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1

Introduction

Robert J. Sternberg

INTRODUCTION

On June 4, 1989, some Chinese students thought they had a creative idea. The idea was of a democratic government in China. The government of the time found their idea to be neither creative nor amusing. Roughly 1,000 students and other protesters were massacred by government forces that day at Tiananmen Square. A government leader who supported the students, Zhao Ziyang, died in January of 2005, shortly before this introduction was written. He had been under house arrest for years, and his death was given short shrift by the Chinese government.

The idea of democracy would be wholly uncreative in the United States, at least as democracy is traditionally thought of. People in the United States would probably say that the idea is lacking in novelty and hence cannot be creative. In some other country, someone having the idea of democracy might be seen as being very creative indeed and at the forefront of new thought about government. Clearly, different countries, or at least their governments, have different ideas about what constitutes creative thought. What *does* constitute creative thought, and how have people around the world understood and studied creativity?

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COMMONALITIES IN CREATIVITY RESEARCH

The goal of this book is to explore theories, research, assessment, and programs for the development of creativity in a wide variety of countries around the world. To this end, we have solicited contributions from authors around the world. There seems to be pretty good agreement around the world on certain issues, but not on many of them! If one were to try to draw some generalizations, they might be these:

1. Creativity involves thinking that is aimed at producing ideas or products that are relatively novel and that are, in some respect, compelling.
2. Creativity is neither wholly domain specific nor wholly domain general. It has both domain-specific and domain-general elements. The potential to be creative may have some domain-general elements, but to gain the knowledge one needs to make creative contributions, one must develop knowledge and skills within a particular domain in which one is to make one's creative contribution.
3. Creativity can be measured, at least in some degree.
4. Creativity can be developed, in at least some degree.
5. Creativity is not as highly rewarded in practice as it is supposed to be in theory.

What is perhaps most notable about creativity research around the world is how little of it there is. In every country, there is a dearth of research on creativity relative to other topics, and what research there is proves to be relatively poorly systematized. Why? There are probably several reasons.

First, governments say they want creativity, but their actions belie their words. Many of the world's governments depend on ignorance for their existence. In autocracies, education and especially creative thinkers pose perhaps the greatest threats to their existence. In democracies, one would hope that creativity would be more valued, and it probably is. Never the less, many of the governments that are elected got into place only through the ignorance and narrow-mindedness of the people who selected them. The last thing these governments want is critical and creative thinking that would threaten their existence. Indeed, the level of political discourse in many of the world's so-called democracies is only slightly above that of the autocracies, if it is above that level at all.

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Second, creativity is hard to study. There is a story of a man who loses a key at night. He looks under a street lamp for the key. A policeman comes along and offers to help him look. After they look for a while, unsuccessfully, the policeman asks the man if he is sure that he lost the key in this particular place. The man looks at him with a puzzled face, and says, "Oh, no, I lost it over there, but the light is much better here." Often, scientists, like the man who lost his key, prefer easier problems to harder ones, even if the easier ones are smaller or less rewarding to study. Creativity as a problem of study is large, unwieldy, and hard to grasp. Many scientists would prefer to study other phenomena that lend themselves more easily to traditional scientific methods of analysis. Moreover, studies of creativity often take a long time to conduct, and there is little incentive in a publish-or-perish world for taking on long-term studies, especially for those who lack tenure.

Third, creativity research is not mainstream. Over the years, certain topics within a field become mainstream and others remain at the margins. In psychology and education, creativity has always been at the margins. Working in an area at the margins has many disadvantages. For one, it is less prestigious to work in such an area. For another, it is therefore harder to get a job. For a third reason, it is harder to get published in top journals, and, for yet another, it is harder to get funding. Thus, many of the best people tend to work in areas where the rewards are greater and certainly more immediate.

Fourth, selection mechanisms in most countries do not favor the generation of creative people to study creativity. How does one get to the point where one can even be an independent researcher studying creativity? Generally, one has to make one's way up an academic ladder that tends most to reward students who do what their mentors want them to. Often, the mentors are more interested in the students' contributions to the mentors' research than to the students' production of their own creative ideas. Furthermore, to get to the point where one actually has mentors, one has to go through an elementary, secondary, and tertiary system of education that often rewards conformity.

Fifth, there are effects of popularization. Creativity, more than some other fields in psychology and education, has been the subject of popularized programs that have not undergone rigorous testing. At least some of the originators would have little incentive for their programs to be rigorously tested. Thus creativity has been linked in many people's minds with commercialization rather than with rigorous science.

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Despite these difficulties, creativity has garnered some interest in theory, research, assessment, and development around the world. Let us consider some general points about what has been learned, on the basis of the chapters to follow in this handbook.

CREATIVITY AROUND THE WORLD

What are some of the main ideas about the nature of creativity that have arisen out of work on creativity around the world?

According to Smith and Carlsson, there is no single Scandinavian view regarding how creativity should be understood. Scandinavians, they believe, pay somewhat more attention to potential and somewhat less attention to productivity than do Americans. Creativity is viewed in Scandinavia as an attitude toward life and a way of dealing with the challenges life poses. When too much emphasis is placed on creative products, the tendency is to focus on people who seek the limelight but to ignore those who may be creative in a more reserved and quiet way.

In China, Taiwan, Hong Kong, and Singapore, according to Niu, there has been, historically, a tradition of somewhat devaluing creativity. That has changed, however. The trajectories of thinking about creativity have been slightly different from one place to another. In China, the study of creativity emerged as a sort of by-product of research on intelligence and giftedness. Creativity is seen there as an essential component of giftedness. In Taiwan, creativity is being emphasized and creativity is close to being a regional icon. There is profound valuing of the creative enterprise. A wide variety of methodologies are currently being used to study creativity. There is a push to make the society and its people more creative. In Hong Kong, research has shown some differences between the Chinese and American conceptions of creativity. Westerners emphasize more sense of humor and aesthetic taste, whereas Chinese people tend to emphasize social influences, such as being inspirational to others and contributing to the progress of society. In Singapore, research has been somewhat sparse, but recently there has been a push to teach creativity in the schools.

In English-speaking countries, according to Baer and Kaufman, creativity research is extremely diverse. Historically, J. P. Guilford was extremely influential. He posited that divergent thinking is very important to creativity. For some people, as Baer and Kaufman point out, creativity has become synonymous with divergent thinking, in part as a

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result of Guilford's work. Also highly influential was E. Paul Torrance, who devised the Torrance Tests of Creative Thinking. These tests measure divergent thinking in both verbal and nonverbal domains. Other influential paradigms in English-speaking countries are of creativity as based on the selection and retention of ideas (using evolutionary theory) and of creativity as influenced by personality, motivational, and environmental factors. A number of programs have been developed for encouraging creative thinking.

In French-speaking countries, according to Mouchiroud and Lubart, the "four Ps" have been particularly influential in research: person, process, product, and press (environment). Research on cognition in French-speaking countries has been very strongly affected by the thinking of Piaget. Piaget, however, had relatively little to say about creativity. Nevertheless, there has been research of various kinds on creativity. Some has emanated from the psychodynamic tradition, and some from the psychometric tradition of Guilford and Torrance from the United States. Interestingly, one of the great French psychologists of all time, Alfred Binet, was very interested in the imagination, but it is more in recent years than in earlier ones that this tradition has become influential.

In German-speaking countries, according to Preiser, an idea is accepted as creative if it is new in a certain situation or if it contains new elements and is viewed as a useful solution to a problem. According to Preiser, person, process, problem, and product constitute the four Ps of creativity research in the German-speaking countries. The main focus of German models is on creative processes, which are instigated by the individual's confronting a problem. In the end, the creative processes should yield a product. Creative processes are viewed as being influenced by many factors, such as general and specific knowledge, expertise, abilities, cognitive styles, motives, personality traits, and interests.

Milgram reviews the thinking about creativity in Israel. Many Israelis are currently interested in the relationship of creativity to real-world problem solving. There have been a variety of approaches to creativity in Israel. One approach studies creativity primarily in the context of gifted education. Another studies the relationship of creativity to self-actualization, in the tradition of Maslow. Still another looks at the relation of creativity to intelligence and personality traits, and another looks at the difference between creativity in understanding art and creativity in producing art. Milgram's own research used a 4×4 model. The first dimension of the model contrasts general intellectual ability,

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on the one hand, and domain-specific intellectual ability, on the other, as well as domain-general creative thinking versus domain-specific creative talent. The second dimension refers to four distinct levels of ability, ranging from nongifted to profoundly gifted.

In Italy, according to Antonietti and Cornoldi, there has been no clear recent indigenous tradition. Rather, much of the theory and research has been stimulated by the thinking of scholars and others outside of Italy. Nevertheless, Italy has a long history of thinking about creativity. One of the more well-known earlier thinkers was Lombroso, whose degenerative theory of genius became internationally known. He claimed that geniuses are different from other people in that they see things in a different manner and are able to see relations between thoughts that others would not see. In the twentieth century, the three major issues for research were reflection about theoretical frameworks for understanding creative processes, measurement of creative abilities, and promotion of creativity in schools. Some recent work showed that relaxation and an increased use of mental imagery could improve creative performance.

Research on creativity in Poland is rooted in the philosophical tradition, according to Neçka, Grohman, and Słabosz. Creativity was formerly viewed as a divine activity that could not be attained by humans. In more recent work, creativity has been viewed as wholly attainable, and as being applicable to work that is new and valuable. Creativity applies not only to products but also to people's behavior, thinking, and ways of living their lives. Polish researchers have been particularly interested in what is sometimes called "small *c* creativity," that is, the creativity of people who will never produce any major works or make any truly important discoveries. This is the kind of creativity anyone can show in his or her daily life. Neçka has proposed a model of levels of creativity: fluid, crystallized, mature, and eminent. Fluid creativity is everyday creativity that anyone can show, even in the absence of any knowledge in particular. Crystallized creativity is the solution of a problem that requires some knowledge to solve. Mature creativity requires a more sophisticated level of domain-specific knowledge or expertise. And eminent creativity is "big *C* creativity," that which becomes known far and wide.

In Soviet–Russian psychology, according to Stepanossova and Grigorenko, there have been two major trajectories for creativity research. The first can be traced back to Gestalt psychology as reconceptualized through the eyes of Marxist psychology. The other trajectory

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harks back to the work of Guilford and Torrance, already mentioned. The former line of work looked at productive thinking and insight. The latter work is particularly associated with studies of giftedness. In Soviet psychology, one line of work viewed the creative process as being at the intersection of logic and intuition. Thus, creativity was viewed as constrained intuitive thinking. Some Soviet psychologists, in keeping with the Marxist tradition, were particularly interested in the environmental conditions that could trigger creative thinking. The model of Ponomarev proposed four stages in the process of creative thinking: (a) deliberate, logical search; (b) intuitive search and intuitive solution; (c) verbalization of the intuitive solution; and (d) formalization of the verbalized solution.

In African countries, according to Mpofu, Myambo, Mogaji, Mashego, and Khaleefa, creativity has been viewed as very important for millennia, dating back to the Great Pyramids of Egypt. However, an analysis of African languages revealed only one language, Arabic, that has a word that translates to *creativity*. Muslims have different Arabic words for creativity in secular and religious contexts. In the other languages, words related to creativity include *resourceful*, *intelligent*, *wise*, *talented*, and *artistic*. Definitions of creativity in the African context have been diverse, according to Mpofu, and have tended to emphasize its different aspects: innovative, adaptive personal agency, integrative, incremental, social impact oriented, domain specific, mystical, and imitative.

Oral has reviewed concepts of creativity in Turkey and Turkish-speaking countries. According to the Turkish scholar İnam, fantasy is the power that fuels creative thinking. It can in turn be converted into a thought, action, or product. Creativity has been studied in art, literature, science, and other fields. For example, Dedegil has proposed a five-step model of creativity in modern science: (a) testing an idea for feasibility, utility, required effort, and range of variation; (b) realizing a prototype; (c) testing the results and making connections; (d) creating new ideas from the result; and (e) generating ideas. Oral believes that Islamic authorities and a monarchic regime have posed obstacles to the enhancement of scientific creativity over a period of hundreds of years, but that since the founding of the democratic secular republic by Atatürk in 1920, Turkey has become more Westernized and receptive to creative thinking and productivity.

According to Choe, creativity research in South Korea has been based largely on work that has emanated from the West. Research on implicit

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theories of creativity in South Korea resulted in certain characteristics that are strongly associated with creativity – having original ideas, being interested in new ideas, and having strong curiosity. Other characteristics were judged as very unlikely to occur in creative people – being selfish, staying alone, and being self-complacent. In general, characteristics found to be important in the West also were found to be important in South Korea. There has been a wide range of kinds of research on creativity in South Korea. They include research relating the construct of creativity to educational methods, programs for developing creativity, environment, and culture, the role of teachers in fostering creativity, and the role of the family in fostering creativity. Several tests of creativity have also been developed for use in South Korea.

In Latin America, according to Preiss and Strasser, creativity is viewed as a multifaceted phenomenon. There has not been a great deal of research on creativity in this region. What research there is often is difficult to locate in databases. In general, Preiss and Strasser point out that there has not been a great deal of scientific research in Latin America, because science does not have great cultural value in the region. Of the studies that have been done, most are aimed at solving practical problems rather than merely at understanding the nature of creativity. There have been some programs for developing creativity, such as Learning for Creating, which was developed by Mena. The program has three core principles: the need to create a teacher–student relationship that allows students to be creative; the need to provide students with the skills, attitudes, and values that allow them to be creative; and the need for meaningful learning.

Genovard, Prieto, Bermejo, and Ferrándiz note that studies of creativity in Spain began at the end of the 1960s at the University of Barcelona. The first research was on the teaching of creativity, and this has remained an important topic for Spanish research. For one of the founders of such research, Huertas, creativity is the production of original behavior or models, rules, or objects that are accepted by society in order to resolve certain situations. The Education Act of 1970 set out principles aimed at encouraging the development of creativity in the classroom, so that, in Spain, the development of creativity actually became mandated in the curriculum. This in turn led to a burgeoning of interest in research in universities. Studies today consider such topics as the qualities of creative individuals, the design of tools to measure creativity, teacher-training programs, and the study of creativity as a characteristic of highly gifted students.

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In India, according to Misra, Srivastava, and Misra, creativity is the result of doing something original or novel that is also useful. Creativity has been of interest in India since antiquity. Creation is considered to be a natural desire of human beings that represents their search for an extension of the self. In India, renewability and transformation are important concepts, so the study of creativity is a natural one for researchers in the country. In the Hindi language, two terms are used for creativity. They indicate the desire or purpose to create. The need for creation is located in the humans' needs to adjust to their environment. Interestingly, many Indian myths deal with the topic of creativity and continue to influence thinking about creativity even until the present day.

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2

Creativity Research in English-Speaking Countries

John Baer and James C. Kaufman

INTRODUCTION

The Geography of Thought: How Asians and Westerners Think Differently, a new book by Richard Nisbett (2003), convincingly argues that culture influences cognition in powerful (and experimentally verifiable) ways. Nisbett doesn't discuss creativity – it isn't even listed in his fairly extensive index – but his general conclusions are probably as true for creativity as they are for the kinds of cognition he does discuss. He reports numerous studies showing that Western subjects and various groups of Asian subjects respond very differently to a wide range of cognitive tasks. The lesson for psychologists, he tells us in his conclusion, "is that, had the experiments in question been done just with Westerners, they would have come up with conclusions about perceptual and cognitive processes that are not by any means general" (p. 192).

We are pleased that the book of which this chapter is part will help to correct the myopia that can limit the vision of Western creativity researchers. Creativity research in the English-speaking world is such a large field that it is easy to forget that it is just one part of the larger creativity puzzle. The many other pieces of that puzzle can tell us a great deal about the larger picture of which the English-speaking piece is but a part. Creativity research can also teach us much about the English-speaking piece itself by allowing us to understand this research in context.

Our task in this chapter is to summarize creativity research in English-speaking countries, a field large enough to have sometimes assumed it spoke for the whole world of creativity research. It is a daunting

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