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LAY CONCEPTIONS OF CREATIVITY ACROSS CULTURES

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Abstract: There are many methods that psychologists can use to investigate a construct. Asking people (either experts or laypersons) what they think about a construct, or finding the relation of a construct to other constructs are two of the many methods. Some recent research has given attention to the former approach, i.e. by discovering lay or people's conceptions of a phenomenon. These conceptions are also known as lay theories, subjective theories, everyday theories, and naive theories. They provide additional explanations to present scientific findings and can help understand phenomena within socio-cultural settings. In this paper, lay conceptions of creativity across cultures (e.g., German, Japanese, Malaysians and Singaporean) are presented. It is believed that every individual can be creative and every society has the potential to nurture creative potentials of individuals. There are various types of creativity and different degree of creativeness within a domain. By observing lay conceptions' of creativity, researchers and educators may propose suitable intervention programs that can help nurture creativity.

Introduction

Creativity within contexts: For many decades, creativity was perceived as a mystery or myth. Creative ideas were treated as an individual's properties. The recent studies of creativity have shifted their emphasis on examining characteristics of only a few geniuses or extremely talented people to the investigation of multifaceted factors that can enhance creative potentials of all (or most) individuals. The belief in "every individual has the potentials to be creative in one or more disciplines" (see Gardner, 1993) replaces the assumption that creativity requires some magical talent that is extraordinary, unusual, and beyond normal human competence. Every individual has the potential to be creative in one domain or multiple domains. Hence, all individuals should be given the opportunities to find out their strengths and weaknesses in various domains. They should be aware of the possibilities to uncover their creative potentials in the identified domains. Recent trends of creativity research also show that it is important to understand creativity from the individuals as well as their socio-cultural contexts. Accordingly, creativity should be conceptualized within an individual and her(his) societal and cultural contexts (Amabile, 1983; Csikszentmihalyi, 1988; Mellou, 1995, 1996; Simonton 1988a, b; Woodman & Schoenfeldt, 1990). As an individual and socio-cultural activity, creativity demands an individual's competence and motivation supported by her(his) people, social organizations, and cultural systems. As such a new and original idea regardless whether it is produced by an individual or a group demands direct and indirect supports to transform it into a useful product.

Implicit theories or lay conceptions: Implicit theories or lay conceptions are personal constructions used to organise and predict nature. Most assessments and training in the real world are based on implicit theories or lay conceptions rather than explicit theories (theories based on data). Sternberg (1985) and his team (1981) found that lay theories of intelligence, creativity, and wisdom, to some extent, are similar to those of experts. The chief difference between lay conceptions and scientific theories is in the representation of knowledge (Semin, 1990). The content and organisation of lay conceptions are not that explicit. Based on everyday cognition, lay conceptions are comparatively less stable than theories learned from deliberate and conscious learning. Though it is not always so (Furnham, 1990), some times they may be inconsistent and contradictory (Furnham, 1988).

Generally, implicit theories have similar structural qualities to scientific theories (Dann, 1991), or are similar to experts' theories (Sternberg et al., 1981; Sternberg, 1985), and function in a similar way (Furnham, 1988). They are parallel to objective (scientific) theories and also fulfil the functions of science (Groeben, 1990). Hence, the study of lay conceptions can provide complementary information for explicit (experts') theories (Sternberg, 1985).

For psychological constructs use frequently in everyday life, lay conceptions can be useful for providing a conceptual framework for the developing of explicit theories: "Discovering such theories can be useful in helping to formulate the common-cultural views of that dominate thinking about a given psychological construct" (Sternberg, 1985, p. 605). The studies of lay conceptions of intelligence (Sternberg et al., 1981) and practical intelligence (Sternberg & Wagner, 1986) from the everyday perspective have broaden the conceptualised paradigm of the construct intelligence. Creativity is widely used in our societies, but most of us are unclear about what it is, and how it should be nurtured. Hence, it is worthwhile to study creativity from the lay perspectives.

Multiplicity of creativity: Creativity exists in various domains. Adopting the multiple intelligences model (Gardner, 1993), we admit that creativity exists in various domains or disciplines. We consider creativity as a prerequisite for the development of novel and useful knowledge, skills, products, performances, approaches, strategies, and solutions in engineering, science, humanity, and personal domains. The styles of presenting creativity in various domains may vary and thus will lead to different set of assessment criteria. While we value technical innovations that can improve our quality of life, we also appreciate artistic performances that entertain us. We admire people who are linguistically creative. We should also place important emphasis on harmonious human relations contributed from human creativity in the interpersonal and intrapersonal domains. We also acknowledge the existence of various degree of creativity even within the same domain. Historical creativity (or H-creativity) refers to great work that never before any person. It is unique and different from the existing work. Psychological creativity (or P-creativity) is used to describe creative work with reference to a person's previous performance. The P-creative work is unique and different within the reference frame of its creator, but it may be common and similar to other people's work.

Creativity is multiple, not only in relation to the discipline of study but also to the type of culture. Creativity in technical fields, just like other types of creativity (for example, arts or music), demands one's technical talent, knowledge and skills in technical fields. Analogous to the types of creativity in various disciplines, different types of creativity do exist in different cultures. Adaptive or improved creativity, for instance, is likely to be emphasised in a society (culture) that appreciates continuous efforts and readiness to co-operate in a group. Breakthrough creativity, on the other hand, is likely to be fostered in a society (culture) that appreciates individual performances. Breakthrough creativity refers to searching new ideas that have not been thought by other people (Tatsuno, 1990) resembling the H-creativity. Adaptive creativity is a way of creatively responding to breakthroughs (Tatsuno, 1990, p.17), for example, transforming ideas for everyday usage. Refining existing ideas is also a form of creativity. In the next section, two exploratory studies are presented to highlight the benefits of examining lay conceptions of creativity. Study 1 was designed to find out students' creative problem solving styles in designing an unconventional product (breakthrough creativity) and in improving a technical product (adaptive creativity). It was hypothesised that various types of creative performance exist across cultures. Study 2 examined Singaporeans' perceptions of their creative competence across various domains and across various cultures.

Study 1: Breakthrough Creativity versus Adaptive Creativity

In a paper-and-pencil survey, technical students of various universities and colleges attempted two creative tasks. The first task concerned breakthrough creativity. The subjects were requested to design a soundless alarm clock. They were expected to abandon the conventional idea of waking someone up by using noise. The second task involved improved or adaptive creativity. An unconventional product was shown (a diagram or the original object). The subjects were instructed to improve a diary that was triangular in shape.

Participants: There were four principal groups of participants. The first group comprised 19 technical students of the Technical University of Munich (Technische Universitaet Muenchen, Germany) with an average age of 24.5 years. The second group consisted of 20 technical students of the Tokyo Institute of Technology (Tokyo Kogyo Daigaku). Their average age was 21.7 years. The third group was formed by 11 technical students of the National University of Malaysia (University Kebangsaan Malaysia) and Technological University of Malaysia (Universiti Technology Malaysia) with an average age of 23.4 years. The fourth group included 31 technical students of the Ngee Ann Polytechnic (Singapore) and the National University of Singapore with an average age of 21.1 years.

Results:

Designing a soundless alarm clock: Instead of using noise to wake up someone, other ideas were proposed, for instance, using movement, electrical current, temperature, light, aroma, water, robot, and vibrator. The ideas are summarised in Table 1. In average, one German student presented nearly two ideas, slightly more than their Japanese colleagues (one and a half), as well as Malaysian and Singaporean counterparts (less than one). Several ideas entailed the element of “play”.

Examples of these ideas were such as using laughing gas, throwing the sleeping person out of bed, and dropping a piece of ice on a person. Three German technical students suggested the use of human beings as an alternative to wake up someone. A person, in this case, was considered as a “tool” or a “means” to fulfil a task: waking up a sleeping person. One distinguish feature of some Japanese students’ answers was using familiar objects or objects that were available. For instance, a student suggested changing the shape of a pillow, and another student proposed folding the bed into a chair and followed by movement.

Improving a triangular diary: There are three categories of ideas (see Table 2). The first category refers to the acceptance of the given triangular shape, and minor improvements (without changing the shape “triangle”) such as adding a digital clock and placing a safety-key. The second category consists of ideas concerning development of other shapes such as a rectangle or a hexagon after a series of improvements from the triangular shape (see Figure 1). The third category involves the rejection of the triangular shape, and the suggestion of other shapes such as a rectangle and a circle. German students contributed more ideas than their Japanese, Malaysian and Singaporean counterparts. Compared to the first task “designing a soundless alarm clock”, every group except Malaysian students generated less number of ideas. About one third of German students accepted “triangle”. Approximately half of them abandoned “triangle” and selected other forms such as a circle or a rectangle. Only one fifth of them followed the instruction and improved the triangular diary. Majority of Japanese students improved the design, either by adding some items or by proposing new forms. Different from German students, the Japanese students rarely abandoned the given triangular shape. Instead they began the task of improvement from the given shape “triangle” and then proceeded to other forms after a series of steps (see Figure 1). Only one tenth of the Japanese students rejected “triangle” and selected the conventional shape “rectangle”. Two third of

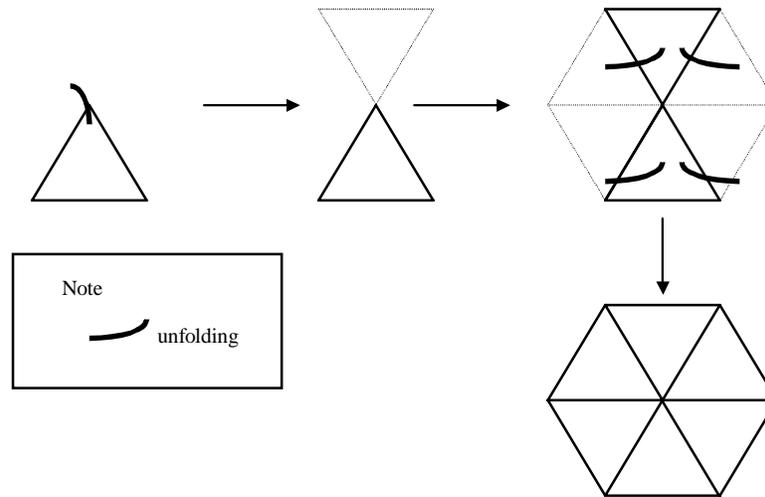
Malaysian students preferred conventional shape “rectangle” to other shapes. About half of Singaporean students performed the task according to the instruction.

Table 1: Ideas for Designing a Silent Alarm Clock

Idea	German	Japanese	Malaysian	Singaporean
Movement	6 (17.0%)	9 (31.0%)	1 (20.0%)	
Human Beings	3 (8.6%)			6 (24.0%)
Electrical Current	7 (20.0%)	5 (17.2%)		
Temperature	2 (5.7%)	3 (10.3%)		6 (24.0%)
Light	5 (14.3%)	2 (6.2%)	1 (20.0%)	
Aroma	2 (5.7%)	2 (6.9%)		
Water	3 (5.7%)			
Water + playful		2 (6.9%)		
Vibrator			1 (20.0%)	6 (24.0%)
Robot				3 (12.0%)
Robot + playful				3 (12.0%)
Unheard frequencies			1 (20.0%)	
Other objects + playful		1 (3.4%)	1 (20.0%)	
Other objects		2 (6.9%)		
Other	5 (14.3%)	3 (10.3%)		1 (3.3%)
Total	35	29	5	25
Idea per person(in average)	1.84	1.45	0.45	0.81

Table 2: Ideas for Improving a Triangular Diary

Idea	German	Japanese	Malaysian	Singaporean
Triangle (no improvement)	6 (31.6%)		1 (12.5%)	2 (13.3%)
Improve the triangle	4 (21.1%)	6 (33.3%)	2 (25.0%)	4 (26.6%)
Rectangle	3 (15.8%)	2 (11.1%)	5 (62.5%)	2 (13.3%)
Rectangle from triangle		6 (33.3%)		4 (26.6%)
Other shapes from triangle		4 (22.2%)		
Other shapes	4 (21.1%)			
Other shapes (no specific ideas)	2 (10.5%)			3 (20.0%)
Total	19	18	8	15
Idea per person(In average)	1.00	0.90	0.73	0.48

Figure 1: Continuous Improvement**Study 2: Perception of Creativity**

Design of the study: One hundred and sixty two participants took part in a paper-and-pencil survey of which 65.4% ($n = 106$) female and 34.6% ($n = 56$) male. The participants were between 18 and 25 years of age. The questionnaire was distributed to the participants in a lecture hall on July 26 1999 when they attended the second lecture of educational psychology. They were requested to rate nine types of creativity proposed in the Howard Gardner's (1993) multiple intelligences model. The nine types of creativity were linguistic, logico-mathematical, musical, bodily-kinesthetic, interpersonal, intrapersonal, naturalist, existential or spiritual, and spatial creativities. A 5-Likert scale was employed. All numbers of the scale were denoted with specific meanings. Number "1" denoted "very low", "2" referred to "low", "3" was "medium", "4" indicated "high", and "5" meant "very high". The participants were invited to rate Singaporean, Japanese, German, American, Chinese, and Indian creativity in the nine domains. Two criteria were referred to select these nations. The first criterion was familiarity. Under the Look East policies, Japan has been one of the countries that Singapore looks up to. Japan started its journey of creativity in the fifties and proceeded with the same journey in education in the eighties. Chinese and Indian societies had their cultural and historical links with Singapore. Many of the participants of the study were third or fourth generation of overseas Chinese or Indian. The second criterion was related to possible "bias" of perception of creativity. Given the fact that most of our current inventions are Euro-American design, we assumed that participants might match "creativity" with Euro-American products. German machinery and automobile manufacturing is well known in Singapore. When Singapore adopted English as the working language, it in fact opened its gate to cultural, scientific, and technological influences from any English-speaking countries. The American film industries, computer products, and others are Singaporean everyday entertainment and consumption.

Results: The student teachers rated intelligences of various domains around medium range except musical intelligence for Indians and Americans, and bodily-kinesthetic intelligence for Americans. Pair-sample t-tests were performed for the student teachers' evaluation on Singaporean versus other nations' creativity across domains. Significant findings were shown in all domains ($p < .05$ and $p < .001$) except for linguistic (Singaporean-German, Singaporean-Indian, Singaporean-China), spiritual (Singaporean-German, Singaporean-American), intrapersonal (Singaporean-Japanese,

Singaporean-Indian), interpersonal (Singaporean-Japanese, Singaporean-Indian, Singaporean-German, Singaporean-Chinese), logico-mathematical (Singaporean-German, Singaporean-Chinese), and spatial (Singaporean-Indian) domains. Table 3 summarises means and standard deviations of the student teachers' ratings.

Table 3: Self-evaluation and evaluation of other nations' creativities

	Singaporean		Chinese		Indian		Japanese		German		America	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Interpersonal	3.21	.65	3.31	.69	3.26	.65	3.33	.78	3.30	.66	3.82	.78
Intrapersonal	3.15	.64	3.28	.69	3.17	.69	3.13	.91	3.33	.61	3.46	.84
Bodily-kinaesthetic	3.20	.63	3.74	.77	3.97	.80	3.46	.76	3.54	.85	4.11	.76
Linguistic	3.34	.68	3.38	.74	3.33	.77	3.02	.81	3.31	.72	3.72	.79
Existential/spiritual	2.99	.67	3.58	.71	3.84	.79	3.53	.81	3.04	.57	3.13	.78
Naturalist	2.78	.76	3.13	.75	3.19	.77	3.37	.79	3.27	.73	3.55	.78
Musical	3.15	.64	3.82	.71	4.01	.83	3.68	.76	3.53	.82	4.09	.73
Spatial	3.11	.68	3.38	.64	3.08	.60	3.51	.77	3.44	.70	3.56	.71
Logico-mathematical	3.68	.69	3.80	.77	3.37	.82	3.88	.76	3.72	.81	3.46	.82

Note: Chinese = Hong Kong Chinese, Mainland Chinese, Taiwanese; America = North Americans (US, Canada)

Critical perception: Critical self-evaluation was also observed from comparisons between evaluations of Singaporean and those of other nations' creativity in various domains. For all significant findings (using paired sample t-tests), evaluations of Singaporean creativity across domains were lower than those of other nations except for linguistic creativity (Japanese), and logico-mathematical creativity (Americans, and Indians). Obviously, Singaporeans' self-perceived competence and perception of other nations' competencies reflected their self-beliefs and self-confidence in international comparative platforms. Bilingual education (English and mother tongues) seems to have enhanced Singaporeans' high self-beliefs in the linguistic domain compared to their neighbouring nation Japan, a nearly homogenous society. We can infer the implicit conceptions of linguistic competencies of the participants by examining significant findings of this domain across nations. The participants rated linguistic creativity of the Americans and Germans, who employ almost only their mother tongue (English or German) in their home environment, significantly higher than that of the bilingual Singaporeans. The findings allow us to infer that the participants have placed a high weight on English language fluency in their evaluation. Over the years, English has been given a high socio-economic and educational status in Singapore, and thus has been given an imbedded "value" of importance in the Singaporean society. Our argument is supported from the high percentage of English as a home language regardless of races and socio-economic backgrounds. The participants' high significant rating for the logico-mathematical creativity could be explained by the recent success of the Singaporean secondary school children in the Third International Mathematics and Sciences Scores (TIMSS).

Discussion

The studies showed that individuals of various cultures could solve problems that acquire breakthrough and adaptive creative competence. There were variations in their styles of solving problems. Japanese students tended to perform closely to the given instruction (for example, improving the triangular diary). In contrary, some German students preferred to redefine the problem (for example, instead of improving the triangular form, a circle was suggested). Some Japanese students engaged with continuous improvement. They demonstrated processes involved in getting a solution. One idea for a soundless alarm clock, for instance, concerned folding a bed into a

chair followed by movement. Another idea for improving the triangular diary, for example, involved transforming a triangle to a hexagon after unfolding the former two times. In general, German students preferred a straightforward solution (for example, asking someone to wake up a sleeping person). Some Malaysian and Singaporean students presented “playful” ideas (for example, dropping a piece of ice on a sleeping person). The existence of various types of creative solutions supports one of the aims of cross-cultural research that emphasises the importance of discovering variations of behaviours or thinking patterns in different cultural settings.

In cultivating creativity we value both types of creativity, and place emphasis on the P-creativity. As a human asset, creativity is embedded with variations in presentation. Human behaviour, cognition, and emotion are manifested in numerous degrees and forms within the individuals’ psychological and socio-cultural contexts. As individuals behave, think, and react in their unique ways, cultivating creativity should take the individual differences into consideration. Education has a mandate to uncover all individuals’ potential regardless of their backgrounds. As such focusing on P-creativity will fulfil the responsibility of all educators.

Educators have to acknowledge minor improvements shown by individual learners with reference to their previous achievements. Comparison between two performances should be done within an individual before it is done across individuals. An individual gains confidence in doing a task, when s/he realises that s/he has improved from her(his) previous performance. Once an individual is convinced of her(his) own competence, s/he will get interested into the similar task and have the will to perform it at her(his) best within her(his) capacity. The internal psychological security should be established before an individual is placed in competitive environments before other individuals. Self-determination is an indispensable factor for creative performance. As self-determination is closely related to intrinsic motivation and task commitment, educators have to provide a learning environment that can stimulate P-creativity within an individual’s learning framework.

How a society or culture evolves, progresses, advances, and continues depends on its members’ desires, wills, and strengths to discover and make sense of useful, innovative, inventive, and creative ideas. Creativity education refers to efforts made by schools and societies to uncover individuals’ creative potentials and develop them into creative acts. Moving beyond the conventional educational objectives that end at acquiring knowledge and skills (Takahashi, 1993, p.192), creativity education acknowledges new combinations and interrelations, and provides conditions to generate them. Referring to the socio-cultural characteristics of creativity embedded within an individual’s framework, enhancing creativity should be regarded as both sociological and psychological endeavors.

Taking the socio-cultural contexts into account, enhancing creativity can in many aspects unique to an individual, and a society. Despite the fact that the individuals of modern, industrial, and globalize societies are exposed to various cultural and social influences through their contact with the mass media, their life experiences are unique in nature. Consequently, all societies possess unique and special behaviors and thinking patterns. Strategies use to enhance creativity may in some ways specific or indigenous to the society. Hence, it is worthwhile to examine connotations of creativity in various societies. The implicit and socio-cultural connotations attached to creativity and the ways to enhance it are useful information for us to understand how creativity is conceptualized in a society.

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