A Hierarchical Framework for the Study of Creativity

Mark A. Runco
California State University, Fullerton, and the
Norwegian School of Business Administration and Economics

Abstract

Background: The argument put forward in this paper is that we should reorganize the existing framework most often used to describe creativity, which relies on person, process, product, and place.

Aim: To that end a new hierarchical model is proposed. This accomplishes several things: It re-organizes the existing categories of research and education; it emphasizes the distinction among actual performance and mere potential; and it distinguishes among certain kinds of research in order to provide a detailed view of creative potential which can easily be used by educators. The distinction among press and place influences exemplifies this.

Conclusions: Implications for education and for the further study of creativity are outlined. Key intersections are explored, including those involving personality and creative cognition, and involving places and personality traits. Most important is probably the distinction within the model between performance and potential. Intrinsic motivation is also discussed and tied to both students' personality and cognitive processes. State-by-Trait and Person-by-Environment interactions are also explored.

Keywords: creativity, hierarchical theory, personality, process, productivity, potential

創意研究的層級架構

摘要

背景： 本文認爲應該重整現今常依靠人、過程、產品、及地方等因素來描述創意研究的架構。

目的: 循此方向提出一個新的層級架構，以達到幾個目的：重組現今研究和教育的類別; 強調實際表現和僅僅是潛力之分別; 區別在某些種類的研究，以提供一個可讓教育家容易地使用的創造性潛力的詳細觀點。區分新聞和地方的影響是其例證。

總結： 概述進一步的創意研究及其教育涵義；探索那些包括介入個性和創意性的認知、及介入地方和個性特徵等的關鍵交滙點；最重要大概是在這模式內區分表現和潛力。亦有論及學生的自發性動機與個性和認知過程的關係；並且探索 狀態與特徵 及 人和環境 的交互作用。

關鍵詞： 創意、層級理論、個性、過程、生產力、潛力

A Hierarchical Framework for the Study of Creativity

The dependence of innovation, invention, discovery, technological and cultural advance, and even health on creative potentials is more obvious than ever before (Florida, 2002; Kaufmann & Runco, in press). No wonder, then, that a huge amount of research on creativity and innovation is being generated (Runco, 2003, 2006). Our understanding of the underlying mechanisms and most cost-efficient enhancement techniques is advancing, largely due to these empirical efforts. Several problems have, however, arisen. It is difficult to keep up research and specializations have developed. These specializations can inhibit communication among those studying creativity.

Creativity specialists often focus on one kind of creativity. Their specializations are sometimes categorized with an alliterative scheme that was proposed quite some time ago. It is fairly simple, with the specializations reflecting creative products, people, places, or processes. Simonton (1990) added persuasion to this list, the idea being that creative achievements tend to change the way other people think–they are in that sense persuasive. Even more recently Runco (2006) suggested potential as an additional category and specialization. This is especially helpful for education and development, for often students and children have potential which is not yet manifested in products or unambiguously creative peformances. There is, then, a six-P framework which can be used to organize the field of creative studies.

Although the last two categories take us beyond the original alliterative scheme and capture some of the newer theories, research, and implications (e.g., for educators and organizational specialists), in actuality the framework itself is obsolete. It no longer captures all of the research, nor does it describe what is being done with enough sensitivity. Part of the problem is that it is simplistic. The proposal of this article is that a hierarchical framework is needed to do justice to the current state of creative studies.

The present article thus outlines a revision of the alliterative framework for creativity studies. That revision is presented in the context of current findings. Special care is taken in this article to consider cross cultural studies of creativity. How do they fit into the new framework? This question is addressed after the revised scheme is outlined.

Key Intersections

The framework proposed here is not a complete overhaul of the classic “4 Ps” (person, process, product, and place). Instead it reorganizes them into a hierarchy. This hierarchy allows for the original categories to be retained but also allows for varying degrees of overlap. At the most general level, the hierarchy distinguishes between creative *performance* and creative *potential*. The hierarchical structure is immediately apparent because the first of these has two subcategories, namely *products* and *persuasion*. These both assume that there is actual manifest creative performance. The second category includes person, process, and *press*. These do not require manifest performance, though they may lead to it, hence the idea of *potential*.

Press was included in the original framework (Rhodes, 1961/87) but by and large was replaced by place. One of the specific suggestions of the hierarchical theory is that both are needed. Press was a concept used by Murray (1938) and others, the key idea being that there are pressures (or influences) on our behavior. That is certainly true of creative behavior, and these may include places or environments. But some are not strictly environmental. Some are more general than that (e.g., cultural and historical forces, including those tied to Zeitgeist; Runco, 2006; Simonton, 1994). These ideas are apparent in Figure 1.

Figure 1. The Hierarchical Framework for the Study of Creativity

CREATIVITY

Creative Potential	**Creative Performance**
Person	***Products***
Personality	Inventions Ideas
Process	***Persuasion***
Cognitive Social-Historical	Systems
Press	***Interactions***
Distal Evolution Zeitgeist Culture Immediate (Place)	P x E State x Trait

The hierarchical theory outlined in this article is useful because it distinguishes between performance and potential, and each of their subcategories, but it is also useful because it allows us to be concrete and clear about interactions and intersections. Again press is a good example. Indeed, Murray (1938) distinguished between *alpha* and *beta presses*. The former are entirely environmental or extrinsic; the latter, in contrast, depend on the individual's interpretation. My own favorite example of this distinction is stress (Carson & Runco, 1999; Mraz & Runco, 1994). Stress is not "out there" in the environment. There are no stressors or environmental factors which absolutely, universally, and uniformly guarantee stress. Instead, there are environmental factors which certain individuals interpret as stressful. Stress exemplifies a beta press for it depends on interpretation. Driving is a concrete example of this: some people are nervous when they drive, while others enjoy it. Tests might sometimes also demonstrate the impact of interpretation, at least in that some people suffer from test anxiety while others appear to be impervious to the same.

This applies directly to creativity because there are a large number of *person X environment (P x E) interactions*. Runco (2007) itemized some of these, drawing heavily from the organizational, educational, and environmental studies of creativity. The key idea is that, although a large number of influences on creativity have been identified (e.g., Amabile, 1990; Rickards & Jones, 1991; Witt & Boerkem, 1989), none of them definitely increases nor decreases creative work, at least not without taking the individual's interpretive tendencies into account. Those interpretive tendencies in turn may be understood drawing from the person category of creativity research. This includes personality research (Barron, 1995; Helson, 1996; Helson, Roberts, & Agronick, 1995), as well as the fine case studies of Albert (1998), Gruber (1988), Gardner (1995), Miller (1992), Rothenberg (1990), and others. Simply put, then, there is an important interplay between the person category and the press category of creativity research, at least if we wish to predict actual creative behavior. Alone each simply identifies potentials which may or may not lead to behavior. Much of this argument parallels the idea found in personality research of *Trait X State interactions*.

Less certain but equally interesting are the interactions which seem to occur in the process research and the personality research. This is especially clear once we distinguish between two kinds of process: cognitive and social-historical. Wallas' (1926) classic process model exemplifies the first of these, with preparation, incubation, illumination, and verification phases, as does Chand and Runco's (1992) *two-tier model*, with information (conceptual and procedural) and motivation (intrinsic and extrinsic) factors on one tier and problem finding, ideation, and evaluation on the second tier (also see Runco & Chand, 1995). Each of these phases or stages occurs individually and intellectually, so to speak. As the name implies, social-historical processes, on the other hand, require interpersonal reactions and decisions. Csikzentmihalyi's (1990) systems theory, for instance, has an individual, who may have a good idea, who influences the thinking of a field, defined as the group of experts and gatekeepers working in one area, and if they use the new idea, it may change the larger and sometimes symbolic domain (e.g., mathematics, dance, horticulture). If the domain changes, it can of course then influence the thinking of individuals! The process is, then, cyclical.

Incidentally, it is likely to influence individuals who are new to a field, or perhaps professionally marginal, more than experts and other long-time residents of the field. This is in part because of the investments made by experts and the economic law that describes how larger investments lead directly to rigidity (Rubenson & Runco, 1992, 1995). But more important for our purposes is that this process depends on interpersonal judgments and intercourse. It also requires some time; hence it is social-historical. In that way it differs from, but complements, cognitive theories of process.

Now we can return to the interactions among personality and process, for they are probably the most obvious in the cognitive rather than social-historical processes. Consider flexibility. This is a common core characteristic identified in the personality

research on creativity (e.g., Runco & Albert, 2005) and, significantly, is also a kind of cognitive process. Guilford (1968), for instance, felt that flexibility allows individuals to solve problems more easily (also see Jausovec, 1991; Runco, 1986). The point is that flexibility is both a personality trait and a cognitive process, and both seem to play a role in creative efforts.

Another intersection involving the creative personality and creative cognitive processes is apparent in the research on intrinsic motivation. Even early studies of the creative personality pinpointed intrinsic motivation as key, and Amabile (1990) developed a methodology for demonstrating its role and maintenance. From a completely different angle, Runco (1996, 2003) described how intrinsic motivation results from a cognitive condition (i.e., disequilibrium, or a discrepancy between understanding and experience). Thus again we see an intersection between personality and creative cognition.

A third example of this particular intersection involves sensitivity. It too is often reported in personality studies of creative persons (e.g., Greenacre, 1971; Wallace, 1991) but is also a large part of a process which supports creativity (Martindale & Daily, 1996). Simply put the sensitive individual tends to process a broad range of stimuli and is thereby open to details, ideas, and hunches which may go unnoticed by other individuals. The sensitive individual may have the cognitive benefit of what has been called a wide associative or attentional horizon.

Creative Potential

For my money the most important aspect of hierarchical theory is that it brings home the importance of creative potential. The research on creative products (publications, works of art, inventions, public performances) is quite important and useful, but not everyone has gotten to the point where they do actually perform and produce. Many more individuals, including most children and students, have potential but are not yet productive, at least in a socially meaningful way. Even individuals who are already performing at very high levels may still have room for improvement, which is a casual but useful way to think of potential, and those of us not performing at high levels have a great deal of unused potential.

There may be some controversy about the distribution of potential and the claim above that everyone has room for improvement. Yet that is true of just about all behavior. It is a result of our genetic make-up; we inherit potentials. Someone might have the genetic potential to grow to six feet tall, but in genetic terms, what that individual actually inherits is a range of possibilities. With height, the individual who grows to six feet probably either fulfilled his or her potential, in which case they are at the upper extreme, thanks to nutrition and exercise and the like, without which they may have only grown to 5-10, 5-8, or some height which was also within the range of potentials but at a more moderate level. Almost everything we inherit is characterized by a range of possibilities. The only exceptions are highly canalized traits, such as eye color. All else reflects an interplay of nature and nurture, with the latter determining how much of the former is expressed. There is no reason to think that creative talents do not follow the same tendencies. Very likely, we each inherit a range of creative talents.

That range is recognized only if we value potential.

Many educators now have pressure on them to insure achievement. This in turn means that there must be objective performances of some sort. It can lead to "teaching to the test." Yet potential may actually lead to larger returns–and it can be addressed in education. Consider in this regard Georgia O'Keeffe's description of art class where her instructor required that students work as quickly as possible. The rationale for this technique was that the students would become immersed in the process and could not possibly care too much about the end result because they were working so quickly. Process can be targeted. Products are not all-important.

Performance measures and techniques can in fact cause problems. Runco (1995), for example, went into detail about the *displaced investments* of creative persons who devote hours to things such as *impression management* rather than directing those hours into the skills that are in fact more critical for actual creative work. This concept can be used on a more general level to describe what may happen within education, or within creative studies. Kasof (1995) suggested that, if creative persons are persuasive and influence the way other people think, all of use might be labeled highly creative if we can just manage the impressions we project, perhaps acting in an eccentric fashion or in a manner that is consistent with the behaviors of stereotypes of creative persons. Surely it would be better to invest into creative potentials, perhaps practicing the process the way O'Keeffe described just above.

Creativity and Culture

Before concluding, it is interesting to consider what the hierarchical framework says about the relevance of culture for creativity. As indicated above, culture represents one kind of press or influence on creative potential. It can determine whether or not potential translated into performance, whether or not potential is fulfilled. It does this in several ways. One is by valuing certain expressions of talent. Some talents are appreciated in particular cultures while others are ignored. Western culture tends to reinforce verbal, mathematical, and logical talents, for instance (Gardner, 1983), and thus someone with naturalistic talents might be ignored. Their potentials are unlikely to be fulfilled because they lack the opportunities, models, and reinforcement which is necessary for fulfillment. Note the importance of the idea of *potential* in this line of thought.

This line of thought also implies that values are critical–and different in various cultures. Values will determine which talents are supported and which potentials are fulfilled. Yet values do not tell the entire story. Another take on creativity and cultural involves conventions–and the capacity to critically evaluate them. Indeed, some time ago I suggested that the most important educational and developmental target, if we want creative students and children, is ego strength (Runco, 2003). My idea was that all children have the potential to generate ideas, so not much needs to be done about that, but most children learn to

conform, and this in turn can keep them from expressing or even considering original ideas. If they have confidence and ego strength, however, they will sometimes conform but sometimes stand up for themselves. In that sense they will retain the capacity for originality. This of course assumes a kind of individuality, which must be mentioned because it is so often tied to culture and creativity. Some cultures appreciate individuality, while others value harmony and collectivism more highly. The latter make original thinking, and thereby creativity, more difficult. The ideal is probably a kind of *post-conventional* thinking whereby individuals know what is conventional and acceptable but make specific decisions about those conventions on an individual basis. If they exercise discretion, they will sometimes conform, and thereby fit in and support the status quo, but they will sometimes also see the limitations of that and behave in an original and creative fashion, even if it is an act of nonconformity. Note that all of this recognizes the role of personality (nonconformity), process (ideation and post-conventional thinking), and the fulfillment of potential. In other words, it fits nicely into the hierarchical framework described in Figure 1.

Conclusion

There was a time when creativity research advanced by isolating particular traits and characteristics. At that time the classic 4 Ps framework was adequate. Methods were similarly focused; they were often 2x2 factorial designs or bi-variate correlational. Now the creativity complex or syndrome is quite apparent and multivariate procedures are nearly always necessary. Similarly, what is needed, instead of one-dimensional educational programs, studies is a recognition of the hierarchy outlined above. Education must recognize potential and not just manifest performance.

The point is that studies of potential will help us to facilitate everyone's creativity, not just that of individuals who are already productive and persuasive. Society as a whole will gain much more from research and in education if we invest in potential, since there is such room for growth. In hierarchical theory, that means we should be focusing on personality, cognitive processes, and press factors. We must look at what can be rather than only at what already exists. Surely parents, teachers, researchers, and any individual who appreciates the value of creativity can do that.

References

Albert, R. S. (1998). What the study of eminence can teach us. Creativity Research Journal, 9, 307-315.

Amabile, T.M. (1990). Within you, without you: Towards a social psychology of creativity, and beyond. In M.A. Runco & R. S. Albert (Eds.), Theories of creativity. Newbury Park, CA: Sage.

Barron, F. (1995). No rootless flower: An ecology of creativity. Cresskill, NJ: Hampton Press.

Carson, D. K., & Runco, M. A. (1999). Creative problem solving and problem finding in young adults: Interconnections with stress, hassles, and coping Abilities. *Journal of Creative Behavior, 33*, 167-190.

Chand, I., & Runco, M. A.(1992). Problem finding skills as components in the creative process.

Personality and Individual Differences, 14, 155-162.
Csikszentmihályi, M. (1990). The domain of creativity. In M. A. Runco & R. S. Albert (Eds.), Theories of creativity (pp. 190-212). Newbury Park, CA: Sage Publications.
Florida, R. (2003). Rise of the creative class. New York: Basic Books.
Gardner, H. (1983). Frames of mind: The theory of multiple intelligences. New York: Basic Books.
Gardner, H. (1995). Creating minds: An anatomy of creativity seen though the lives of Freud, Einstein, Picasso, Stravinsky, Eliot, Graham, and Gandhi. New York: Basic Books.
Greenacre, P. (1971). The childhood of the artist: Libidinal phase development and giftedness. In P. Greenacre (Ed.), Emotional growth (Vol. 2, pp. 479-504). New York:
Gruber, H. E. (1988). The evolving systems approach to creative work. CRJ, 1, 27-51.
Guilford (1968). Creativity, education, and their educational implications. San Diego, CA: EDITS/Robert Knapp.
Helson, R., Roberts, B., & Agronick, G. (1995). Enduringness and change in creative personality and prediction of occupational creativity. Journal of Personality and Social Psychology, 69, 1173-1183.
Helson, R. (1996). Arnheim Award address to division 10 of the American Psychological Association: In search of the creative personality. Creativity Research Journal, 9, 295-306.
Jausovec, N. (1991). Flexible strategy use: A characteristic of gifted problem solving. *Creativity Research Journal, 4*, 349-366.
Kasof, J. (1995). Explaining creativity: the attribution perspective. *Creativity Research Journal*, 8, pp.311-366.
Kaufmann, G., & Runco, M. A. (in press). Knowledge management and the management of creativity. In T. Rickard, M. A. Runco, & S. Moger (Eds.), *Companion to creativity*. United Kingdom: Routledge.
Martindale, C., Daily, A. (1996). Creativity, primary process cognition and personality. Personality and individual differences, 20 (4), 409-414.
Miller, A.I. (1992). Scientific creativity: A comparative study of Henri Poincaré and Albert Einstein. Creativity Research Journal, 5, 385-418.
Mraz, W., & Runco, M. A.(1994). Suicide ideation and creative problem solving. *Suicide and Life Threatening Behavior, 24*, 38-47.
Murray HA. (1938). Explorations in personality. New York: Oxford University Press.
Rhodes, M. (1961/1987). An analysis of creativity. Frontiers of creativity research. ed. S G Isaksen, pp. 216-222.
Rickards, T., & Jones, L. J. (1991). Toward the identification of situational barriers to creative behaviors: The development of a self-report inventory. Creativity Research Journal, 4, 303-316.
Rothenberg, A. (1990). Creativity, mental health, and alcoholism. Creativity Research Journal, 3, 179-201.
Rubenson, D. L., & Runco, M. A. (1995). The psycho-economic view of creative work in groups and organizations. Creativity and Innovation Management, 4, 232-241.
Rubenson, D. L., & Runco, M. A. (1992). The psycho-economic approach to creativity. New Ideas in Psychology, 10, 131-147.
Runco, M. A. (1986). Flexibility and originality in children's divergent thinking. Journal of Psychology,
120, 345-352.
Runco, M. A. (1995). Insight for creativity, expression for impact. Creativity Research Journal, 8, 377-390.
Runco, M. A. (1996). Personal creativity: Definition and developmental issues. New Directions for Child Development, No. 72 (Summer), pp. 3-30.
Runco, M. A. (2003). Education for creative potential. Scandinavian Journal of Education, 47, 317-324.
Runco, M. A.(2006). Personal creativity and the uncertainty of creative potential. In J. Gonzelez (Ed.), *Proceedings of I Simposio International Sobre Altas Capacidades Intellectuales*. Las Palmas, Spain: Directorate for Educational Planning and Innovation.
Runco, M. A.(2007). *Creativity: Theories and Themes: Research, Development, and Practice.* San Diego, CA: Academic Press.
Runco, M. A., & Albert, R. S.(2005). Parents' personality and the creative potential of exceptionally gifted boys. *Creativity Research Journal, 17*, 355-368.
Runco, M. A., & Chand, I. (1995). Cognition and creativity. Educational Psychology Review, 7, 243-267.
Simonton, D. K. (1990). In M. A. Runco & R. S. Albert (Eds.), Theories of creativity. Newbury Park, CA:

Sage.
Simonton, D. K. (1994). Greatness. New York: Guilford.
Wallace D. B. (1991). The genesis and microgenesis of sudden insight in the creation of literature. Creativity Research Journal, 4, 41-50
Wallas, G. (1926). The art of thought. New York: Harcourt Brace & World.
Witt L. A, Beorkrem, M. (1989). Climate for creative productivity as a predictor of research usefulness and organizational effectiveness in an R&D organization. Creativity Research Journal, 2, 30-40.

Author

Prof. Mark A. Runco,
Dept. of Child and Adolescent Studies, California State University, Fullerton, and
The Norwegian School of Business Administration and Economics
Past President, APA Division 10
Editor, ***Creativity Research Journal***
http://mysite.verizon.net/marunco/
runco@fullerton.edu

An earlier version of this paper was presented at the University of Georgia, Athens, in January 2008.
