamic creativity grows out of literature referring to dynamics of creativity—both educational and cultural. Creative rhetoric in public discourse is also taken up for its global reach and especially because it assigns internationally competitive and economic functions to creativity. Discussion moves to select influential creativity theories—Beghetto and Kaufman's 4-C Model of Creativity and Csikszentmihalyi's systems model of creativity. A creative synthesis is ventured of these theories, foregrounding their dynamic possibilities, with graphical representation. A fifth C—Hidden-c—extends the theorizing about creativity with particular reference to Corazza's theory of dynamic creativity while demonstrating dynamic creativity in a Chinese learning context. Illustrations of creativity reveal Canada and China's different ways of relating to the high-stakes testing ethos and pressure to dominate on the world stage as creative innovators. The role of adopter and shaper of creativity models informs the author's approach to this eclectic, layered work. Implications for continuing the conversation about dynamic creativity end this writing.

8.1 Introduction

How might dynamic creativity apply to influential theory, public discourse, and generative possibility? This speculative question—at the heart of this literature-informed conceptual essay—is itself a response to creativity researchers' call. To quote Beghetto (2016), "As our understanding of the phenomenon of creativity continues to grow, it is becoming more and more evident that researchers need new ways of conceptualizing, identifying and studying creativity in the midst of social practices" (p. 270). Tan (2013) also states, "The increasing interest in nurturing creativity

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around the world calls for a timely reflective analysis on knowledge of creativity and cultivating creativity" (p. 27). Adding to this dialogue, I consider dynamic creativity in relationship to influential creativity theories as well as public discourse.

To discover ways of seeing dynamic creativity that are educational and cultural in nature while identifying political overtones, I engage two highly recognized academic creativity theories: Kaufman and Beghetto (2009) 4-C Model of Creativity and Csikszentmihalyi's (1996, 1999) systems model of creativity. A fresh perspective is being attempted from the vantage point of dynamic creativity and a creative synthesis foregrounding generative possibilities. I also integrate into my theory-building the unique contribution of Corazza's (2016) theory of dynamic creativity for which my new idea of Hidden-c is being introduced.

Regarding public discourse about creativity, I wonder, how do entities outside academia take up the topic of creativity? What educational and cultural meanings of creativity does nonacademic public discourse generate, support, and circulate?

8.2 Literature Review Methods

This writing's conceptual methodology aims to identify, discuss, and conceptualize select scholarship of contemporary influence in the area of creativity. Another goal is to examine how creativity might be viewed within the public discourse sampled.

8.2.1 Identifying Creativity Scholarship as Primary Purpose

Sought in the published canon were scholars' creativity theories in psychology and education. Methodological support for theory building particularly came from Kaufman and Beghetto's (2009) and Csikszentmihalyi's (1996) creativity models. A synthesis of these frameworks is displayed, with discussion of possible overlap and interplay.

Another step involved reviewing the academic literature on creativity in high-impact journals and (hand)books spanning 1996 to 2017. Cambridge University Press and Springer are among the sponsoring publishers. Online databases searched included the full text holdings of publishers and my home university's library. ERIC from WorldCat and Education Research Complete from EBSCOhost yielded relevant articles from academic journals and pertinent books. Documents were also accessed via Google Scholar.

Discourse about creativity appeared in diverse sources: academic journals devoted to the topic of creativity (e.g., *Creativity Research Journal*), book series (e.g., Creativity Theory and Action in Education, published by Springer), and edited books (e.g., Kaufman and Sternberg 2010). Within these parameters, influential theoretical and empirical sources were located using the search term *creativity* in association with *culture*, *education*, *educational psychology*, and *theory.*

Inan earlier literature review of creativity frameworks (Mullen 2017a; current to 2016), I found that educational psychology was particularly well represented among

the academic disciplines as a prolific contributor to the creativity paradigm. Moreover, educational psychology is multidisciplinary and transdisciplinary (as opposed to insular) in both the conception and treatment of creativity. About disciplinary border crossing, Tan (2013) confirms, "There have been efforts to explore new paradigms of creativity" (p. 27). Csikszentmihalyi (1996) describes creativity itself as "crossing the boundaries of domains" (p. 9)—boundary crossing is what many creativity researchers do.

Relevant are the pedagogically-oriented research questions from my completed study (Mullen 2017a). To paraphrase, what examples of Mini-c, Little-c, Pro-C, and Big-C might Chinese students identify when prompted? What types of experiences might test-weary students have from being exposed to open-ended creativity?

I found the select creativity frameworks to be amenable to the creative development of Chinese preservice teachers (as illustrated later). Crossing the disciplinary boundary as such into teacher education is not new for educational psychologists. Border crossing has created forays into early childhood education (Craft et al. 2012a, b), cultural studies (e.g., Sternberg 2006), systems thinking/science and sociology (Csikszentmihalyi 1996, 1999), and more. Thus, *educational psychology* served as a baseline descriptor for searching databases and taking my analysis into other disciplines.

Reviewing the creativity research, I settled on four criteria arising from evidence pointing to the salience of Kaufman and Beghetto's (2009) and Csikszentmihalyi's (1996) models.

1. Communities of creativity researchers worldwide cite and describe the recognized theory, using it as point of reference for contributing to the conversation about creativity within the field (e.g., Neber and Neuhaus 2013).
2. The recognized theory advances the author's knowledge building about creativity, such as by using systems theory (e.g., Tan 2013).
3. Application to pedagogical and learning contexts extends the recognized theory's influence and value in such areas as the nurturing of creativity within classrooms subjected to high-stakes testing (Collard and Looney 2014).
4. The recognized theory is central to the ongoing debate around complexities involved in the individual creator's (creative self) relationship to, and interplay with, impactful cultural and environmental forces (e.g., Glăveanu and Tanggaard 2014).

To clarify, creativity researchers have described, analyzed, applied, or in some other way highlighted and thereby validated these select theories. Thus, I give weighted attention to Kaufman and Beghetto's and Csikszentmihalyi's creativity theories as recognized by experts.

8.2.2 Targeting Public Discourse as Secondary Purpose

Methodological follow-through pertained to how entities (e.g., governments) conceptualize creativity, and to what end and in what contexts. An a priori assumption is that powerful bodies potentially influence society, with implications for change

within academies around the study of creativity. Within the public sphere, to uncover trends with embedded perspectives on creativity, I followed the steps already outlined. Google searches used the descriptor *creativity* in association with *business*, *corporation*, *culture*, *economics*, *education*, *global*, *government*, and *international.* Reports from nonacademic entities and news stories from the global press resulted; current and informative information was selected for commentary.

8.3 Definitions of Key Terms and Concepts

Creativity, culture, and systems all constitute complex, changing domains of knowledge in academia. Numerous definitions and multiple conceptualizations exist. As conceived for this writing, each is anchored to the concept of dynamic creativity.

8.3.1 Creativity

Creativity refers to generating something new and valuable that is tangible (e.g., an invention or literary work) or intangible (e.g., an idea or theory) (Mumford 2003). It encompasses the collaborative process of arriving at creative (re)solutions to complex problems and performances, for example (Sawyer 2012). In such group situations, the "collective social product" cannot be attributed to individual contributors (Sawyer, p. 67). Original work and transformation of thoughts or things into something not preexisting is a dynamic creative process as is the recreation or reinvention of that which exists. Knowledge building can also be creative (Tan 2013), as can applying knowledge in practical pedagogic contexts (Beghetto 2006) and thoughtfully appraising knowledge (Robinson 2015). Open-ended questions invoke creativity, and complex problem identification and problem-solving enhance it. These approaches to creativity contrast with constraints in such forms as problems already posed through direct instruction and testing (Eisner 2004) and autocratic leadership and leading (Sawyer 2012).

8.3.2 Culture

Culture is the "act of developing the intellectual and moral faculties especially by education," as well as the "pattern of human knowledge, belief, and behavior that [relies on] the capacity for learning and transmitting knowledge to succeeding generations" ("Culture" 2017). Besides educational value, the arts, creativity, and other self-expressions are collectively regarded as integral to culture. Culture takes into account "the totality of a person's learned, accumulated experience" (Zimmermann 2015).

To have cultural impact, a creative idea "must be included in the cultural domain to which it belongs" (Csikszentmihalyi 1996, p. 27). Influential creative works can come from radically different cultures and worldviews (Kaufman and Beghetto 2009), supporting the claim that dynamic creativity occurs worldwide.

8.3.3 Systems

Systems thinking, a highly influential way of framing creativity, recognizes that creative processes are emergent. Sawyer (2012) attributes to Csikszentmihalyi (1988), albeit not exclusively, the development of the systems model for which analysts of creativity seek to explain the micro (creative individual's psychology) and macro (social system) interrelationship. Keller-Mathers and Murdock (1999) similarly describe Csikszentmihalyi's (1996) systems approach to creativity theory. They reason that creators must navigate a system (e.g., organization, field, domain, culture, community, etc.) and its levels and domains to succeed. Sawyer sees the navigational process as a creative collaborative phenomenon involving social groups. Expertise allows one to progress through these levels, coming to understand how to create novelty and hopefully contribute to the targeted domain of shared knowledge (Csikszentmihalyi 1988, 1996, 1999).

Viewing creativity as a system, as Csikszentmihalyi (1988, 1996, 1999) does, recognizes "interrelated forces operating at multiple levels" (Hennessey 2013, p. viii). Moreover, "an individual is regarded as a system" with psychological and other "subsystems" that have "to function well to regulate efficiently" (pp. 30–31). Evocatively, Tan (2013) also states that attempts to cultivate creativity "can assimilate strengths of [ecological and other] life systems" (p. 30).

8.3.4 Dynamic Creativity

To present a working definition of *dynamic creativity*, I borrow from key sources that resonate with my intended meanings: Corazza's (2016) notion of dynamic creativity as a phenomenon that extends well beyond "static creative achievement" (p. 261) and Glăveanu and Tanggaard's (2014) description of creative identity as always changing, making identity a protean reality and generative process. *Dynamic creativity*, then, refers to creativity that has "inconclusive outcomes" for people engaging in, and persisting with, creativity, according to Corazza who explains,

> The fundamental element that should be at the core of the definition of creativity is … the search for potential originality and effectiveness, much before any attribution of creative achievement (or inconclusiveness) has materialized. This is extremely important both to reflect the overall experiential evidence of the phenomenon … and to effectively educate new innovators in their approach to the process… (p. 261)

Dynamic's etymology comes from ancient Greek to denote power/full and able ("Dynamic" 2017). Complex, dynamic interplays among individuals, systems, and cultures stimulate change or progress within a system ("Dynamic" 2017). Conceived dynamically, creativity involves constant activity, change, or progress. Intrinsic to the dynamic process of creativity and outcomes are "subjectivity and the imagination," which can incite greater disagreement among stakeholders (e.g., experts) where original outcomes question or especially violate norms and paradigms (Corazza 2016, p. 262).

In contrast, *stasis* blocks action and progress. Connoting stasis are narrow definitions of creativity that focus on successful outcomes and productivity in the realm of creative achievement, in effect shortchanging a multitude of dynamics involved in creators' generative process (e.g., "search[ing] original ideas" and "explor[ing] multiple alternatives") (Corazza 2016, p. 261). From this perspective, complexities and unknowns are integral to the process of being actively engaged and should thus be recognized as having creative value. A richer definition of creativity incorporates the word "potential" in the standard definition: "Creativity requires potential originality and effectiveness" (Corazza, p. 262). The inclusion of this one word (potential) arguably invokes a different perspective—creativity's dynamism depends upon exploration and involves uncertainty and indetermination in the process.

Instead, complexities and unknowns of creativity are reduced to several factors and components ("Stasis" 2017). A less dichotomized, more nuanced possibility is that human dynamics can emerge from systems that themselves are stable, as in motionless yet paradoxically perpetuating tradition or the status quo ("Stasis" 2017). In fact, "Disequilibrium may spur creative processes," given a study finding that "learners (including teachers) were most likely to benefit from creative processes that addressed significant problems or … that challenged their previous conceptions" (Collard and Looney 2014, p. 350).

Dynamic creativity depends on an attitude of possibility. Craft (e.g., Craft et al. 2012a) has long described creativity as possibility thinking, driven by "what-if" formulations. She even forwarded possibility thinking as an evidence-based concept driving creativity. With everyone being capable of questioning and imagining, as children do through "self-initiated play" (Craft et al. 2012b), this is a creative breakthrough that may effect change within systems.

From the life science discipline, systems theorist Wheatley (1992) also asserts that a "what-if" mindset disrupts a "fix-it" mentality. To her, the possibility attitude is a catalyst for change and renewal of organizational systems. If possibility is conducive to change, as Ferdig and Ludema (2005) also contend, then it stands to reason that generative possibility fuels the existence of dynamic creativity.

8.4 Creativity Within Public Discourse

The context-setting question for this section is, what creativity terms or expressions are used in the public discourse of governments, corporations, and sponsored individuals and bodies (collectively conceived as *entities*)? A related query probes

dominant lenses and any patterns that may be discernible. A guiding question is how outside-in influential sources (i.e., analogously, the neighborhood) conceptualize, describe, and potentially shape the modern age and what is possible. The descriptors that follow overlap to some extent, as do the examples; for the sake of clarification, I make differentiations.

8.4.1 Modern Creativity Era

Modern creativity era or *creativity era* is implied in many contemporary sources, as in: "We've entered a new era. Call it the age of … creativity … Creativity, mental flexibility, and collaboration have displaced one-dimensional intelligence" (Hunter 2013, p. 6). Here, the words *creativity* and *era* (as well as *age*) are both used, even though *era* is not a moniker per se.

Erupting into being 6 decades ago, *modern creativity era* is popular in the public discourse (see Cropley and Cropley 2010). The year 1957 turned out to be historic for the United States, with the former Soviet Union's launching of *Sputnik*, the first artificial Earth satellite. Following this cultural jolt for American society, global competitiveness escalated, placing a premium on innovation. However, interest was uppermost in "functional creativity"—practical developments and machines (products), many designed for wartime use (Cropley and Cropley 2010).

Consequently, the value of tangible, concrete products of creativity has likely cast creativity's entanglements with innovation and invention. On the one hand, for thinkers like curriculum theorist Schwab (2004), *creativity* is interchangeable with *innovation* and *invention*: "Creativity implies some measure of invention" (p. 114). On the other hand, Hunter (2013) is among those who distinguish creativity from these other types: *Creativity* is the "capability/act of conceiving something original or unusual," *innovation* is the "implementation of something new," and *invention* is the "creation of something that has never been made before" (p. 9). An implication is that creativity has a lesser purpose and status, in effect only serving as the catalyst for innovations and inventions.

Alternatively, Tan (2013) describes something other than a creativity-innovation-invention hierarchy. Conceived as a continuum relative to its dynamic role, creativity "includes actions and interactions that lead to human development, innovations, civilizations, inventions, breakthroughs, discoveries, revolutions, and evolutions" (p. 28). Specifically, creativity can be a discovery or adaptation: "*Breakthrough* creativity" involves the "search for new ideas," whereas "*adaptive* creativity is the result of responding creatively to breakthroughs [such as] to transform them for applications in everyday life" (p. 28; italics are in the original). Further, "discovery, invention, and innovation in varying degrees are related to creativity" (p. 28).

Perhaps having inspired such conceptualizations, Bandura (1997) affirms creativity and its relationship to innovation. Heasserts that "creativity constitutes one of the highest forms of human expression," subtly differentiating it from innovation while casting it as somehow integral to creativity. To further quote, "Innovativeness largely involves restructuring and synthesizing knowledge into new ways of think-

ing and of doing things," which importantly depends on "cognitive facility [in the exploration of] novel ideas and search for new knowledge" (p. 239).

8.4.2 Knowledge Economy/Era

Yet another framing of modern civilization is *knowledge economy*. Boily et al. (2014) see this descriptor as belonging to the past: "Just as the knowledge economy shaped economic development through the second half of the 20th century, the creative economy has become a dominant force in today's world economy" (p. 12).

Nonetheless, *knowledge economy* (and the variations *knowledge-based, global economy* and *knowledge civilization age*) also describes the twenty-first century. This surpasses the descriptor *modern creativity era* but not *creative economy*, likely the more popular coinage.

Knowledge economy got its start as a descriptive term around 1980, when economic pressures demanded knowledge of creativity and innovation. As Wierzbicki and Nakamori (2006) explain, emergent understandings of the world (e.g., dynamic and chaotic) targeted qualitative explorations of "new properties of complex systems" (p. 12). Before 1980, creativity was more associated with a quantitative mindset. Compartmentalizing creativity's properties as knowable, predictable, and organized was the norm. Fallout from a positivistic worldview of creativity in the knowledge economy could driven Tan's (2013) decision to make a creative contribution by "examin[ing] the existence of creativity," not only its "presence" (p. 27).

8.4.3 Global Economy/Era

More popular than the knowledge economy/era usage is *global era*, described as a process of globalization. Historian Hunt (2014) explains that the global age expressed a new perception of the world, owing to the spread of the Internet in the 1990s. However, she points out that this view of contemporary life in and across societies is debatable. For, to some academicians, globalization has been a historical development from the beginning of time, whereas for others it resulted from European discoveries and conquests. The debate over *globalization* hints at complexity.

Globally important, creativity is typically seen as a catalyst for innovation and invention. Nations fixate on economic prosperity, assuming that "innovation is a key driver of productivity" (Boily et al. 2014, p. 1). However, dynamics of cultural tolerance in service of creative productivity and ultimately global competitiveness are rarely acknowledged, except in passing, as in: "Cultural diversity is an important driver of the creative economy [that] contributes to our national competitiveness…. Canada is … a culturally diverse, prosperous society [of] newcomers from over 200 countries (Conference Board of Canada 2008, p. 2).

Three national priorities for countries around the globe—competitiveness, creativity, and tolerance—may appear unrelated or contradictory. Sources favor one of these perspectives to arrive at a dynamic understanding of creativity. For example, linking creative and innovative production only to global competitiveness, Canadian reports claim a national crisis over being "in the bottom quartile for innovation" … and behind "competitors in innovation and productivity" (Boily et al. 2014, p. 1). Despite 30 years of "public polic[ies] and incentive programs," Canada's productivity growth is 20% less than the United States' (Boily et al. p. 1).

Yet competitiveness, creativity, and tolerance are interrelated dynamics of creativity. One way of unpacking tolerance is to think of Canada's increasing capacity for global competitiveness as having occurred *despite* its tolerance of cultural diversity. Another way of considering this notion is to think of the spike in education competitiveness, leading to its newly bestowed title of "education superpower," as largely *owing to Canada's capacity for tolerance.* Canada has the ability to turn tolerance into socioeconomic capital, without draining resources.

To explain, some of Canada's international test-takers were migrant teenagers, many from the Asia Pacific (BBC 2017). Yet it was reported that these migrant children "seem to integrate rapidly enough to perform at the same high level as their classmates" (pp. 1–2). Accountability officials and education professors alike have asserted that "Canada's 'big uniting theme is equity,'" and despite provincial policy differences, "there is a common commitment to an equal chance in school" (p. 2). The "narrow socio-economic gap in school results" (p. 2) means that Canada "does not have a tail of underachievement, often related to poverty" (p. 3). High immigration levels are integral to Canada's "success story" (p. 3).

In the global economy/era, it may not be enough to aim for tolerance, given that cultural diversity can be tolerated or actively accepted (Jacobs 2006). Understanding that crucial differences exist among tolerance, acceptance, and active acceptance could influence how nations and schools approach creativity. Moreover, might creativity be imagined as an axis, such as tolerant–globally uncompetitive (Canada's former global status), tolerant–globally competitive (Canada's current global status), and intolerant–globally competitive (some other countries)?

An attitude of receptivity enables Canada to shine as a diversity powerhouse alongside Asian and Nordic populations on the high-stakes international tests (BBC 2017). While Canadian journalist sources and, importantly, some political leaders document these changes, many Canadian officials and sponsored entities (such as Boily et al. 2014) overlook the crucial role of cultural tolerance in creativity for aiding global competitiveness and national prosperity.

8.4.4 Creative Economy

Creative economy is probably the most widespread usage. Corporations and governments across nations increasingly favor creative economy, as inferred from sources consulted (World Economic Forum 2013). Regarding the word choice of

economy instead of *era* to describe contemporary life on this planet, a movement may be afoot to use the creativity descriptor to politicize and commodify the economy, given that *creativity* is paired with *economy* in the public discourse. Creativity—tied to labor markets and creative industries (e.g., arts)—conjures a picture of creativity's role (and burden?) of ensuring world economies' vigor, wealth, and value (Boily et al. 2014; Ibbitson 2014; Johnson 2010).

Beyond diversity, another major creativity trend is urbanization. Creative productivity apparently increases when residents live among other creative city dwellers in places where creativity and innovation flourish; in fact, bustling cities are three times as creative as towns (Johnson 2010). Diversity and urbanization work hand-in-glove considering that greater cultural diversity occurs with access to multicultural capital.

Canada has long broadcast that the creative economy is a "dominant force in today's world economy" (Boily et al. 2014, p. 1). Its historic breakthrough in international testing in 2017 (BBC 2017) was preceded by the priority placed on economic success. Creativity was widely identified as the means to this end: "Addressing creativity in Canada will require a shift in culture," and "the creativity challenge requires appropriate incubation and tolerant and flexible environments" (p. 12). Asserted in this Canadian report is that "creative minds" must be "incubate[d]" so they "can thrive," with the demand for new jobs.

Canada's "greatest resource" is "its people" is a refrain in many sources (e.g., Boily et al. 2014). A strategy called for was the rewriting of innovation policies and "high-impact federal initiatives that could work to unite business leaders, academics and artists in building a more competitive and creative Canada" (Boily et al., p. 1). Concerned with economic prosperity, policymakers apparently "lookbeyond traditional economic metrics to include the importance of the development of people's creative potential" (Boily et al., p. 2). Acknowledged is the intangible type of creativity whereby citizens collaborate on new ideas leading to the design of creative products, albeit to ensure national economic prosperity.

Consider the creative dynamics involved in Canada's world standing. In a state of flux, just 3 years after much self-blaming as a tolerant–globally uncompetitive nation, in 2017 its global education status dramatically changed. Canada "climbed into the top tier of international rankings" on the Programme for International Student Assessment tests, "one of a handful of countries to appear in the top 10 for math, science, and reading" (BBC 2017). Racial tolerance remains a quintessential aspect of Canada's national identity, having long been its strong suit: "No country brings in as many immigrants…. In Canada, [each of the] national parties claims to be more pro-immigrant than the other[s]" (Ibbitson 2014).

Sexual tolerance has also made its mark in a nation where multiculturalism is the ultimate claim of creative achievement: "Our tolerance goes beyond race. Not only was Canada among the first countries to legalize gay marriage, Ontario [has] elected Canada's first lesbian minister" (Ibbitson 2014). Canadian sources reveal some honesty about the historic struggle with cultural diversity around Canada's tragic human rights abuses of its Indigenous community and other ethnic groups (Saul 2008).

Thus, hardship is entailed in becoming culturally tolerant and accepting. In current times, Canada accepts droves of migrants and refugees appearing at its borders despite backlash from Canadian anti-immigrationists whose intolerance is being largely attributed to U.S. President Trump's depictions of "outsiders as a frightening threat" (Ball 2016). Beyond Canada's overall diversity mindset, the positive economic impact of immigrants on economic growth helps explain the receptivity to outsiders (Ibbitson 2014).

Turning a problem into a solution, Canada is constantly re-creating itself. Creative products arising out of its culturally diverse identity include less tangible creativity through "restorative" (rather than "punitive") justice. This was "inspired by First Nations practices … used in Canadian justice systems now for over forty years" (Johnston and Jenkins 2017, pp. 1–2). For example, "innovative expression in memorials [honors] a growing Indigenous assertion of identity, spirituality, activism, and loss" (pp. 1–2). Besides these memorials, tangible creative production extends to the "new sustainable communities" that "address critical housing inadequacies … based on legacy Intuit knowledge of changing climate and respect for the unique traditions of community" (pp. 1–2). The making and remaking of cultural creative identity in Canada vividly illustrates dynamic creativity on a historic and modern day scale (Glăveanu and Tanggaard 2014).

In the creativity era, a question worth posing is, have we truly shifted from the knowledge-based era to embrace more fully creativity? Within many globally competitive cultures (e.g., China and the United States), teachers and learners reportedly suffer from testing circumstances and stifling pedagogies. High-stakes accountability cultures neglect opportunities to exercise the imagination and creative capacity (Mullen 2017a, b). Imitation and literal comprehension, competencies valued in the nineteenth-century, cannot advance global education (World Economic Forum 2013). As Zhao (2014) attests, even the best schools are not usually working with the global competencies of creativity and entrepreneurship. Global-ready graduates should be able to creatively generate meaning, problem-solve, actively reflect, produce collaboratively, and work collectively.

8.5 Select Creativity Theories in Psychology

Here I address influential academic theories that inform dynamic perspectives on creativity. The literature and Internet searches revealed a frequency of citations to Kaufman and Beghetto's (2009) 4-C creativity model and Csikszentmihalyi's (1996, 1999) systems creativity model. Moreover, peer scholars describe these Western theories, solidifying their value and influence. The select models have even guided study of creative pedagogies in international educational settings (e.g., Mullen 2017a, b, 2018).

8.5.1 Four C Model

The 4-C model (Beghetto and Kaufman 2007; Kaufman and Beghetto 2009) has four forms/levels/types of creativity: "Mini-c" is novel and personally meaningful experiences, "Little-c" is everyday problem-solving in work and life, "Pro-C" is a category belonging to creative professionals (not famous), and "Big-C" is creativity of great magnitude reserved for famous works. Creative are personal meaning-making, problem-solving, professional value, and cultural innovation.

8.5.1.1 Mini-c

Mini-c feeds professional creativity and other types that would not otherwise come into being. As Eisner (2004) describes, meaning-making is itself an aesthetic process, neglected because it is elusive and challenging. Creative beings do not just *have* experiences—we make meaning of them. Communicating our discoveries, we enliven Mini-c's capacities by attributing meaning to our experiences of events and dynamics (Eisner 1991). We creatively render these these using images, schemas, and more. Artists have long "convey[ed] their visions in new technologies such as cinema [and] virtual realities," writes Gardner (2011, p. 65), endorsing creativity in the form of digital self-expression.

8.5.1.2 Little-c

Humans constantly encounter problems to be solved or resolved. Many simply react to problems rather than anticipating them, which arguably takes a greater creative capacity. We creatively use physical or digital objects and tools without much thought about our own artistry. In everyday problem-solving, creativity has endless possibilities—even the word *problem* is multifaceted. When we puzzle over something, we are trying to solve a problem. And when we make inferences and decisions and arrive at a solution or judgment, we might very well be creatively problem-solving. A creative person might ask, What does *problem* mean in this context? What is the nature of this problem that I am *anticipating*? (Schwab 2004)

8.5.1.3 Pro-C

Pro-C professional creativity recognizes highly accomplished creativity. Kaufman and Beghetto (2009) added it to their 2007 model, reintroducing it in 2009 as the Four Cs of Creativity. Such distinguished contributions move a discipline in a new direction or even completely change it. Pro-C contributions vary widely, from replication or improvement of pre-existing products to "reiniation," where "[creators try] to move the field to a new (as-yet-unreached) starting point and then progress from there" (p. 6).

Likely, leading creative professionals who study unsystematic, difficult problems beat others to them, not sticking with problems already evident in the field or domain. Schwab's (2004) takes is that complex problems demand "anticipatory consideration." The "eye" of pro-C individuals, he states, is illuminated "by possible fresh solutions to problems, new modes of attack, and new recognitions of degrees of freedom for change [to occur]"; they don't miss the "novel features of new problems" (pp. 114–115). Attraction to novelty and originality as meaning makers and problem solvers can lead to recognized creative breakthroughs. Creative risk-takers, Pro-C creators use, disrupt, and remake structures of knowledge, what Csikszentmihalyi (1996) refers to as the rules and procedures (symbolic knowledge) of a field or domain.

8.5.1.4 Big-c

Big-C's famous works of human creative achievement transform societies, even the world. Dewey (1934) believes that when artwork becomes Big-C by "attain[ing] classic status, it somehow becomes isolated from the human conditions under which it was brought into being and from the human consequences it engenders in actual life-experience" (p. 3). Everyday conditions and influences (e.g., activities) that imaginatively inform aspects of life should count as part of the cultural treasury. Such story lines are intrinsic to the aesthetics of art-making and the art of making things.

Creativity researchers building on the 4-C creativity model acknowledge that while "extraordinary accomplishments" (in science, art, technology, etc.) are eminent, Big-C's breakthroughs come from "myriads of Little-c creativity accomplishments" (Stoeger 2003, p. 3). "Numerous creative learning decisions" are involved as we set goals, deal with obstacles, and become more efficient with learning (p. 3).

8.5.2 Csikszentmihalyi's Systems Theory

Csikszentmihalyi (1996) illustrates his creativity framework using science, specifically astrology, to depict conditions and influences for creative discovery as well as breakthrough. Pertinent across disciplines, his theory demystifies falsehoods associated with creators and their lifeworld. The take on creativity conveys "interaction among domain, field, and person" (p. 29) as the source of creativity, not just an individual.

This position contradicts the assumption that creativity occurs "inside people's heads," as "some sort of mental activity" belonging to "special people" (Csikszentmihalyi 1996, p. 23). Instead, creativity is "a systematic rather than an individual performance" (p. 23), meaning that while someone may stake a claim in a creative act, there is no way to judge it without reference to standards and a social process of evaluation belonging to a domain (academic or professional livelihood).

A creative idea does not change a domain or field in social isolation; to manifest, others must understand it, "it must pass muster with the experts," and "it must be included in the cultural domain to which it belongs" (Csikszentmihalyi 1996, p. 27). Creativity, "observed only in the interrelations of a system" (p. 27), is a systems model situating the creator within a dynamic ethos of field and domain.

8.5.2.1 Systems Model of Creativity

Csikszentmihalyi's (1996) systems model of creativity encompasses three levels:

1. *Domain* (macro) "consists of a set of symbolic rules and procedures" that are "nested in … culture, or the symbolic knowledge shared by a particular society, or by humanity."
2. *Field* (next level of macro) includes "gatekeepers to the domain [whose] job is to decide whether a new idea or product should be included in the domain."
3. *Person* (micro) "has a new idea or sees a new pattern" that "use[s] the symbols of a given domain" (e.g., engineering), and "this novelty is selected … for inclusion." (pp. 27–28)

(For graphical depictions of Csikszentmihalyi's systems model, see Kahl and Hansen 2015.)

8.5.2.2 Systems Model Illustrations

From interviews with 91 exceptional contributors of knowledge to their domain, Csikszentmihalyi (1996) validates his suppositions. The vignette of an astronomer enlivens his creativity interaction model; her Pro-C discovery was that a galaxy's stars do not always rotate in the same direction. While she had shown herself to be creative, domain experts would have to decide whether to corroborate her accomplishment. Validation did result. Her work was funded and discovery published, and her finding was admitted into astronomy's canon. At the macro level, a complicated, long-term interaction would have transpired, allowing the creator's work to become known and possibly have impact.

Of course, within a knowledge domain, external factors can significantly affect an outcome. Hurdles range from an organization's cultural dynamics, a nation's politics, a domain's prohibitive structures, and an individual's circumstances. For example, a domain may not appreciate a creator's discovery or see it as such. Yet, despite barriers, a known creation may still result.

8.5.2.3 Select Theories' Generative Possibilities

Kaufman and Beghetto (2009) recognize the value of Csikszentmihalyi's (1996) systems creativity model. They confirm their predecessor's idea of creativity as an interaction among person, domain, and field, concurring that creativity's synergies extend well beyond a person's idea or work. Regardless, they assert the importance of "person" as creativity's primary source.

For Csikszentmihalyi (1996), because the creator is de-emphasized, shaping forces (i.e., field and domain) that impact one's creative capacities come to the fore—hypothetically, all of the synergies that influence success are exposed. Hence, the creative person is but one of multiple energetic forces at play within a complex web. However, the literature suggests that the creative person is at the center of creative processes, with minimal attention on context. For Kaufman and Beghetto, like Csikszentmihalyi, creator and environment interactively influence creative processes and outcomes. Differing it seems is the perspective as to which force predominantly influences the creative sphere—creator (Kaufman and Beghetto) or milieu (Csikszentmihalyi), with the ever-present influence of context flagged within these creativity paradigms.

While these models are not polar opposites, as Fig. 8.1 may suggest, their emphasis differs regarding human creativity and influences from the milieu. Thus, evident in Kaufman and Beghetto's (2009) explanation, external forces are still highly influential within this worldview. However, due credit is given to the seeds of generativity (i.e., Mini-c and Little-c) for formulating ideas, making gains, and experiencing breakthroughs. In my own theory-building, the two psychology frames intersect not in perfect harmony but more as complementary perspectives on creativity, which I have extended with the notion of an overlap. A new type of creativity ("Hidden-c") is discussed later.

However, societies have a bias toward "eminent creativity" (Kaufman and Beghetto 2009, p. 1), favoring cultural icons. This lopsided view may help to explain why "the quality of creative products in schools" do not attract much attention and lack "clear reference standards" and why creativity goes without a common definition in education policy and curricula (Collard and Looney 2014, pp. 3, 351).

Worth noting, efforts to raise awareness of creativity that are *not* about Big-C famous works but rather everyday life also has a history (see Dewey 1934). Of continuing deep interest, then, is the near invisible, barely detectable Mini-c and Little-c creative processes (Beghetto 2006).

8.6 Systems Theory and Life Systems

An ecological take on creativity is that all sectors of society (e.g., schools) are life systems subject to change and growth. Adaptation to changing demographics and global trends is paramount if these are to thrive, innovate, and lead (Wheatley 2017). Creative thinking, critical thinking, and problem solving are capacities for success

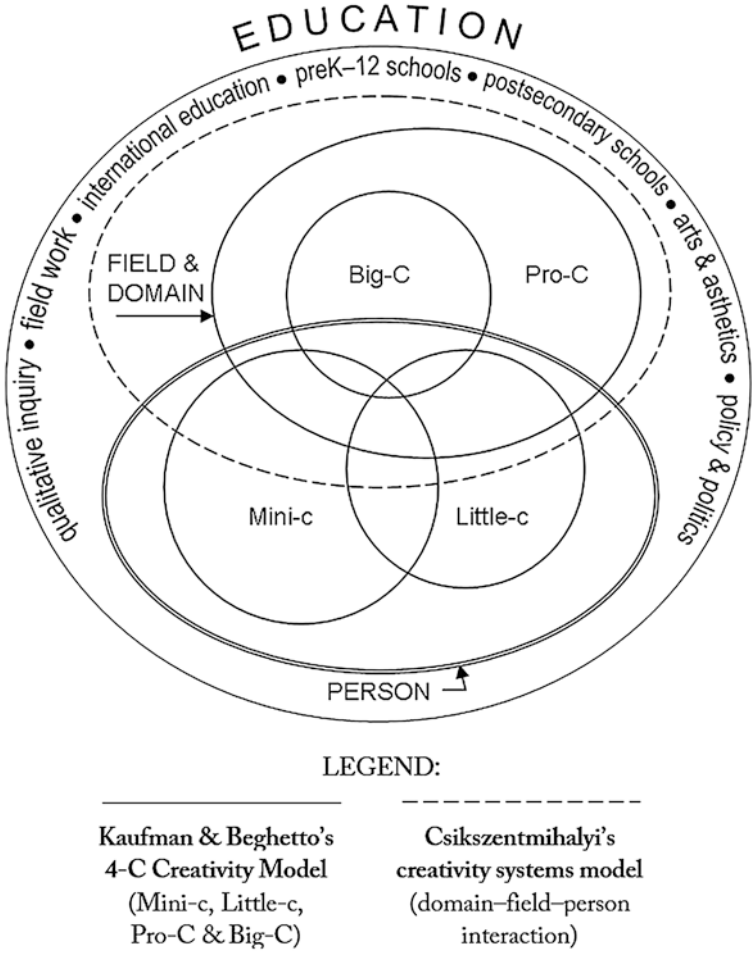

Fig. 8.1 A synthesis of select models of creativity for education. (Mullen 2017a)

in innovative, globalized economies (Heyl 2014). Rigid dispositions, customary patterns, and the status quo do not serve innovation and adaptation (Bandura 1997), yet the struggle to survive is not without politics. "Survival of the fittest" is how Li and Gerstl-Pepin (2014) describe the rhetoric of economic innovation and revitalization dispossessed of creative vision.

In the creative economy, transforming nations and their subsystems (e.g., institutions) seek to provoke a level of instability, not stabilize equilibrium. Such creative behavior disrupts the existing state of affairs, allowing for new and complex learning (Wheatley 1992). Being innovative and creative as a growing, adapting system necessitates "self-organizing interaction" (Stacey 1992) and a "transformative interactive" among peers (Ferdig and Ludema 2005). This kind of work and relationship crosses organizational, disciplinary, and other borders. Team members creatively

cross boundaries as they interact and combine elements from different contexts to generate the new and unfamiliar (Akkerman and Bakker 2011; Mullen 2017a).

In changing work environments, creativity is a condition of innovation and a crucial component of organizational excellence. In such life systems, transformation is not readily subjected to one person's vision (Stacey 1992). Any powerful entity is not the sole proprietor of creative vision. Perhaps this is why Akkerman and Bakker (2011) identify innovation in teamwork and creativity of organizational collaborators as influencers of expert performance and organizational excellence. Importantly, in disequilibrium, the collective (e.g., activist communities) and influential sectors of society (e.g., tech-savvy youth) enact vision that may conjure exciting (or dangerous) possibilities for creativity.

Alive with possibility, living systems interact with their environment through the flow of ideas, energies, and data. Living systems—cells, organisms, groups, organizations, and societies—survive by forming, adapting, sustaining, and, importantly, even reinventing themselves in relation to systems (Wheatley 1992). Like other living things, the system (e.g., organization) has a personality, values, and structures, in addition to interactive patterns and internal practices (Brown and Moffett 1999). People's micro movements (re)create systems; as such, every exchange and action might help with conceiving or executing creative processes.

Beyond dialogue and action, renewal of a system depends on an attitude of possibility. Wheatley (1992) agrees that a spirit of possibility supports change (Ferdig and Ludema 2005). Human-centric conceptualizations can generate momentum for inquiry and change, no matter how uncertain. Life itself is dynamic, unlike an organizational chart's static representation of life systems (Wheatley and Kellner-Rogers 1996). To Wheatley (1992), life forces are fluctuations; like those in the universe, these are the "primary source of creativity" creating disturbances and imbalances (p. 20): "Every organization is an identity in motion, moving through the world, trying to make a difference" (Wheatley and Kellner-Rogers, p. 58). Viewing the world as a living organism (rather than a machine) is a lesson taken from Wheatley's (2017) new life science model—systems as organisms are unstable, unpredictable, uncertain, and yet identifiable. Dynamic creativity feeds off such dynamics.

Systems flourish when regenerated and reinvented (Brown and Moffett 1999). Within such institutions, structures, practices, programs, and policies are attuned culturally and globally. With systems aging, vitality, flexibility, and fluidity diminish, as does "capacity" for "meet[ing] challenges from unexpected directions" (Gardner 1963, p. 3). Holding onto worn-out ways of thinking and behaving may be preferred. But, as Heyl (2014) explains, "a world of distributed learning" confronts "the short shelf life of knowledge" (p. 254).

In a dynamically creative world, power hierarchies give way to new patterns of interaction, collaboration, interdisciplinary, and cross-cultural work. A driving question is how best to revitalize aging, outdated organizations to meet 21st century demands of increasing diversity in school populations. Mature civilizations and their sectors and organizations retool in fundamental ways, such as through diverse strategic alliances. Growth is thriving, functions are team supported, and vibrancy is perceptible.

8.6.1 Culture Frame

Creativity within high-stakes testing cultures is a challenge to foster within stymied life systems (Zhao 2014). Creative expression and innovative in such schooling contexts, spanning the West and the East, is a struggle to cultivate. A pedagogic problem is "teachers' desire to avoid discouraging learners' self-expression" by giving "little guidance" to learners "on how they might improve or deepen their work." Consequently, "Neither teachers nor learners are encouraged to develop their own sense of what counts as high-quality creative work" (Collard and Looney 2014, p. 351).

Within China's testing milieu, teachers are expected to help students achieve high scores on tests and unquestioning respect of authority (Lee and Pang 2011). Low scores on entrance exams limit future possibilities for Chinese citizens, with severe consequences being poor quality of life and even suicide (Zhao 2014). China's competitive mindset dominates, undermining such collectivist strengths as its strong sense of social belonging (Staats 2011).

Paradoxically, while China's labor markets control education systems and hinder creativity (Staats 2011), China is recognized as accrediting the collective with being creative (Sternberg 2006). The collectivist tradition should make it amenable to collaborative expressions of creativity and cooperative groupings, but another constraint is that classes are typically large and teacher centered (Starr 2010).

In mainstream China, it is difficult to teach a twenty first-century curriculum that advances global competencies. Classroom pedagogies must align with rote-based testing goals even though the World Economic Forum (2013) identifies creativity and entrepreneurship as proficiencies needed for global literacy. However, generative possibilities exist within this test-centric environment where Chinese students—presumed to lack creativity (Li and Gerstl-Pepin 2014)—have opportunities to experience interventions of creativity. In one such case, 34 Chinese education undergraduates produced dynamic cultural frames of creativity in response to Kaufman and Beghetto's (2009) 4-C creativity model (Mullen 2017a). Cooperative work groups and a collectivist orientation supported the creative learning (see next section).

Chinese students' reduced creativity likely reflects not their human capacity but their culture, environment, or teacher pedagogy. In Niu and Sternberg's (2001) study, evaluators rated the creativity of Chinese and American college students, finding the American artwork more creative and aesthetic. Negative influences in China are the learning environment's task constraints and teacher absence of directives to be creative. Similarly, Niu et al. (2007) attributed performance-based differences between college students in the United States and Hong Kong to cultural influences. (Americans proved stronger in creative thinking on creative writing and problem-solving tasks involving insight.) Being challenged by such studies is the stereotype that Asians are not creative based on perceived genetics, characteristics, talents, abilities, or motivations.

Prevailing, though, is the unfortunate stereotype that Chinese learners are uncreative, even robotized. China's government believes its citizens lack creativity and are incapable of flexible and divergent thinking, critical thinking, and higher order thinking. The global news and even published research perpetuate this deficit Asian stereotype, which could interfere with creative behavior and expression. In China, students take their directions from teachers whose signals are from authorities, all carriers of the regime. Given its millions of followers, Confucianism has likely reinforced allegiance to the nation's government. Chinese students have had to become very good at tested subjects, sacrificing development in open-ended problem-solving. However, despite the generalization that this population is creativity-poor and math-smart, creative expression and innovation do exist in not only China's entrepreneurial sector but also its educational sector (Woetzel and Towson 2013).

8.6.2 Introducing Hidden-c

Interacting with select creativity models from educational psychology requires invoking my adapter and shaper role. In this creative capacity, I identify a fifth C—Hidden-c—as aligning well with conceptions of dynamic creativity (Corazza 2016) and as a complement to Kaufman and Beghetto's (2009) 4-C creativity model. Using theory-informed application to ground Hidden-c, I approach it as a generative possibility for which theoretical perspectives and Chinese learning contexts serve as touchstones.

Hidden-c refers to creative self-beliefs and behaviors that trigger the personal power of creativity and capacity for engaging in dynamic creativity. Moreover, making a dynamic creative achievement by shifting and changing over time and overcoming challenges encountered quite possibly mobilizes the capacity for influencing and being influenced by environments. Putting personal creativity center stage as a creator or instructor is strategic (i.e., Hidden-c), for it emphasizes the capability of human beings to engage actively in the exploratory experience of originality and effectiveness, perhaps even altering conditions and situations that affect generative work.

To further contextualize Hidden-c in the literature upon which I am drawing, when creative potential is realized, it manifests as creative *achievement* (Corazza 2016) in one of the 4Cs, typically Little-c's sphere of problem-solving or above. (However, a case could also be made for achieving within Mini-c's meaning-making domain.) Conversely, when the potential for creativity is not fulfilled (for internal or external reasons), then one remains in a state of what Corazza describes as creative *inconclusiveness*, that is, the Hidden-c condition. In this view, educating for creativity becomes an effort aimed at promoting higher and higher levels of potential for originality and effectiveness, as well as the conditions that transform Hidden-c into some form of creative achievement (Ronald Beghetto and Giovanni Emanuele Corazza, personal communication, February 18, 2018).

Importantly, for decades, educators have asserted that teacher beliefs (such as all students are naturally creative) are more powerful than teacher knowledge. Xu (2012) confirms that "teachers are highly influenced by their beliefs, which in turn are closely linked to their values, to their views of the world, and to their understanding of their place within it" (p. 1397). Based on Xu's review of the literature, we know that teacher belief affects how educators define problems, make decisions, and even act. Because creative self-beliefs form at a young age, these tend to stay the same, she contends. However, they *can* change when individuals are exposed to enriching opportunities for expressing creative behaviors, a conception that deserves to be fully developed and extensively tested.

Quite possibly, before human beings can creatively and dynamically generate meaning, problem-seek, and problem-solve—let alone contribute to professions and even to the world—they must believe in their potential for creativity. Self-belief, also creative self-belief, is rooted in the long-established concept of *creative self-efficacy*, defined most directly as the "perceived confidence to creatively perform a particular task" (Beghetto and Karwowski 2017, p. 3). Creative self-belief can be explained as that which is "triggered when a person encounters a performance situation, … result[ing] in a self-judgment about one's confidence to creatively perform an impending task at a particular level (e.g., 'I am confident that I can creatively solve three of these five problems'") (Beghetto and Karwowski, p. 7). These creativity researchers also classify creative self-efficacy as one main type of creative self-belief. (For a description of creative self-beliefs relative to definitions, dimensions, and measurement ideas, see Table 1.1 in Beghetto and Karwowski 2017.)

Beyond theorizing, consider an empirical validation of the hypothesis that self-belief is fundamental to creative processes and probably the very capacity to be creative. Beghetto's (2006) US-based survey study of 1322 middle and secondary students' judgements of their creative abilities advances the fundamental premise that "Although creative ability is necessary for creative expression, it is not sufficient. Creative expression, like other forms of behavior, seems to be influenced by self-judgments of one's ability to generate novel and useful outcomes" (p. 447). A possible interpretation of *self-judgment* as Beghetto refers to it, or Hidden-c from my perspective, is that it is both a catalyst for all creative endeavor—and thus a form/level/type of creativity unto itself—and a shaping force that underlines the 4Cs. At all levels of creativity and across types, creators who persist with the doubts, uncertainties, and unknowns typical of long-term, complicated creative processes may learn something valuable from the failed attempt(s) or potentially discover an original outcome. A Pro-C or even Big-C creative achievement signals success, but educative insight comes from first-hand knowledge of the dynamics behind it.

Given this framework and study finding of creative self-belief, perhaps mysteriously, then, the Chinese preservice sophomores I taught did prove to be creative (Mullen 2017a, 2018). Despite feeling long suppressed (and overly regulated by test-centric curricula) to the point of believing they were uncreative, they rose to the occasion. And, despite not having worked previously as peer collaborators in their classrooms, all were on task and productive. Within cooperative groups in a Chinese university's ministry-set general curriculum exclusive of the liberal arts, students

read and interpreted the basic 4C classification (Kaufman and Beghetto 2009). In teams and alone, they produced writing and graphics signifying Mini-c and the other three categories of creativity, in addition to unifying images of their homeland for which they felt proud (e.g., Confucius, to them a beloved teacher–philosopher).

These undergraduates also creatively and collaboratively performed their achievements on our classroom's stage, complete with a microphone and their self-made 4C props, and later for another live audience. In direct response to Niu and Sternberg's (2001) and Niu et al.'s (2007) findings, task constraints within the Chinese learning environment were removed in favor of a creative work space and directives to be creative. These were explicitly articulated in the course title Creativity and Accountability in Education and the syllabus, in addition to instructions accompanying all exercises, as well as in the English–Mandarin communication, both spoken and written.

In this Chinese course the generation of creative products suggested personal and professional growth by way of dynamic Mini-c and Little-c collective immersion. These were individual (e.g., personal essays of creativity) and joint productions of original products (e.g., 3D paper posters representing each of the 4Cs) that had engaged students' (inter)subjectivities and imaginations. As noted earlier, Corazza (2016) has identified these processes as intrinsically dynamic. Negotiating conceptions and representations, cooperative groups moved from the intrapersonal (Mini-c and Little-c) to the professional/cultural (Pro-C), to the societal/global (Big-C), articulating possibilities for Pro-C and Big-C creativity.

Paradoxically, with the pervasive message that Chinese people are uncreative, half of the students' essays on personal creativity expressed the belief of *not* being creative (Mullen 2017a, 2018). Some of these Chinese participants could not recall ever having had a creative experience, or if they had, an adult or other external force had disrupted it. Brainstorming beyond their personal essays, teams generated drawings, captions, and integrative images of the 4Cs (e.g., butterfly, compass, birthplaces). Poster designs—3D folded renderings of books, clothing, filmstrips, and more—were fresh, novel creations connoting practical value. Self-reported was 4C curiosity, task engagement, and peer enjoyment, all outcomes associated with creativity (Kaufman and Beghetto 2009). Students strongly preferred the group projects, without acknowledging the self-reflective groundwork in creativity originating with their individual essays. Evidencing high creativity, the dynamic teams had no avenue available for imitating or replicating the 4C model, such as by consulting the Internet or student samples.

This course's rapid pace and brevity further suggested some level of self-confidence or perhaps shared confidence. Like the marginalized learners (e.g., girls, English language learners) in Beghetto's (2006) study, being at a disadvantage can challenge one's beliefs about the capacity for creativity. Because feedback from peers and teachers about one's ability influences creative self-efficacy, when positive or encouraging this can boost the most vulnerable student and his or her learning. Influential authority figures and peers factor into the creative learning process and experience, as do perceptions. Contextual dynamics (e.g., teacher acceptance) can bring about feelings of belonging (Beghetto 2006), which in the Chinese class-

room was evidenced as a feeling of communal bonding and friendship arising out of a safe space for taking creative risks and expressing oneself.

Csikszentmihalyi's (1996) model focuses on "domain" and "field," serving as reminders that influential forces, visible and invisible alike, constantly exert influence. Within classrooms, the teacher is a gatekeeping force. On the scale of a field or profession, gatekeeping by expert peers who evaluate the quality of products (e.g., manuscripts) is a deciding factor in what counts as a creative contribution to a discipline or profession. Such real-life dynamics can affect anyone's creative self-efficacy, motivation, doubt, and even desire to persist.

Situations in which creativity is blocked do not necessarily negate being creative and in fact can strengthen one's resolve and thus capacity to be creative (Beghetto 2006).

Some creators do persist with creative challenges, even changing their circumstances while courageously modeling what is possible for others. While creative people whose socialization or circumstances may inhibit the development of positive creative self-beliefs, contradictorily they may find they can engage in creative tasks and performances where these are energized and modeled or imposed and scaffolded (Mullen 2017a, 2018).

From this perspective, creative self-belief and learning is both a paradox and possibility in restrictive learning environments. This outcome emerged from a pedagogical intervention enabling study of a Chinese preservice teacher classroom where Hidden-c surfaced as a creative force in students' learning performances. Learners were immersed in a novel situation—their classroom was organized into a work studio with roundtables inside a theater and their curriculum was steeped in a collectivist orientation, organized around project-based learning within cooperative groups (Mullen 2018). However, it was not known at the time if the experiential conditions and new activities intended to foster creativity would in fact stimulate creative thinking and yield creative products, as well as overall success.

8.7 Takeaways, Implications, and Possibilities

Future directions for theory, research, and practice emerge from this layered treatment of several ideas of creativity. The main concept considered was dynamic creativity, with creative self-belief (extended to Hidden-c) touched upon, and with discussion of public discourse about creativity. Also included were Canadian and Chinese examples of creative and cultural learning.

8.7.1 Dynamic Creativity in Hindsight

Dynamic creativity—the central construct herein—was introduced as a new concept of creativity and it was illustrated with examples. This key sense-making device allowed for the exploration of select influential theory, public discourse, and generative possibility. A speculation was that dynamic creativity involves generative possibility on many different levels, from adaptive and flexible learning to the changing self-beliefs of individuals and nations.

Hopefully, something new has been conveyed about complex, dynamic interplays of creativity among individuals, systems, and cultures. Certain understandings underlying this writing are that creativity can be operationalized in experiential terms through "creative activity and creative products" and that creativity "will always depend upon the judgment process" and "who the judges are" (Corazza 2016, p. 259). Vital to this picture are attitudes of possibility in expressing and manifesting creativity, as the various life systems' examples and cases Suggest.

8.7.2 Hidden-c's Creative Potential

Also presented was the emergent idea of Hidden-c, with grounding in the creativity theories of Kaufman and Beghetto (2009), Csikszentmihalyi (1996), and Corazza (2016). While perhaps an extension of the 4Cs theory, the generative possibility of Hidden-c was more a demonstration of dynamic creativity along the lines of Corazza's thinking. The life systems interpretation of Csikszentmihalyi's (1996) creativity framework also served to advance dynamic possibilities for thinking about different kinds of systems in which creative learning is essential for adaptation and growth. Notably, the creative synthesis of Kaufman and Beghetto and Csikszentmihalyi's models may provide creative openings for readers to rethink, rework, re-create, or even apply the idea.

What does hidden-c suggest? Based on viewpoints ventured, Hidden-c may be in service of creative thought and action for which the belief in oneself as a creative being is a generative force. Dewey (1934) teaches that the human condition through which creativity manifests must not be lost—everyday creativity born out of circumstance and conflict should be part of any cultural story. For Dewey (1934) and Eisner (2004), creativity is the soul of the human condition. Schools, if transformed, enable creative teaching and learning in the development of creative societies for which Kaufman and Beghetto, Csikszentmihalyi, and Corazza's theories can be utilized.

8.7.3 Creative Self-Belief Emergence

While not focused on teacher and learner beliefs, this writing has implications for study of this area. As noted, a finding of breakthrough studies is that Chinese students' reduced creativity likely reflects their culture, environment, or context rather than any natural ability to be creative (e.g., Niu and Sternberg 2001; Niu et al. 2007). Significant interferences with the creative process from youth can socialize preservice teachers and other adults to think they have a creativity deficiency. Consider the scale of this problem for students intending to become teachers who will in turn influence the young. Not only is this self-belief a serious hindrance for the preservice teacher but also for societies struggling to adapt and excel in the creativity economy.

Theory building about dynamic creativity could enrich the self-belief construct with study of how nations understand their capacity to be creative and reflective. Entire nations as living systems possess dynamic creativity, including generative regimes. Considered was creative self-belief relative to Canada's tolerance of migrants and refugees. While Canada persists with new challenges of multiculturalism and embrace in a changing world of human migration patterns, it seeks notoriety on competitive international testing. These endeavors may be culturally contested goals and dynamics, in effect subjecting school-aged immigrants to a mindset of belonging contingent on attaining top scores in the tested areas.

Imagine such ideas becoming powerful in the hands of the worldwide community of creativity scholars capable of addressing creative self-belief on the scale of nations and their influence on personal, professional, and eminent creativity. In effect, new insights into creativity could emerge on an entirely new level that, specific to Hidden-c, affect people's belief in their capacity to creatively contribute and accomplish as part of something larger than themselves.

8.7.4 Public Discourse About Creativity

Follow-up could also inform the issue of creativity within the nonacademic public realm. Not taken up to the extent one might expect in the creativity literature, this quasi-visible, prevailing force likely profoundly influences creative work, but how? The discourse around creativity's role in ensuring socioeconomic prosperity, breakthrough innovations and inventions, and competitive international rankings probably has many linkages to what influential gatekeepers (e.g., funders and sponsors) deem professional ("Pro-C") and especially eminent ("Big-C") creative contributions. How do such external forces affect creators' work?

Creative economy is a prevalent way of seeing and quite possibly structuring and rewarding creativity. Yet the importance of this reality does not seem to be a topic in the literature. Additional scrutiny also concerns powerful and influential entities' goals, values, interests, affiliations, and impact on societal and educational systems,

including academies around the world. I would be remiss not to mention that affirmations of creativity exist in some world leaders' discourse around such topics as active acceptance of cultural difference being valued over mere tolerance. Another idea is to compare discourse about creativity within the public realm and academic community. Such analysis could uncover areas of similarity and dissimilarity, quite possibly critical or provocative in nature, and even offer a roadmap for the professoriate.

8.7.5 Canadian and Chinese Creativity Cases

Another takeaway is that creativity is *not* limited to a particular application. A universal application, creativity, like good teaching, is integral to all learners. Seed ideas for creative learning, growth, and transformation were contained in the Canadian and Chinese cases, each with different ways of relating to the world's high-stakes testing ethos and opportunities for creative innovation. In fact, the richness of these illustrations—Canada a story of a nation's vibrant cultural identity undergoing creative change and China a story of collective strengths evidenced in grassroots creativity—is about the larger narrative of dynamic creativity. Dynamic creativity makes possibility palpable and breathes life into education.

8.8 A Final Word

Readers may choose to adapt any of these ideas to help inform their own theories, studies, and pedagogies. My hope is that this introduction to dynamic creativity, with application to influential theory, public discourse, and generative possibility, offers something of interest. Hidden-c's creative potential may be worth developing and mining in new contexts to advance dynamic creativity.

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