Cross- Cultural Studies
And
Creative Thinking Abilities

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Abstract:

The research aim is to investigate cultural influence on creative thinking abilities. The current research reviewed pertinent studies in this area to provide an answer for the following questions: Are there any differences in the development of creative abilities of individuals across cultures? Are there any differences between samples taken from different countries regarding creative abilities (i.e. originality, flexibility, fluency)? Are there differences between males and females in creative thinking abilities across cultural studies? What kind of creative thinking measurements can differentiate the creative abilities among cross-cultural samples? Based on a review of various studies, results indicated that cultural factors strongly influence the abilities of creative thinking. From the results of related studies, implications and recommendations for further research are suggested.

دراسات عبر ثقافية وقدرات التفكير الإبداعي

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الملخص :

هدفت الدراسة إلى التعرف على القدرات الإبداعية من خلال الدراسات العبر ثقافية ومحاولـة التوصل إلى التأثير الثقافي والمجتمعي على نمو وتطور القدرات الإبداعية . وقد حاولـت الدراسـة مـن خلال مراجعتها للبحوث في هذا المجال التوصل إلى الإجابة على الأسئلة الآتية: (١) هل هنـاك اختلاف في خط نمو وتطور القدرات الإبداعية لدى الأطفال تبعاً للثقافة والمجتمع الذي ينتمـون إليـه؟ (٢) هـل هناك اختلافات بين كل من الذكور والإناث في قدراتهم الإبداعية (أصالة، طلاقة، مرونة) تبعـاً الثقافـة التي ينتمون لها ؟ (٣) وهل هناك اختلاف في القدرات الإبداعية لدى الأطفال تبعا لمحيط وثقافة الأسرة التي ينتمون إليها (٤) وهل هناك تفضيل لأحد أنواع الاختبارات الشكلية واللفظية للقدرات الإبداعيـة من ثقافة لأخرى؟ وللإجابة على الأسئلة فقد قامت الباحثة بمراجعة العديد مـن الدراسـات والأبحـاث والتي شملت على عينات من بعض الدول الأوروبية والأمريكية والآسـيوية وقـد أظهـرت نتـائج تلـك الدراسات أن هناك تأثيرات جوهرية على نمو وتطور القدرات الإبداعية والتي تختلف من مجتمع لآخـر، وقد ارجع الباحثون هذه التأثيرات على نوعية القدرات الإبداعية لدى كل من الذكور والإناث إلى طـرق التربية الأسرية المتبعة في كل ثقافة ومجتمع . كما أظهرت النتائج تفضيل بعض عينـات الدراسـة لـبعض أنواع من الاختبارات الإبداعية. وقد أوصت الباحثة بأهميـة القيـام بالدراسـات عـبر ثقافيـة للقـدرات الإبداعية والاهتمام بطرق التعليم ووسائله لكل ثقافة وإيجـاد اختبـارات للقـدرات الإبداعيـة تـتلاءم و تتوافق مع ثقافة كل مجتمع.

Introduction

In view of the large number of cultures in the world, the number of cross-cultural studies that have been done thus far on creative thinking are only few. This relative dearth of cross-cultural studies is not surprising in view of the expenditure and effort involved in conducting such studies. However, cross-cultural studies, especially in the area of creativity, are of value not only from the point of generating a cross-cultural theory of creativity (Csikszentmihaly, 2005; Mar'i, 1976) but also as a cultural phenomenon that has a strong influence on creativity by supporting or inhibiting the development of creative abilities (Csikszentmihaly, 2005; Fleith., 2002; Sternberg, 2002). In this regard, studying cultural environmental factors is essential to understand the associated expressions of creativity and the effect of culture on creative thinking development.

A number of important environmental factors influence creative thinking abilities. These include the cultural and personal barriers that can inhibit creative abilities. Jones (1984) classified such factors as strategic (i.e. value, beliefs, morals, and other habits acquired from society and self-image) or perceptual, and organization or group barriers that can stifle the effort of individuals to function creatively. Ekvall and Tangeberg (1986) identified ten factors in society that influence creative thinking abilities: challenge and motivation, freedom, support of new ideas, trust, openness, liveliness and dynamism, playfulness and humor, debates, conflict, and risk taking.

According to Csikszentmihalyi (2005) who formulated a theory of creativity and culture, emphasized that we cannot study creative thinking abilities by isolating individuals and their work from the social and historical events in which their actions are

carried out. Csikszentmihalyi, explaines that creativity is a very complex interaction among a person, a field, and a culture. He emphasized that creative thinking is the product of three main forces: social institutions (field: the social organizations of domain), a stable culture (domain: symbol system), and finally the individual who brings the change to be considered as creative. Csikszentmihalyi represented the set of relationships that constitute creativity through the "map" (See Figure1). It is important to realize that the relationships shown in the figure are dynamic links of a circular causality. In other words, each of the three main systems (person, field, and domain) affects the others and is affected by them in turn.
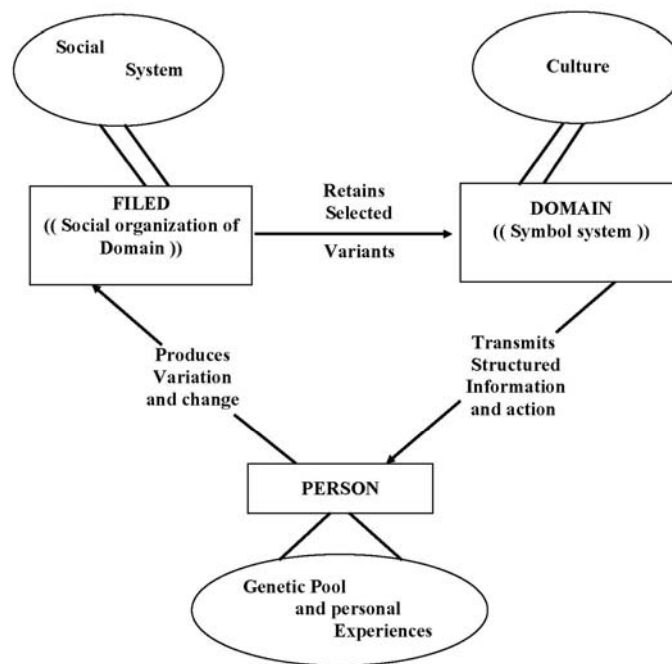
Systems view of creativity

Figure (1): Creativity map (Csikszentmihalyi, 2005)

Csikszentmihalyi emphasized that without a culturally defined domain of action in which innovation is possible, the person cannot get started. He pointed out that information and ideas that a creative person uses had existed before the creative person got started with his thoughts; it had been stored in the symbol system of the culture, in the customary practices, the language, and the specific notation of the "domain." Therefore, focusing on the individual out of context does not allow the observer to evaluate the variation produced. A person who has no access to this information and data will not be able to make a creative contribution, regardless to what extent he or she is able or skilled. A corollary of this relationship is that depending on the structure of the domain, it might be either easy or more difficult for a person to innovate. The more precise the notation system the easier it is to detect change and hence to evaluate whether or not the person has made an original contribution. The "person" within the system, his contribution to the creative process is to produce some variation in the information inherited from the culture. Every field is embedded in a specific social system. The resource of the larger society encourages the support and recognition of new ideas. But some individuals will face difficulty in establishing the creativity of a new idea. Similarly, a new idea will face difficulties in being recognized as creative if the field is defensive, rigid, or embedded in a social system that discourages novelty. He emphasized that it is not only in the transition from the domain to the person, but it is also in the move from the person to the field, and from the field back to the domain. The only way to establish whether or not something is creative is through comparison, evaluation, and interpretation of a particular culture. The model suggests that

without people in fields who become attracted to the new idea, the creative process will be aborted. If no qualified persons are willing to invest their energy in preserving the variation, it will not become one of the greatest ideas that future generations will remember.

The combined concept of creativity and cultural aspects presented above has shown the importance of studying the development of creative thinking abilities across cultures. Current research is an attempt to highlight cross-cultural studies and the influences of cultural factors on creative abilities. They also draw attention to the need for understanding creativity and how it influences cultural change process. Reviewing cross-cultural studies related to creative thinking abilities may assist in expanding awareness and increase appreciation for the special effects of a particular field and specific characteristics that promote or inhibit creative thinking abilities within a culture. Such a study will also raise our understanding of the differences, in terms of creative thinking, that may exist in various cultures and countries. Generally, cultural and environmental factors such as values, beliefs, and morals have a major influence on creative thinking abilities.

Statement of the problem

A great deal of the research performed in this area has been devoted to factors that influence creativity development. Mainly, researchers have found that creative thinking abilities are supplemented by the requirement that the product be of social value; creativity fostered or hindered by cultural characteristics such as socialization processes, beliefs, values, and traditions. Socioeconomic

status and historical roots of a nation can also influence the development of the creative expression.

As Csikszentmihalyi (2005) stated, creativity is not only referenced on the personal level and the person's work, but also as a phenomenon that results from interaction between multiple factors.

From this point of view, creation or creativity is never the result of individual action alone; it is the product of three main shaping forces as indicated earlier (Csikszentmihalyi, 2005). Therefore, it is important to investigate and understand the emergence of creativity in different cultural contexts in order to establish conditions that will maximize individual opportunities for the development of creative abilities in several domains. Sternberg (2002) emphasized that Cultural explorations of human thoughts around the world is more than just in terms of abilities, we will never understand our thoughts until we investigate our culture and its influence on our thinking style. For example, a wide range of traits or behaviors of a creative person can be learned and identified through his or her culture such as challenges, freedom, support of new ideas, trust, openness, playfulness and humor, debates, and risk taking.

Most researchers regard the stimulation and inhibition factors to creativity were operational in the social and cultural context. According to Starko (1995), "creative contributions do not spring forth in a vacuum; they are built on the knowledge and efforts of those who have gone before" (p. 114).

As Torrance (1966), who spent more than sixty years studying creativity, stated that cultural systems have an effect on creativity.

He found that the developmental curve of creativity varied from country to country, reflecting periods of growth and slump (or dips). He considered the slump of creative thinking that occurs in children at different ages as unhealthy; he recommended some changes in social values regarding children's creative development. However, Wilt (1959) and Mackinnon (1966) regarded the developmental curve of creativity growth and slumps (dips) that occur at different ages as inevitable and to be healthy phenomena.

Family or parental attitude are also considered a significant force in encouraging or discouraging creative thinking in a particular culture. MacKinnon (1962) indicated that highly creative persons come from a special kind of environment, which facilitates the emergence of creative thinking. In cross-cultural studies of creative thinking, multiple investigators completed tests and have found that socio-cultural factors have a strong influence on measuring the creative abilities in children. Torrance stated that the more highly developed the culture, the better children perform on creative tests. However, Maccoby and Jacklin (1975) found that after conducting different long-term cross-cultural studies and presenting various ways to measure creative thinking in some cultures in early school years there were no significant differences in creative thinking gender-wise, but that at later ages in elementary school, girls performed better in verbal tests over boys. Raina (1966) indicated that these differences were related to the kind of treatment the children received because of their gender and identification with the gender roles in their culture.

The cross-cultural studies completed thus far are predominately concerned with such topics as:

1. **Creative development, whether it is continuous or discontinuous;**

2. **Gender differences, i.e. cultural values;**

3. **Family environment; and**

4. **Creativity measurements.**

The research aim is to investigate cultural influence on creative thinking abilities. Based on the findings of cross-cultural studies on creative thinking abilities, analyzing and synthesizing these results to answer the research questions.

Purpose of the Study

The goal of this paper is to provide answers to the following existing research questions by reviewing pertinent studies in the areas of creative development, gender differences, cultural values, family environment, and creativity measurements. These questions are:

1. **Are there any differences in the creative development ability of individuals across cultures?**

2. **Are there differences between males and females in creative thinking across cultural studies?**

3. **Are there any differences between samples taken from different countries in terms of family environment and creative abilities (i.e. originality, flexibility, fluency, and elaboration, etc.)?**

4. **What measures of creative thinking differentiate the creative abilities in cross-cultural samples?**

Based on a review of various studies, some implications and ideas will be suggested for the cultivation of creative thinking across cultures.

Definition of Terms

- **Cross-cultural studies:** A research design approach in which subjects from two or more cultural groups are measured using the same dependent variables at the same point in time.

- **Culture:** A complex whole which includes knowledge, beliefs, art, law, morals, customs, and other attributes that are acquired by a man who members of a particular society.

- **Creativity:** the capacity of an individual to produce compositions, products, or ideas related to particular tasks which are essentially new or novel, previously known or unknown to the producer. Or, creativity is a process, the contribution of new ideas a different viewpoint; a new way of looking at a problem, situation or event, where the freedom of the individual is the basis of expression (Torrance, 1974).

- **Creativite Thinking:** a process of becoming sensitive to specific problems, deficiencies, gaps in knowledge, missing elements, disharmonies, and identifying the difficulty, searching for solutions, making guesses or formulating hypotheses and possibly modifying and retesting them and finally communicating the results effectively to others (Torrance, 1976).

- **Originality:** This refers to new ideas produced by a creative person where he or she generates unfamiliar, noncontradictory, and simultaneously acceptable responses with a tendency to provide far-reaching associations of ideas. This capability can be defined quantitatively in terms of unfamiliar yet acceptable responses when stemming in response to a specific stimulus (Torrance, 1974).

- **Fluency:** This is the ability to produce the largest possible number of meaningful words. According to Guilford (1987), there are two factors of fluency: the verbal fluency, which is manifested in the number of utterings, and ideational fluency, which describes the degree of swiftness in providing a large number of ideas, regardless of the quality of responses.

What matters here, as mentioned by Guilford, is the number of responses and ideas rather than single words (Torrance, 1974).

- **Flexibility**: This is the capability of an individual to transfer from one group to another, thereby expressing mental flexibility as well as ease of mental position. Guilford found that there are two kinds of flexibility: spontaneous flexibility and adaptive-flexibility. Spontaneous flexibility is the ability to produce a diversified cluster of thoughts free of dormancy and inertia. Adaptive flexibility is the ability to facilitate problem solving which becomes more obvious when the problem requires an extraordinary solution (Torrance, 1974).

- **Elaboration**: This is the ability to add details and meanings to original solutions and thoughts (Torrance, 1974).

Conceptual Framework

Creativity is sometimes formulated in terms of a product and other times in terms of processes, the kind of person, or a set of environmental conditions. The production of something new (to the individual or to the culture) is included in almost all the definitions of creativity.

Torrance (1977) defines creativity as the "process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements, disharmonies; identifying the difficulty, searching for solutions, making guesses or formulating hypotheses about the deficiencies; testing and retesting these hypotheses and possibly modifying and retesting them; and finally communicating the results."

Torrance's definition has been widely accepted by many researchers for different reasons. It enables one to begin defining

operationally the kind of abilities, mental functioning, and personality characteristics that facilitate or inhibit the process. It provides an approach for specifying the kinds of products that result from the process, the kind of person who can engage most successfully in the process, and the conditions that facilitate the process. This definition also seems to be in harmony with historical usage and equally applicable in scientific, artistic, literary, dramatic, and interpersonal creativity.

Thurston (1952) argued that it does not make any difference whether one society regards an idea as novel; he maintained that an act is creative if the thinker reaches the solution in sudden closure that necessarily implies some novelty to the thinker. Smith (1973) indicated that creativity is the capacity to select old creative abilities and create out of them new things. The new creation may not necessarily be new in his society, but rather it is new to the creative person himself.

In contrast to Thurston (1952) defined creativity as being different from conforming and as requiring a non-habitual rather than habitual behavior. He specified that creative contributions must be true, generalizable, and surprising in view of what existed at the time of discovery in a particular culture.

Murray and Galian (1959) saw creativity as a process resulting in new and complex ideas with a given value. This new idea is composed of elements previously disconnected, and is attainable through the interaction of contents within an individual and along with information about the external world.

Stein (1962) indicated, "Creativity is a process that results in new production satisfactory to the group and held by it as beneficial.

A cognitive process in itself, rather than in production. Production is considered as creation for creativity but does not in itself constitute creativity." Stein's definition emphasizes culture. Stein (1953) hypothesized that studies of creative persons may reveal sensitivity to gaps in knowledge that exist in their own culture and that their creativity may be manifest in calling attention to these gaps.

Schaefer (1964) assumed that creativity occurs on a purely personal level in the human being. He accepted the effects of cultural criteria as well as the need to integrate experience. In addition to acknowledging differences in value systems among individuals, he is a proponent of taking into consideration the reflection of innate abilities on creative work.

Rogers (1961) defined creativity as a "process that is the emergence in action of a novel relationship, or product, growing out of the uniqueness of the individual on the one hand, and the materials, events, people, or circumstances of his life, on the other." He saw creativity as the emergence of a new product resulting from the interaction between the individual and the substance of experience. He perceived creative production as neither involving only the individual by himself, nor the substance by itself, but the interaction of the two. His definition of a creative process centred on the creation of a new production and the distinctness of an individual's ability. In addition, he emphasized the role of available resources, events, people, and circumstances that governed an individual's life in forming her or his creative abilities.

Rogers's definition represented the general trend in creativity as it related to the ability to create new things. Roger also dwelled on the role of the individual in light of the surrounding environment, circumstances, and society. He called attention to the fact that

creativity has components in sustainable interaction between the individual and his environment, tying the individual to the type of relative experience about the environment.

The definitions of creative thinking reviewed here emphasize that creative thinking activities cannot be studied on their own; but rather, the circumstances that are conducive to their growth, must be studied and taken into consideration as well. Therefore, researchers emphasized the roles of culture and its responsibility in supporting or inhibiting the development of creative thinking abilities.

1. **The development of creative thinking abilities across cultures (Continuous vs. Discontinuous)**

Theorists and researchers in the field of human development have for years been divided on the issue of creative thinking development, whether it is continuous or discontinuous and, if so, in what stages of an individual's life does it emerge. Numerous researchers have observed this aspect, including Axel (1966); Barber and Colvery (1965); Barkon, (1960); Chen et al. (2005) ; Colvin and Meyer, 1962; Eunice et al. (2003); Goldman and Torrance (1967); Harry and Sullivan (1953); L'Abate (1957); McConnell (1963); Niu and Sternberg (2007); Rabinsky (1980); Rudowicz and Yue (2000); Saeki et al. (2001); Smpson (1922); Torrance (1963); Torrance (1965a); Torrance (1966b); Torrance (1970); Weideman (1961); and Yamomoto (1964).

As Torrance (1970) indicated, in some cultures creative thinking development is relatively continuous, while in others there is little growth during elementary school years. However, most cultures exhibit discontinuities in the development of creative thinking. In one study conducted by Torrance (1963), data on three

non-verbal and six verbal tasks for assessing originality were obtained from six cultures: the United States (black and white students are categorized as two cultures), Western Australia, Western Samoa, Germany, and India. In each culture, data were collected from about 1,000 pupils in grades one through six. According to Torrance, the creativity tasks did not favor one culture over another. However, comparison of countries in terms of creative thinking development revealed variations in the developmental curve of one culture from another reflecting period of growth and slump. Also, the results showed that in the United States' sample, which constituted a broader range of creativity, there appeared to be a period of growth from the first to the third grade; with a slump in the fourth grade followed by another period of growth in the fifth and sixth grades. In Germany, a slump appeared in the second and third grades followed by growth in the fourth and fifth grades. In Western Samoa, although growth was continuous, the rate of progress was slow from the second to the third grade. The periods of decline or slow growth in children's' creative development, as the study by Torrance indicated (1970), might be related to cultural and social pressure.

A cross-cultural study was conducted by Ogletree (2000) to determine if there is significant difference in creative thinking ability between Waldorf students (schools founded in 1919, located in different countries among them, England, Scotland, and Germany. Education in these schools is based on the philosophy of critical idealism). The study conducted in 1996, the samples comprised of a total of 1165 third through sixth grade European children, which included 479 English, 193 Scottish, and 493 German pupils and 557 boys and 608 girls. The sample was drawn from six Waldorf Schools

and six state schools of which 499 were Waldorf pupils and 666 state school pupils. Two participating Waldorf Schools were selected in Germany, three in England, and one in Scotland. Representative state schools were selected in each of the cities to obtain a comparative sample. The Waldorf and state school pupils were matched on the basis of their socioeconomic status by their location. The hypothesis was that there are significant differences in creative thinking abilities between students from Waldorf schools and state schools. The findings obtained from administering the Torrance Test of Creative Thinking Ability, suggested that Waldorf students were more creative than their state school peers. The findings showed that cross-culturally, Waldorf School pupils obtained significantly higher creativity scores than their state school peers. The researcher attributed the particular result to the maturational-readiness and nurturing curriculum of the Waldorf Schools, which includes having the same teacher follow students from grades 1 to 8; de-emphasis on academic performance in early grades; use of art in instruction; and other teaching and curriculum considerations. Waldorf pupils did not show the usual regression in creativity at ages nine and ten, which was one of the hypothesizes that were of concern to the researcher, "we should not find in these schools (Waldorf) the discontinuity in (creativity) development that we find so commonly in most schools at the beginning of the fourth grade." (Ogietree (2000), 18). This result may be attributed to changes in habits that a particular environment produces at certain ages that may disrupt the child's learning pattern.

A study by Rabinsky (1980) supports Torrance's assertion of the existence of critical periods of growth and decline in terms of creativity scores. Rabinsky's study examined creative thinking across

cultures, the United States and the occupied territories (Palestine). She investigated the possible differences between students in grades 9, 10, 11, and 12 on four measures of creativity. Specifically, there were two main questions of interest: (a) Within each grade, are there differences amongst these cultures on each of the four dependent variables: fluency, flexibility, originality, and elaboration; and (b) Are there differences, regardless of culture, in the four dependent variables among grades. The total sample size was 137, fifty students from the occupied territories and eighty-seven American students. Torrance's Tests of Creative Thinking were applied to the sample. The results revealed that differences between the two cultures were specific to the variables and grade levels. Students from the occupied territories scored higher on fluency and flexibility in grades 9, 10, and 12, but not 11. However, no significant differences were found among the grades regardless of culture. The significance of grade level was, apparent in fluency, flexibility, and elaboration, but not for originality. Overall, scores from grades 10 and 11 were higher when compared to grades 9 and 12.

Rabinsky attributed the lower scores in the ninth grade to the type of curriculum introduced in the ninth grade. Generally, ninth grade is a transition point from the immature "middle school years" to the more mature years of high school and this has its effect on ninth grade students. Furthermore, ninth graders in both cultures are required to plunge into a serious curriculum and are encouraged to establish personal achievement records. Rabinsky attributed the lower scores in the eleventh and twelfth grades to students' concern with preparation for life after high school; i.e. college and the establishment of a successful career. Overall, she observed constant concerns and anxieties among eleventh and twelfth graders about

their future. The study results will be discussed in the conclusion of this current research.

A recent study has confirmed the cultural influences on children's creative thinking abilities. Eunice (2003) conducted a study focusing on personal cultural obstacles to creative thinking abilities. The sample was selected from two cultures (Brazilian and Mexican). Consequently, Alencar's (1999) creative inventory was administered to the two samples, and the results showed significant differences between these two cultures (Brazilian, Mexican) in regards to their creative thinking abilities. The results indicated the existence of several obstacles in the two cultures that may affect or hinder the samples' creative thinking development, such as lack of motivation, inhibition, and shyness, which were more apparent in the Mexican sample. The study pointed out the importance of studying the norms in each culture, and their effects on children's creative thinking abilities. Moreover, to prevent any obstacles to children's abilities, educators, teachers, and parents should be aware of the environmental obstacles surrounding these children in order to develop their creative thinking abilities and to enable them to become less susceptible to obstacles that hinder their creative thinking abilities within their specific culture. As the study indicated, the culture would influence creative potential. Therefore, practical implications should be considered for understanding cultural differences and their influences on children's creative thinking abilities. This is especially relevant nowadays. The significant findings highlight the need to consider the cultural context when promoting individual creative thinking abilities.

A contemporary research on the concept of creative thinking across cultures, conducted by Niu and Sternberg (2007) showed the

cultural influences on the concept of creative thinking. The researchers examined bodies of literature concern two cultures Asian (Eastern Asian) and Western (American and European). The research study showed that many Eastern Asian people have different concepts of creative thinking abilities in comparison to the West. In addition, the cross-cultural studies of creativity reveal that Easterners and Westerners samples differ on their average in terms of creative performance and creative expressions. The two cultures (American and Asian), has a system that differs from the other, such as individualism vs. collectivism. Therefore, the researchers stated that we need to consider the cultural context when promoting children's creativity and their potential.

An early study conducted by Goldman and Torrance (1967) examined and analyzed the sub-cultural influences on creative development and by way of imaginative stories told by students from a segregated black school in Georgia and a middle class white school in Minnesota. The stories were evaluated in terms of originality, interest, style, pressures of divergence and conformity. 148 black pupils in the fourth, fifth, and sixth grades were asked to write stories from their imagination. Comparisons were made with the same total sample from the fourth, fifth, and sixth grade white pupils.

They found that first grade white students, white being the dominant culture, excelled in fluency, flexibility, and elaboration over black children. White children, however, did not show superiority in originality. After first grade, black children actually achieved significantly higher scores on originality than their counterparts in white's school. By the fourth grade, blacks showed superiority in all of the measures except elaboration. Then a slight

dip occurred in fluency in the third grade with both groups. There was considerable growth on all of the figural measures between first and fourth graders and this growth appears to be fairly continuous. The level of functioning, except for elaboration, is not encouraging within the black culture. On the Ask-and-Guess test, a lack of verbal skills was revealed among black children. In the third grade, black children were at a very low level in verbal skills and they did not improve perceptibly between the third and sixth grades. In addition, black children performed at a significantly lower level than did white children on verbal skills. Thus, in the black culture of the south, it is obvious at a point that children perform comparatively better on figural than on verbal tests.

Some investigators (Wilt, 1959) regard the slump (or dip) that occurs at about the fourth grade as more or less inevitable; maintaining that the most that teachers and parents can do at this point in a child 's development, is to "keep the gates open for his or her imagination to return." Some, such as Mackinnon (1966), believe not only that the decrement is inevitable, but desirable, as part of the socialization process. Others, such as Mearns (1941; 1958) and Torrance (1963; 1966) contend that this discontinuity in creative development is unhealthy and can be overcome at any stage in the child's life cycle through creative teaching.

Longitudinal studies of creative development by Torrance (1966) hypothesize that majority of children will not show a decrease in creative functioning at the fourth grade level. From 1959 to 1964, children in two American elementary schools were tested every year with one or more batteries of creative thinking tests. A random sample of 90 subjects was selected from a population of 350 children (45 boys and 45 girls) in the third, fourth, and fifth grades. Torrance

found that there was a mean drop of about one-half standard deviation on each of the four variables (fluency, flexibility, originality, and elaboration) and the mean total score in grade four. The one-way analysis of variance showed that all of these decreases were significant at the 0.01 level of confidence or better. The percentage difference showed a decrease of one-half or more standard deviation between the third and fourth grades ranging from 45 percent for elaboration to 61 percent for flexibility. Gains of this magnitude during this period ranged from 11 percent in fluency to 38 percent for elaboration. In terms of overall means, 50 percent showed a decrease of one-half or more standard deviation and 15 percent showed gains of this magnitude. The general trend between fourth and fifth graders was one standard deviation of growth.

Torrance indicated in his study that not all children showed a decrease in creative functioning during the fourth grade. In fact, fifty percent of the children showed serious slumps at this particular stage of development. Many of them recovered between the fourth and fifth grades, while others did not experience a slump until they entered the fifth grade. Torrance attributed these slumps to educational experiences and cultural aspects.

Colvin and Meyer (1966) conducted studies based on compositions written by American children from grade three through grade twelve. They found a general decline at the beginning of the fourth grade. They maintained that the only type of imagination that showed substantial growth in the compositions they studied was visual. The same results were found by Yamomoto who conducted a study (1962) to investigate fourth grade slump in creativity functioning. He found a slump in grades four, five, and six.

In a study in which children were encouraged to write their own stories outside of the curriculum, Torrance and Hiller (cited in Torrance, 1965) found that fourth grade children produced fewer contributions than did the children in grades three, five, and six. Axtell (1966) asked gifted sixth grade children to plot the ups and downs of their development of curiosity from the first through the sixth grade. She found that 65 percent of the 272 subjects reported some slump period in their development curves. The greatest frequency of these slumps occurred during the fourth grade.

Other investigators describe creative thinking development as logically related to an aspect of discontinuity. Barber and Calverly (1983) who conducted a study within the American culture found that in the fourth grade, children are more suggestible and they have associated the concept of imaginative ability with suggestibility. They found that children reached a high point in suggestibility at the fourth grade level, which might be the reason for the decline in their creativity. McConnell (1963) obtained similar results using four measures of visual perceptual suggestibility. He reported his results by age rather than by grade and found a peak in suggestibility for eight and nine year-olds in terms of possessing greater visual perceptual suggestibility.

Most of the cross-cultural studies reviewed in the study confirm that there is degradation in the creative development among fourth graders, which is attributed to different environments and social life systems as explained by the researchers. Also it has been suggested by L'Abate (1975) that children's creative thinking abilities decrement or drop in the fourth grade which may be related or associated with another phenomena called "uncertainty" that occurs in the same period (i.e. fourth grade) in a child's

development. L'Abate found increases in "uncertainty"-related behaviour among fourth grade students. These kinds of results may encourage researchers to investigate the relationship between periods of growth or decline in creative thinking abilities and "uncertainty" which is considered an important period in a child's development.

Perfectionism is another explanation of the drop in creative functioning. Barkon (1960) found that most fourth grade children tend to be perfectionist and easily discouraged under adult pressure. This perfectionist trend at about the beginning of the fourth grade might explain the decreased productivity in creative activities across cultural samples and among fourth grade children. The decreased productivity and increased concern about evaluation was noted in the study by Weideman (1961) involving the composition of songs. A smaller proportion of children in the fourth grade submitted songs than in any other grade, from first through sixth. Yet, the fourth grade classes were distinctly more interested than those at any other grade level were in evaluating the songs created by other classes. Furthermore, their judgment agreed more closely with that of music experts than the judgment of students in other grade levels.

The personality theory suggests a number of possible explanations for the phenomena described by Harry and Sullivan (1953) and Torrance (1966). According to Harry and Sullivan interpersonal relations skills that are acquired at about the time a child enters the fourth grade include social subordination and accommodation, ostracism, segregation into groups, disparagement, stereotyping, competition, and compromise. Harry and Sullivan maintained that by this time, pressures toward socialization have almost invariably resulted in a careful sorting out of that which is

agreed to by authorities. **Strong dependence upon consensual validation develops and unusual ideas are laughed at, ridiculed, and punished. The child sees those around him not as much as enemies, but as sources of humiliation, anxiety, and punishment with respect to what they communicate and this tends to reduce the freedom and enthusiasm of communication, especially of original ideas.**

Torrance (1970) explains the decline in creative abilities in the fourth grade by relating it to the educational and social systems, which have an effect on children's creativity. He discussed the problem with a number of gifted sixth graders enrolled in the American school system and they were aware of many influences, which they believe caused them to become less imaginative, curious, and original in their thinking at about fourth grade level. They pointed out when they went into the fourth grade they were half way through the elementary process. The classroom activity became more organized and formal. They received credit only for what they wrote on paper. The animals in their stories no longer talked. They had to do homework and their papers were expected to be neat. The subject matter became different; they began having lessons in geography, history, science, and language arts. They began taking part in student government and started serving as monitors of their fellow students' behavior.

Torrance added more explanations to the occurrence of these discontinuities within a culture; i.e. whenever children in that culture are confronted with new stresses and demands. He cites an example of one humanitarian group, which established schools in underdeveloped areas. By doing so, they apparently brought both a stimulating and a disrupting influence on development, producing discontinuities in creative development.

When the anthropologically oriented interviews with the teachers of the subjects involved in the Torrance's studies, (1966) analyzed imaginative stories written by the children and the teacher's responses to the ideal pupil checklist. The results showed that children's responses seem to be related to an overall level of creative focusing on the children within a culture. These findings of the studies on cultural influence demonstrate the impact of culture on creative development, which could effectively be managed by analyzing the social systems, and provide information, which could be implemented into the educational systems to develop children's creative thinking.

2. **Gender Differences in Creativity :**

Investigators have long been interested in examining gender differences in creative thinking within various cultures. Mearig (1967) compared boys and girls in accelerated seventh and eighth grade classes in Massena, New York, and Skye, an island in the Inner Hebrides off the western coast of Scotland. The students from Skye, were bilingual, speaking both Caelic and English. Mearig was driven by the assumption that gender differences in creative behaviours are related to culturally defined sex roles and values; e.g., there is greater initial reinforcement for language activities for girls and this may lead to their initial superiority over boys on fluency measures of creativity. However, she speculated that with maturation, boys will gain fluency and by the eleventh or twelfth grade, such differences will diminish.

Mearig observed different trends in the two cultures. In Massena, NY, girls scored significantly higher than boys in fluency and flexibility. Although a similar trend was evident for originality,

the difference was not significant. In Skye, there were no differences found based on the results of Torrance tests. Mearig contends that gender differences may show up in the US because of the greater emphasis and recognition given to academic achievements by females. In Skye, Mearig points out, female students rarely entertain intellectual goals and their vocational aspirations are oriented towards service occupations. Further, Mearig noted that students from Skye generally scored lower than students from the United States on the Torrance Measures of Creative Thinking. According to her, this may be related to students' lack of orientation towards cognitive tasks required for creativity in Skye. Besides, schools in Skye place little emphasis on cognitive aspects such as the ones measured on creative abilities tests. For example, a procedure such as brainstorming may never be used in Skye schools.

Another investigator (Coon, 1969) examined gender differences in four cultures: the United States, Germany, Australia, and India. This study showed that in the United States, boys scored higher on originality than girls, while girls scored higher in figural elaboration. In all other samples, except those collected from India, gender differences were non-significant. In India, boys scored significantly higher than girls in figural originality. This study also involved a comparison of changes in performance between third and fourth grade, on figural, verbal, and total measures. The data showed that the United States sample showed more often a gain from the third grade to the fourth grade, while the reverse was the case for the sample from the other countries in the study, suggesting the importance of cultural factors.

Mar'i (1971) examined the influences of cultural differences and sex differences in creative thinking abilities. The study involved

two samples of eighth grade students, one from modern American culture and the other from the Arab rural occupied territories (Palestine). Mar'i used forms Verbal B and Figural B of the Torrance Tests for assessment of Creative Thinking. His study showed that Arab female students lagged significantly behind boys on all measures of creativity, although male students showed greater variability in performance as compared to females. Within the American sample, no significant sex differences were found, except in fluency and originality on one problem only, and this was in favor of females. In general, the performance of American students was superior to students in the occupied Arab territories and the former showed greater individual differences than the latter. Mar'i explained that in a modern society, individuality is encouraged and required while in traditional societies, individuality is punished. Further, her study does not mention the stressful conditions that students endure in the occupied territories, which clearly would affect the development of their creative thinking abilities.

Torrance and Aliotti (1970) investigated gender differences on both forms of the Torrance Tests of Creative Thinking (1966) in terms of levels of functioning and stability. The sample for this study consisted of 59 girls and 59 boys drawn from a large population of fifth grader.

The subjects were administered both forms of the Torrance tests, figural and verbal batteries. The two forms were administered one week apart. Responses were scored for fluency, flexibility, originality, and elaboration. The results showed that girls excel over boys in all of the verbal tests in both forms, A and B, at rather high levels of confidence. On the figural tests, boys excel over girls in flexibility and originality, but girls surpass boys in elaboration.

Torrance and Aliotti explained that girls perform at a consistently higher level than boys on all of the verbal tasks and this is consistent with the greater emphasis in the United Stated on verbal development of girls over boys. They also explained female superiority on figural elaboration tests. Generally, in the United States, women are expected to make fancy things and work out the details of plans. Women are characteristically placed in detail-oriented jobs and a similar role is usually expected in the home. Boys, on the other hand, seem to be freer than girls to develop their originality, especially in figural activities.

In a review of studies that had been done in the United States and Europe, reported between 1959 and 1974, Maccoby and Jacklin (1975) found that on verbal tests of creative ability there were no gender differences in early school years, but from about age 7, in most studies, girls showed an advantage. However, in non-verbal creativity, no clear trend across studies was discerned.

Raina (1980) reported several gender differences in creativity over a 10-year period in India. In 1959, boys in India had shown a consistent superiority on both the verbal and figural tests. Retesting a decade later revealed that the advantage in both verbal and figural creativity had shifted in favour of girls. Raina (1966) conducted a study of creative development in Delhi, India to find out the socio-cultural influences on creative thinking development. He found few differences between boys and girls in the first and second grades, but obtained rather consistent and significant differences between male and female on both the verbal and figural tests from the third grade through the sixth. It is interesting that the results obtained in two different areas (Ajmer and Delhi) are consistent with the results of Torrance's (1966) studies from various parts of the United States,

considering that the Indian culture places emphasis on language skills and male superiority. For example, boys in Ajmer and Delhi surpassed girls in the verbal section of creative thinking after grade two. Raina related this result to differential treatment of sexes and the identification of children with sex roles of their culture.

3. <u>Creativity and Family Environment</u>

Since the family and the attitude and values of parents have considerable significance in the emergence and development of creative thinking in children, investigators have linked this influence to the degree by which culture encourages or discourages creative thinking. Therefore, this extends into the way parents encourage or discourage creative personality characteristics as they develop in their children (Busse, 1967; Mackinnon, 1962; Mehrota and Sawers, 1989; Raina, 1980; Strom and Johnson, 1991; and Torrance, 1965).

Mackinnon (1962) indicated that a highly creative person comes from a special kind of home environment, which facilitates the emergence of creative thinking. He reported that he found in studying histories of a sample of highly creative architects that certain aspects of their parents' attitude toward them as children was very important in providing them with opportunities and even necessities in developing qualities of creative performance later in life.

Raina (1981) conducted cross-cultural studies of parental perception of creative children. The study was concerned with (1) what do Indian fathers believe are the most desirable and least desirable traits of a creative child? (2) Do Indian fathers and American parents differ in these perceptions? Furthermore, (3) how do their perceptions compare with those of creativity experts?

The subjects of this study were 165 fathers. Raina used Torrance's "ideal child" test. This test consists of 62 characteristics, 60 of which were found through empirical studies to identify some group or groups of highly creative people. The subjects were asked to input a check mark once for each trait they believe should be encouraged, and input two check marks for each trait that they believe should be discouraged. The results of this study showed that Indian parents impose sharp restraints that oppose the ten most valuable and fundamental principles, especially freedom of expression, of human growth and development. Their perceptions are hardly encouraging for the emergence of originality and development of cognitive vitality, which form the foundation for divergent and independent thinking. A study of the ten most valued traits by Indian and American parent's points to one significant finding, that there are six common characteristics, which appear in the results of both groups.

Furthermore, there is considerable agreement on the kinds of behavior the two groups believe should be discouraged. For example, the two groups want to discourage so-called "negative" creative characteristics such as negativistic, faultfinding, disturbing, stubborn, critical attitude, haughtiness, and emotionality. A comparison of parental perceptions with expert perceptions show a variation. The correlation was extremely low between the rankings of experts and Indian parents, and experts and American parents. This leads to the conclusion that these cultural groups (i.e. Indian and American parents), according to this criterion, unduly punishing originality, individuality, and spontaneity. Raina also indicated that the lack of the parents' presence to nurture creative behaviors in both cultures contributed to the results of this study.

An effort among Brazilian researchers to implement studies that investigate differences in creativity among cultures has been noticed. Wechsler (1985) compared Brazilian and American elementary school children with respect to verbal and figural creativity. The author used the TTCT to assess children's creativity. Regarding figural creativity, the findings indicated that Brazilian children presented more emotional expressiveness, unusual and internal visualization, and expanded boundaries in their drawings when compared to American children. On the other hand, American children presented more humor and movement in their drawings compared to Brazilian students. With respect to verbal creativity, no differences were observed between Brazilian and American students

Another investigator of cultural influences on creativity, Mehrota and Sawers (1989) conducted a study to determine the socio-cultural influences on creativity of preschoolers in India. They investigated the influence of the home environment on the development of original thinking. The sample was 66 Indian preschool students (33 boys and 33 girls). The mean age was 4.6 years. The sample was randomly selected from a pool of 127 children from seven classes in a preschool run by a quasi-governmental corporation. Tests were given in the child's first language, which was the regional language, Gujarati, or the national language, Hindi. Tests employed were the Multidimensional Stimulus Fluency Measure and the Home Observation for the Measurement of the Environment. No significant gender or age differences were found on measurements of ideational fluency. The results indicated that high scores of students' creative thinking especially original thinking reflected a structured home environment and directive types of parent-child interaction that Mehrota and Sawers thought to

adversely influence the free flow of thought and expressiveness in young children.

Strom and Johnson (1991) conducted a multi-cultural study on parental perception of creative children. It was a comparative study to identify similarities and differences in expectation of parent groups whose capable children have traditionally been underrepresented in gifted education programs. A sample of 69 rural Hispanic and Anglo parents, nearly 40 percent of them from low-income families, were administered the Parent as a Teacher Inventory. The potentially gifted students were selected from a total population of 4 to 8 year olds in the school district service area. The result was that the self-report of mothers and fathers on the Parent as Teacher Inventory scale showed that the subjects were concerned with acceptance and encouragement of child behavior that promoted higher levels of thinking and the growth of imagination.

Hispanic and Anglo parents recorded favorable responses for items that dealt with encouraging children to ask questions, make guesses, engage in pretending, and experiment with problem solving. Both parent groups demonstrated unfavourable attitudes in terms of their reluctance to express uncertainty in front of children and to provide opportunities to practice self-evaluation. Hispanic parents were more willing to let children judge their own work and allow them to solve problems independently. On the other hand, Anglo parents expressed more support for solitary play, the free choice of playthings (toys), long play periods, and making up stories. Both parent groups responded favorably in terms of tolerating the noise and disorder of play and encouraging children to make their fears and anxieties known. Anglo parents scored higher in terms of honouring child strengths and permitting conversations on any topic.

Overall, the Anglo and Hispanic groups in this study supported many of the needs associated with gifted child development.

Another study conducted by Busse (1967) reviewed behavior, attitude, and social class of 48 black mothers and 48 black fathers related to development of their fifth grade boys. Flexible thinking was defined as the ability to consider alternative means to a given end. The parents were interviewed at home and asked to teach their sons four tasks:

(1) Match problems (divergent, non-verbal): this task consisted of teaching the child how to work with different types of problems.

(2) Word Memorization (convergent, verbal): the parents helped the child memorize ten words in order.

(3) Unusual Uses (divergent, verbal): the parents were required to teach their sons how to find unusual uses for particular subjects or objects.

(4) Concept strong (convergent, non-verbal): the parent had to teach the child to sort four test objects into one of eight conceptual categories.

The results were that there was a relationship between flexible thinking and mother commands; while with the father, it was found that the affection was more correlated with flexible thinking. In addition, the greater a father's total words, social class, and powerlessness and warmth, the more flexible the thinking of children. Moreover, it was found that there was a relationship between flexible thinking and mother manipulation, commands, and mother directions.

The results of the cross-cultural studies have shown the influence of the family and the treatment of parents and interactions on gender (boys, girls) creative thinking abilities.

4. <u>Cross-cultural Measurement of Creativity</u>

Using tests of creative abilities in cross-cultural studies is another aspect to be discussed in this paper. Various studies indicate that the socio-culture in every country has a strong influence on children: family, education, gender, values, religion, and socioeconomic status. All of these organizations in society have an effect on measuring creative thinking (Bleedorn, 1970; Ogawa, 1991; Ogletree, 1971; Onda, 1986; Raina, 1966; Torrance and Aliotti, 1970; and Torrance and sato, 1967).

Onda (1986) investigated verbal and non-verbal creativity tests. The results of the test showed that American students performed highest in creativity based on verbal measures whereas Japanese students performed best in elaboration on figural tests.

Torrance and Sato (1967) compared figural test results of education majors in American and Japanese universities. They found that American students responded impulsively and logically to tasks and had many responses with low levels of creative effort. However, Japanese students responded reflectively and intuitively with high levels of creative effort. The Japanese students' responses were more original than the American sample, which scored higher in fluency on the figural test.

Ogawa (1991) adapted a verbal test called Utility Test to investigate creative thinking of fifth grade Japanese and American children. The sample consisted of 114 fifth graders from both cultures, both samples come from rural regions; 35 boys and 38 girls

were Japanese and 17 boys and 24 girls were American. The results showed that in terms of creativity, there were no differences in fluency between Japanese and American students on verbal tests; but American students scored higher in flexibility than Japanese students. This was exemplified by the fact that Japanese students were more willing to accept one label per object and adhere to its original usage.

In studies using the Torrance Tests of Creative Thinking, Ogletree (1971b) sampled 1,165 English, Scottish, and German children, 8 to 11 years of age, and found that English and German girls scored higher than boys on both verbal and figural batteries. In addition, upper-middle social class groups significantly outscored the middle- and lower-social classes on most measures. Children in the upper grade levels also scored higher on all the creativity variables, i.e. verbal test. Furthermore, girls excelled significantly over boys on all creativity measures, both verbal and figural. The only exception was Scotland where the boys obtained higher figural scores than girls. There was positive correlation between teacher nomination of the most creative student and the selected students' creativity scores.

In contrast, Torrance and Aliotti (1969) tested a sample of 10-year-old rural Wisconsin children and found that girls excelled on all the verbal and figural elaboration tests, while boys were superior to girls in figural originality and flexibility. Torrance and Aliotti interpreted these scores as resulting from greater socio-cultural encouragement for boys to be original and divergent with non-verbal concepts and relatively greater social pressures for girls to develop skills that required verbal reinforcement. These results demonstrate that the contemporary social climate in many democratic countries provides girls with rewards that encourage verbal creativity as well

as in a variety of other verbal and cognitive functions (Burstein and Jarrik, 1980).

It is interesting to note that the children in some of these cultures tended to perform at a relatively higher level on figural tests, while those in other cultures performed at relatively higher levels on the verbal tests. One of Torrance's studies (1970) of six cultures mentioned earlier (involving a sample of Black American, White American, Western Australia, Western Samoa, Germany, and India) demonstrates a noticeable reduction in creative thinking abilities of fourth graders. He explained these phenomena by bringing attention to the way children, at about the fourth grade level, are treated in these cultures and in terms of the kinds of behaviors that are encouraged or discouraged throughout the culture. Furthermore, German, Norwegian, Australian, and Indian groups tended to perform somewhat better on the verbal than on the figural measures, while the Samoan and Black American children functioned at a higher level on the figural measures.

To explain the differential levels of functioning on the figural and verbal measure of fluency, originality, and elaboration, Torrance indicated that we should look more closely at the above data and at other characteristics of the cultures involved. He suggests, that the more highly developed the culture, such as the United States, the more advantaged the culture. Torrance (1971) found that West Germany, Australia, and Norway stand separately from and scored higher than the more underdeveloped cultures, such as the US black group, in terms of their performance on verbal tests. In the more developed cultures, complexity and elaboration are required for satisfactory adjustment. In the less developed countries,

complexity of thinking might be maladaptive, i.e. something simpler is frequently more effective in these cultures (Torrance, 1966).

Torrance (1971) provides another explanation in regards to the poor performance of children in underdeveloped countries on the verbal tests from his study of the six cultures. He found Western Samoa had a written language for only a few years and textbooks and books of all kinds are still quite rare. In the US black culture, numerous studies have also pointed to the lack of books, lack of perceptual awareness, and deficiencies in all kinds of verbal skills.

Moreover, Torrance (1971) in his cross-cultural studies of creative development (mentioned earlier), chose a sample on the basis of known differences in the way the parents and teachers dealt with creative behavior and encouraged or discouraged the characteristics judged to be essential to the development of creative personalities. In addition to the basic data-response to the battery of creativity thinking tests of the six cultures, supplementary data were collected to help understand and interpret performance on the tests of creative thinking. Teachers were interviewed concerning their classroom practices, their philosophy of education, and their beliefs about the kinds of behavior that should be encouraged and discouraged among children. The results were that on an ideal-child checklist, the rank-order correlation among different groups of teachers in the six cultures were all quite high between students creative thinking abilities development and teachers encouragement. Thus, the characteristics encouraged by society seem to affect the level of creative functioning of the children within that culture.

In obtaining the data concerning occupational choices and aspirations, it was hypothesized that freedom to grow creativity will be influenced by the freedom of children to consider a diversity of

occupations and to consider creative occupations as possibilities, i.e. choosing occupations outside of the 25 most popular occupations. When Torrance derived an index from the percentage of occupational choices and aspirations outside the list of 25 most popular occupations with children from the six cultures, the results showed correlation between the creative functioning of the children in those cultures and the rank of popular occupations.

Bleedorn (1970) indicated that testing creativity itself might be a more valid measure of creative ability if there were no limits of time for tests or tasks to be completed. In his study, to differentiate student creativity by various tasks, he used two classes with many students from minority-groups for whom certain admission requirements had been waived. Seventeen experimental (i.e. minority) and twenty eight control students received tests of creative thinking. Two forms were used, each with three separate figural tasks. Both forms presented tasks involving circles, triangles, and squares. The first two tasks were timed, the third was not. All were scored for fluency, flexibility, and originality and the timed and untimed tasks were then compared. Comparison of originality scores in the timed and untimed tests showed irregular differences in individuals in both groups. In short, comparisons between culturally different groups showed wide and unpredictable individual differences; the dominant culture showed an advantage over the minority; and the untimed task gave no anxiety relief to the disadvantaged. Bleedorn recommended that general education for minority cultures must maximize the test time. Investigations of creativity across cultures indicates that minority group members tend to score higher than or equal to major cultures on untimed measures of creative thinking (Torrance and Bracken, 1983).

Tonemah (1987), in cooperation with American Indian research and development, conducted a study during summer camps, to explore creativity of Native American students in different locations across the United States. Data were collected on each attendee using the Torrance Tests of Creative Thinking (figural form). This test was chosen because it appeared to be more culture-free than other assessment instruments. The results indicated that originality and fluency scores were high for Native American students although imagination scores were somewhat low.

Another study was conducted by Rhonda (1992) on creative thinking styles of Native American students. The investigation was to determine the existence of creativity as a homogeneous trait among this culture. Seventy-nine Cherokee students in grades 4 and 6, and 38 fourth graders (19 males and 19 females) were assessed. Forty-one sixth graders (27 males and 14 females) were assessed. All students lived on nearby tribal-held land and lived in areas dominated by Cherokee customs and culture. Torrance Tests for Creative Thinking were administered, Figural Form A, to measure originality, fluency, flexibility, and elaboration. The results indicated a higher originality score among Cherokee students. These results were consistent with other studies and suggested that teachers can stimulate creativity in the classroom through the kinds of model they display in their own attitudes and behaviors and emphasizing originality that, in turn, empower the teaching of and learning by students.

The combined evidence presented in these cross-cultural studies supports the notion that cultural factors strongly influence the course of creative thinking development. Further, the level of

creative functioning within a certain environment reflects the strong values and support for creative expression by the culture, i.e. promoting rich activities and high expectation regarding people's creative potential and expression to enable them to flourish the most.

Discussion and Conclusion

The cross-cultural studies which have been reviewed for this study confirm the effects of the culture on creative thinking. Most of the studies indicated that there are significant differences between countries and cultures on creative abilities: originality, fluency, flexibility, and elaboration.

Some of the cross-cultural studies reviewed for this paper (Mari, 1971; Mearig, 1967; and Torrance, 1966) indicated that children in modern societies scored high on creative thinking and they related it to cultural differences, i.e. the more developed the culture, the more creative were their children. It seems that the differences in creative abilities between these cultures may not only be related to developed or undeveloped countries but related to the cultural values, customs, motivation, and other systems involved in that society. Thus, applying tests of creative abilities to various cultures (even with high validity results) without studying the exotic culture, values, literature, and beliefs, and consideration of these factors in each culture, would result in a bias.

Therefore, the results of some cross-cultural studies must not be generalized to other cultures because each country has its own development and values, which were not considered by some studies mentioned earlier. Each culture is unique with it systems. There are

no identical underdeveloped cultures as well as advanced cultures. Therefore, these studies should not gather and group countries to justify and extrapolate their results.

The developmental curve as indicated by most cross-cultural studies reviewed (Coone, 1969; Harry and Sullivan, 1953; Hiller, 1965; Ogletree (2000); Simpsom, 1922; Torrance, 1962; Torrance, 1970; and Yamomoto, 1962) varied from culture to culture reflecting periods of growth and slump. Some of these investigators related these slumps to educational experiences and cultural aspects (Coone, 1969 and Torrance, 1970), while others considered them as inevitable and healthy phenomena (Mackinnon, 1966 and wilt, 1959).

Furthermore, these cross-cultural studies indicated that there is a slump in creative thinking abilities of children in the fourth grade in most developed countries. Some studies related this slump to suggestibility, uncertainty in behavior, and perfectionist needs. Others related this slump to cultural differences. It seems that this slump in creative abilities in fourth grade children may be related to unstable conditions for those countries. For example, America and Europe in the past five decades experienced unstable conditions and there were many factors contributing to this instability, such as politics, education, diversity, women's independence, and changing family structures. All of these factors and circumstances may have an effect on the child's performance on creative tests in the fourth grade, and contribute as such to the results of the studies.

The opposite would be true if new studies were to be conducted in the present time frame. I believe the slump would still exist in underdeveloped countries because these countries go through

unstable conditions to maintain and sustain their development. Five decades ago, underdeveloped countries were more stable and the changes had not yet arisen.

Moreover, the cross-cultural studies reviewed in this paper indicated that children in underdeveloped countries performed poorly on verbal tests, this result might be attributed to the instruments researchers used to identify creative children; most of these studies used Torrance Tests of Creative Thinking. Although the activities on the Torrance Verbal Tests are open ended and the children can respond in terms of their own experiences, the forms of these tests may not be familiar to children from a multitude of cultures and they may have not frequently experienced the test process in their educational system. This stands in contrast to Western countries, which integrate and use these kinds of tests in their educational systems.

Although creativity tests may be suspect as to whether or not they accurately measure creative ability, they do indicate the ability to generate and elaborate ideas. As with any test the results are influenced by maturity, experience, and socioeconomic status. It would appear that those students who are exposed to a broad, multi-subject, developmentally integrated curriculum with equal emphasis on the arts and academic areas should perform better on creativity tests than students educated in a strictly academic environment. The educational process appears to be as important as what is taught, the "nurturing" as opposed to the "molding" process may be more conducive to developing a more fully educated and well rounded individual.

Although the results have many of the limitations of an expose factors study, nevertheless, certain generalizations can be made. It appears that the Waldorf students' significantly better performance on creativity measures is the result of the many factors that constitute Waldorf education, which differentiates it from the educational practices in State schools. Probably the most important elements are maturational-readiness and a nurturing curriculum employed by Waldorf Schools, including the continuous teacher in grades one through eight; de-emphasis on academic performance in early grades; use of art as the medium of instruction; teaching methods and non-test driven curriculum and organization of the program. Another factor is that Waldorf Schools plead with parents to discourage their children from watching TV and listening to radios and other electronic media

Implications and Recommendations

Although the cross-cultural studies reviewed in the current paper answered our questions, they also brought forth many concerns that need to be looked at in the future:

- Several studies are needed in the area of creative thinking development and the investigation of the critical period of growth and decline in creative abilities. It is important to place special emphasis on creative thinking development and the slump or dips that occur.

- Cross-cultural longitudinal studies on creative thinking and studies of the changes that take place over time, which may be related to political, economic, technological, and social change, are needed.

- An education system is powerful to prevent the slump in creative functioning and vital in determining children's creativity. Increasing the effectiveness of education is essential and steps must be taken to organize educational programs for teachers concerning creative development and provide them with theoretical, scientific, and practical acts for nurturing the creative behaviors of young children, this includes not only thinking skills, but also the courage to create, to see ideas in broader contexts, to use imagination, to accept changes and novelty, and to tolerate ambiguity. Such thinking skills and activities are facilitated by not only appropriate knowledge and skills but also personal properties such as self-confidence, curiosity, openness to experiences. A number of teachers should be interviewed concerning their classroom practices, their own techniques, materials, philosophy of education, their concept of behavior that should be encouraged and translated into practice in their classroom, and help students

to develop their creative thinking abilities. Much of the research have indicated that the idealist educational approach is the more propitious method for the development of creativity. Torrance who is a pioneer in creativity research, concluded that too much pressure on children to learn academic subjects tends to prematurely stifle fantasy and causes stress and a feeling of lack of control over one's life, i.e. "a learned helplessness".

- Parents must be involved in cross-cultural studies to investigate the effect of child rearing on creative thinking in various cultures. It seems that parents are in an advantageous position to bring into existence a climate, i.e. psychological, sociological, and educational, into which creativity can blossom. Yet, this responsibility creates a greater challenge for parents in most cultures. A questionnaire that determines child-rearing style in a more discernible fashion needs to be developed specifically for cross-cultural studies. Therefore, supplementary data should be involved to help understand and interpret performance on creative thinking tests.

- As cross-cultural studies on gender differences and creativity had shown, there is an apparent gap in creativity amongst males and females. Therefore, it is important to promote equal opportunities for females and males to allow them to realize their potential and creative thinking development. Teachers should provide their students with a more effective learning experience that can help them fulfil their needs and provide them equally with ways to develop their creative thinking abilities.

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