

Adaptation and creativity in cultural context

Leonora M. Cohen¹
Oregon State University, USA

Adaptation is the fit between the individual and the environment. The dynamic interplay between person, culture, and environment is one of the most important issues in analyzing creativity. Adaptation is defined as the fit or adjustment of the individual to external conditions, but adaptation can also mean moving from one environment to another more suitable, or even forcing the environment to adapt in response to creative efforts. Culture impacts creativity in limiting acceptable boundaries, yet providing the artifacts used in creating. Culture is impacted and changed by creative efforts. Tight conformity to confining environments or cultures can stifle. The creator must be aware of cultural values and not overstep these boundaries for work to be accepted. A developmental continuum of adaptive, creative behaviors suggests a shift from individual adaptation to the environment to adaptation by the world to the individual.

Key words: Creativity, adaptation, cultural context.

Adaptación y creatividad en el contexto cultural

La adaptación es la integración entre el individuo y su entorno. El interjuego dinámico entre la persona, la cultura y el entorno es uno de los temas más importantes en el análisis de la creatividad. La adaptación es definida como la integración o el ajuste del individuo a las condiciones externas, pero adaptación también puede significar moverse de un entorno hacia otro más adecuado o, incluso, forzar el entorno para adaptarse en respuesta a los esfuerzos creativos. La cultura impacta la creatividad al limitar las fronteras aceptadas, brindando los artefactos usados en la creación. La cultura es impactada y cambiada por los esfuerzos creativos. La conformidad ajustada a los límites de los entornos o de las culturas puede resultar asfixiante. El creador debe estar alerta a los valores culturales y no sobrepasar estas barreras para que su trabajo sea aceptado. Un desarrollo continuo de conductas adaptativas y creativas sugiere un desplazamiento de la adaptación individual hacia el entorno, hacia la adaptación del mundo para con el individuo. Palabras clave: creatividad, adaptación, contexto cultural.

¹ Associate professor in the College of Education at Oregon State University. She has worked in the field of gifted education for 45 years, as teacher, parent, initiator and coordinator of the Mentally Gifted Program for Philadelphia Public Schools. A university professor and researcher, has published over 80 books, chapters, and articles in the field. Her research focuses on conceptual and theoretical issues, creativity, children's interest development, thinking and metacognition, coping strategies, teaching gifted children, and the context of schooling. Contact: College of Education, Waldo Hall 473, Oregon State University, Corvallis, OR 97331, USA; cohenl@oregonstate.edu

Depending on the situation, adaptation can hinder or support creativity. In some cases, adaptation means tightly conforming to a confining environment that stifles creativity. In others, it means creatively adjusting to subtle nuances of a changing environment or moving out of one context into another better suited to one's abilities or preferences. Adaptation also occurs when individuals change the environment in response to their needs or efforts. In most cases, creative adaptation involves most or all of these mutually shaping influences between person and context.

The dynamic interplay between person and environment is one of the most important issues in analyses of creativity. Compared to creative processes, persons, or products, relatively little research has been done on the social and environmental context of creativity (Csikszentmihalyi, 1988; Harrington, 1990, 1999; Kasov, 1999; Purser & Montouri, 1999; Simonton, 1988). This paper explores the role of cultural context; definitions of adaptation, creativity, and problem solving; and creativity and adaptation. It proposes a developmental continuum of creative behaviors in which there is a shift from individual adaptation to the environment to adaptation by the world to the individual. This developmental continuum accounts for creativity in both young children and eminent adults.

Cultural context

Culture, the combination of tradition, values, customs, rules, behaviors, and beliefs, as well as the political, economic, and technological forces that impact a given group in a particular time and place, must be taken into account in adaptation and creativity. The question is who does the adapting. On one hand, some definitions related to creativity

and adaptation focus on conforming to an environmental situation. Individuals who do not *fit* into prevailing values and mores are considered weird or even dangerous. Rudowicz (2003) noted that Eastern or traditional cultures would consider products or ideas that counter values and child rearing practices of a given culture as unacceptable or dangerous. Creators must be aware of cultural values and not overstep the boundaries. However, when adaptation is viewed as modifying or transforming the environment, particularly when the created products or ideas are valued by a culture, the creator is considered the epitome of human development and health.

Definitions of Adaptation

The term *adaptation* is derived from the Latin, meaning *to fit*. The dictionary definitions are “the act of adjusting to environmental conditions” or “the modification of an organism or its parts that makes it more fit for existence under its environmental conditions”. Runco (1999) noted that adaptation rests on personal reactions, perhaps influenced by social relationships and socioeconomic influences, as well as dealing with tension, challenge and adversity in life. While one person may see a problem or gap, another does not; or one person may be stressed and overwhelmed by adversity, another may find that same set of events challenging and exciting. Schoon (2006) found that the particularities of the time period and historical context further shape adaptiveness and creativity.

There are three distinct shades of meaning for adaptation. The most common is adaptation as fitting in—conformity, agreement, compliance, or yielding to environment or situation. Essentially, this is modification of self to fit environment. For example, a new employee quickly adapts by talking about sports or pop music to fit in. In this view of adaptation, individuals who do not conform to prevailing values, mores, and practices of a given culture or context often are considered maladaptive outsiders or even lunatics. Early definitions of creativity

focused on pathology, portraying creators as neurotic or mentally ill, partly because they were unable or unwilling to adapt to the styles and customs of the times, helping to explain *crazy artist* or *mad scientist* stereotypes. But groundbreaking, paradigm-shifting creators do not make their impact by conforming to the prevailing belief systems of their eras. On a smaller scale, a young person who does not conform to the prevailing fashions worn at school or hang out with the *in* students is often ostracized. This failure to adapt may not be a sign of mental instability. The student who bucks the system when faced with another boring work sheet may be demonstrating a healthy sense of self.

A second definition of adaptation emphasizes the role of experience in successful orientation to an environment or situation. Adapting to the heat and humidity by resting in the afternoon in a tropical country is an example. It may involve rapid reading of an environment and selection of responses that provide the greatest benefit to the individual. For example, a politician who sizes up a crowd and delivers a speech tailored to that audience could be considered contextually creative because she successfully uses experience to adapt to a given situation. Experience also can help individuals select environments best suited to their full development or reject a detrimental environment. Examples include moving to an aesthetically invigorating setting, enrolling in a school that offers a program of deep interest, or leaving a job when it becomes toxic. Such experience-based selection of an environment might prevent situations where individuals do not feel they belong. It also may prevent high-potential people from feeling inferior and developing a poor sense of self based on an environmental mismatch.

A third definition of adaptation suggests something different; that is, the individual acts on the environment to modify, change, translate, or transform it. For example, some creative employees make work environments more fulfilling and challenging by initiating innovative and interesting projects in otherwise barren, stifling offices. On a larger scale, some highly creative people modify their environments by developing profound ideas or products that affect many people over time. For example, Thomas Edison's inventions and Albert Einstein's

theories made high-impact, long-lasting transformations that continue to influence the present.

In considering the dynamics of creative adaptation, the issue is directionality. Eminent adults must adapt to their cultures and environments, but they also encourage the world in which they function to adapt to their ideas and products. In contrast, children and adult novices concentrate on adapting to their environments, and exert little influence on those contexts. Both of these forms of adaptation involve creative thought and action, but what is creativity?

Definitions of Creativity

The most common definition of creativity involves the production of something appropriate yet new or rare that is valued and accepted in the world (Cohen, in press). However, this definition applies only to creativity in eminent adults because children are unlikely to produce something truly new or valued, other than by families or peers. Hence, this definition is not helpful to classroom creativity, nor does it apply to mundane or personal creativity, *creativity in the small, little c creativity* or, as Beghetto and Kaufman (2007) suggested, *mini-c creativity*, the less than earth-shaking variety of creative products or ideas made by children and adults such as making an unusual meal, lovely garden, or delightful finger painting.

Creativity involves a paradox: An original, novel idea or product *and* its acceptability, appropriateness, and usefulness to a given group or society. Creative adaptiveness is the ability to adjust flexibly to conditions or environments in developing new ideas or products while adhering to what is approved or permitted in a given cultural context. Rudowicz (2006) noted this requires commitment to the socio-cultural system, not exceeding boundaries to be too foreign or perceived as dangerous, often involving modification or improvements, rather than new inventions.

J. P. Guilford's (1967) conception of divergent thinking is probably the second most common definition of creativity. Divergent thinking involves production of ideas from given information, with an emphasis on variety and quantity of output involving fluency, flexibility, originality, and elaboration. *How many uses can you think of for a cup?* is a typical classroom problem based on this definition. It appears to apply to both childhood and adulthood, but does not likely span the gap between children's creativity and mature, eminent creativity and it relates more to problem solving.

Definitions of adaptation are influenced by differences between problem solving and creativity. Both creativity and problem solving share a common starting point—incongruity in a problem. Both also require knowledge, motivation, repetition, and discovery of unique combinations as well as involving phases or stages in the process. But problem solving and mature creativity are different in duration and effect, both externally and internally. Problem solving is generally a short-term process while creativity at higher levels is life-long. Creativity at high levels focuses on a larger unit of analysis, more on a totality rather than a specific answer, and usually involves a greater impact on the world. In problem solving, problems are typically externally set, with the focus on resolution. By contrast, mature creativity involves problem finding, wherein both problems and innovative solutions are generated internally and intrinsically, although there certainly are both external stimuli and parameters.

Mature creativity involves a discontinuity with what was before, while problem solutions can be explained by more continuous, straightforward processes. For example, solving the problem of how to get kids to use more toothpaste might involve researching children's flavor preferences and making cherry-flavored toothpaste. Creativity, on the other hand, involves a shift in context, which allows the creator to see the world in a new way. In this process, the connections between the new and the old perspectives on the situation are not directly discernible. For example, in coming to understand the inner world of individuals, Freud created new perspectives with his concepts of id, ego, and superego.

These new concepts produced a discontinuity with the knowledge that had prevailed previously in the field. Such discontinuities are consistent with Gruber's (1989) conclusion that mature creativity involves the construction of a point of view while problem solving does not. Gruber came to this conclusion during his analyses of the works of highly creative individuals, Charles Darwin and Jean Piaget.

Mature creativity, then, involves both external transformation of a field and internal transformation of self. Adaptation is evident in both aspects. External transformation involves sensitivity to a context as well as awareness of the limitations of a field and the desire to work hard to transform it. This is primarily adaptation by external transformation, although there are certainly internal aspects, such as the zeal to put forth effort. Internal transformation involves sensitivity to one's self and the openness and willingness to modify one's present ways of thinking in order to construct a unique point of view. Thus, mature creators adapt in both ways, modifying the environment to fit their schemes and theories and modifying themselves to be able to accommodate to the environment. This is not a meek or passive attempt to fit in. Rather, according to Gruber (1989), it involves the active construction of a way of looking at the world. It is not always conscious, but it is dynamic and effortful. In both external and internal transformation, adapting means being tolerant of uncertainty or ambiguity outside and in, being willing to not have answers, to be wrong, to try alternatives.

A continuum of adaptive creative behaviors

Linkages are needed to connect childhood creative adaptation to the type of creativity seen in eminent adults and to explain the more mundane creativity found in the everyday lives of adults. I suggest that one way to build these bridges is to think of creativity as a range of adaptive behaviors along a continuum of seven developmental levels. This continuum can help explain the processes and progress of creativity itself (Cohen, 1989; in press).

The common element in the continuum: Discontinuity

Common to all levels on this continuum is the notion of a discontinuity between what was before and the new. It is a *jump in logical types* from the particular to the general, resulting in a new context. Piaget (Cohen, 2006) defined this leap as *reflective abstraction*, a process of reflecting on and putting events or thoughts into relationship, which leads to new understandings not inherent in these thoughts or events. In this continuum of adaptive, creative behaviors, the variables hinge on six aspects related to context, person, process, and product, as described in Table 1.

Table 1

Variables in the Continuum of Adaptive Creative Behaviors

<i>Aspect</i>	<i>Variable</i>	<i>Description</i>
Context/ Person	Adaptation	Initially, creativity involves adaptation of the individual to the world. At the highest levels, it involves adaptation of the world to the individual. This shift occurs between Levels 4 and 5.
Process/ Person	Purpose	The creator's purpose shifts from mastery to extension, and finally to transformation.
Process	Speed	Creativity is rapid in early levels, involves more time in each increasing level, and involves living a creative life at the highest levels in which one's major focus is on creating, requiring many years of effort.
Process	Structure	Initially, the mental structures are very incomplete and creativity involves construction of these structures. At the opposite end, the structures are very well-developed, and the individual sees gaps, lags, and conflicts—limits to the present level of understanding. Early levels of creativity involve simple structures, a single domain or scheme. Later creativity involves major structural reorganization and transformation. The goal is to push out the edges and to transform the structures, constructing a point of view.

Product	Novelty	In the first level, creative products or ideas are new to the individual. They become rare compared to age-peers, offer new combinations of others' ideas, and finally, are considered new and transformational to the world at the two highest levels.
Product	Value	The creative product is of value initially to the self, then to others and, finally, to the world.

The seven levels of the continuum of creative behaviors

At one end of the continuum is *Level One, Learning Something New: Universal Novelty*. This type of creativity occurs in infants, children, and adults as they deal with newness in their world. At the opposite end of the continuum is *Level Seven, Creating by Transforming a Field*, found only in a few individuals. In between are levels that connect the universal creativity of childhood to eminent creativity.

Level 1: Learning Something New/Universal Novelty: Individuals construct relationships new to themselves, but not new to the world; also mundane, mini, or little c creativity. All new learners of a field make the same constructions. Examples: Conserving number, learning to push off the ice when skating the first time.

Level 2: Making Connections Rare Compared to Peers: Individuals develop products, ideas, or approaches that are unusual compared to peers but are not new to the world. Examples: A four-year-old focuses on a pile of broken glass. *Look*, she says, *here is a city with all the buildings and busy people. And see this piece? This is a lonely child*, envisioning an onion to conceptualize layers in Bronfenbrenner's ecological theory.

Level 3: Developing Talents: Individuals connect to and develop skills in one or more domains, moving through a series of stages in which abilities are honed, accumulated knowledge of a field is learned, and craftsmanship developed, usually requiring expert teachers. Individuals experience compulsion to work hard in the area of interest, setting a variety of challenges to themselves. When heredity and environment

inextricably combine, a child's products or abilities may approach adult levels in prodigious development. Examples: Becoming good at athletics, art, mathematics, writing, or fixing cars; playing violin with the NY Philharmonic at age 10.

Level 4: Developing Heuristics: Through instruction, individuals develop strategic ways of thinking in the domain; use creative problem solving, critical thinking, and metacognition; and identify and cultivate preferred ways of working and habits of mind. This level probably develops simultaneously with Level 3, Developing Talents. Examples: Being strategic in solving math problems; focusing on aesthetics to develop awareness of beauty, harmony, and patterns.

Level 5: Producing Information: Individuals discover and investigate their own real problems or burning questions related to areas of interest and developing knowledge, producing new information that is valued by self and others, although the scope is limited to an arena *close to home*. The individual's views begin to be imposed on the world. Adaptation starts to shift from making self fit the world to changing the world a little by one's ideas and efforts. Example: A fourth grader tracks daily growth in a litter of puppies over eight weeks, publishing her research in a children's magazine; an elderly citizen rallies a community to help the homeless.

Level Six, Creating by Extending a Field: Having mastered a domain to be aware of gaps, problems, or pressing issues, creators add a new dimension or valuable information to that field, thereby extending that domain of endeavor. They construct a partial point of view. Examples: developing a new technique for surgery; writing an award-winning dissertation.

Level Seven, Creating by Transforming a Field: Individuals, labeled geniuses or renaissance persons by society, revolutionize a field or create new ones. At this level, the field, and possibly even the world, adapts to the creator by passing on the transformation to new learners, contributing to a paradigm shift. Both individuals' internal knowledge structures and the field are transformed, a unique point of view is constructed, and the product is highly valued. Examples: Piaget's

equilibration theory; Roberto Burle Marx's contributions to tropical landscape design.

What most people consider creativity—production of something new or very rare to the world that is of value—is reserved for Levels Six and Seven on the Continuum. This is mature creativity because it involves well-developed, extensive, and intricate knowledge systems representing mastery of a field that typically requires ten years of effortful study and practice to reach such levels (Csikszentmihalyi, 1999). In addition, this type of creativity involves the regular solving of problems, not a one-time occurrence (Gruber, 1989). Ethics become very important at these levels. Creative products such as nuclear power or genetic engineering may be valuable when they are produced, but their long-term effects are unpredictable and potentially disastrous. Those with the most creative potential carry the greatest moral responsibility for the ultimate effects of their creative thought (Ambrose & Cross, 2009; Sternberg, 2007).

In this continuum, a shift in adaptation occurs between Levels Four and Five. Prior to this point, the individual has been adapting to the world. In Level Five, the world begins to adapt a bit to the individual. To make such a shift usually requires facilitation from knowledgeable and supportive adults, as well as the building of a knowledge and experience base. School and work settings that encourage autonomy, freshness of vision, and originality; the development of talents and multiple strategies for thinking; as well as purposeful, self-set effort help individuals make the shift and can lead to mature levels of creativity.

Conclusions and issues

Creative adaptation involves highly complex dynamics that depend on a wide range of situational and cultural constraints. It involves both short and long-term thought, action, and development. It brings forth transformations within the individual as well as modifications, or even paradigm shifts in the environmental context. It also involves a wide range of cognitive, emotional, and motivational elements. In short,

virtually all human faculties are called into play during creative adaptation to environmental problems and opportunities. Ultimately, adaptation is one of the most important issues of relevance to the development of creativity.

Successful creative adaptation involves a number of paradoxes. Creators need to destroy existing structures while maintaining safety and harmony within the environmental and cultural context. They must make major transformations to their own cognitive structures while remaining resilient in the face of the inevitable attacks that accompany creative work. They must perceive pressing and immediate problems and opportunities in the environment while staying focused on a long-term sense of purpose. This requires creative balancing of self in the environment, reading the cultural and contextual requirements and demonstrating adaptiveness as well as developing original ideas. If one merely adapts to the will and the world of others, it is unlikely that highly creative products can result. If on the other hand, the distance between the world and the individual's created product or performance is too great, "pearls may be cast before swine" and the world will not recognize the breakthroughs. Opposing prevailing paradigms or cultural norms is always difficult if not dangerous. Although penalties or even death were more prevalent in the past, anyone who has tried to get major research funding for a *far out* idea faces the problem of critics who cannot escape their own world view.

It is the long-term development of the individual along the continuum of adaptive creative behaviors that enables the resolution of these paradoxes. The broader, more integrative cognitive structures and stronger sense of purpose one develops through progress along the continuum help provide resilience and competence necessary for successful adaptation of both self-to-world and the world-to-self, even in the face of the difficulties imposed by creative work.

All of this raises one final issue relevant to considerations of creative adaptation. To what extent should the creative adaptation of one individual or group impinge on the opportunities for success of another individual or group? This question brings into play profound

issues such as individual freedom, social Darwinism, class conflict, exploitation, cultural context, and the moral-ethical implications of creative products and processes. In a post-industrial era of rapid, unpredictable change our answers to this question may determine our chances for successful creative adaptation as a species.

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