

A COMPARATIVE STUDY OF BIRTH ORDER AND CREATIVITY AMONG SIBLINGS

Muazzama Abidi

*National Institute of Psychology, Centre of Excellence,
Quaid-i-Azam University, Islamabad*

And

Saman Aziz

*National Institute of Psychology, Centre of Excellence,
Quaid-i-Azam University, Islamabad*

ABSTRACT

The present research aimed at comparing the creativity and birth order among siblings. The data was collected by using snowball-sampling technique. The sample was collected from Rawalpindi and Islamabad. Total 75 individuals were taken in the sample, 25 individuals were first born, 25 were second born and 25 were last born. The age range of sample was from 16 to 23 years, educated individuals (intermediate level, graduate level and masters) were taken and the Test of Creativity was individually administered on them. It was hypothesized that first borns would be more creative as compared to later borns (second borns and third borns). One of the objectives of the study was to explore the gender differences on creativity. To study creativity with educational level was another objective of the study. Comparison among three siblings was made by applying ANOVA and

Email: dr_moazzama@yahoo.com

there was a significant difference among first borns, second borns and third borns. Results were calculated by using ANOVA and t-test. Hypothesis of the study proved that first borns scored high on the Test of creativity as compared to second borns and third borns. Thus it is proved that first born are more creative as compared to second borns and third borns. The results for gender differences were not significant, whereas, significant mean differences on creativity were found with educational level. So, creativity is independent of gender but dependent on educational level .

INTRODUCTION

Creativity is the ability to generate novel and useful ideas and solutions to everyday problems and challenges. Creativity involves the translation of individual's unique gifts, talents and vision into an external reality that is new and useful. This should be considered that creativity takes place unavoidably inside our own personal, social, and cultural boundaries (Bruce & Tina, 2004).

Simonton (2000) has made attempts to categorize and solidify the topic of creativity since that address. He suggests that research on creativity has taken place in four key areas: "The cognitive processes involved in the creative act, the distinctive characteristics of the creative person, the development and manifestation of creativity across the individual life span, and the social environments most strongly associated with creative activity". At this moment, Simonton (2000) states that there are two dominating theories of creativity. One theory,

being an economic model, examines a person's willingness to invest in human capital. The other theory being an evolutionary one, explains the creative process, person, and product. Shalley's (1991) theory of creativity follows this second model.

"Creativity" is not just a collection of intellectual abilities. It is also a personality type, a way of thinking and living. Although creative people tend to be unconventional, they share common traits. For example, creative thinkers are confident, independent, and risk-takers. They are perceptive and have good intuition and display flexible, original thinking. They dare to differ, make waves, challenge traditions, and bend a few rules. Like all of us, creative people make mistakes, and they subject themselves to embarrassment and humiliation. One particularly common trait of creative people is enthusiasm. The phrases "driving absorption," "high commitment," "passionate interest," and "unwilling to give up" describe most creative people. The high energy also appears in adventurous and thrill-seeking activities. These are some characteristics of creative people (Davis, 1998).

At first intelligence testing was not geared towards testing the general populace, rather it was done to find diamonds of genius in the rough, and weeding out the feebleminded. Now IQ testing is performed on anyone who wishes to take the test. IQ testing attempts to get away from all culture bias so that anyone in the world should be able to take the test and generate a score close to a score of a person of equal intelligence somewhere else. White (2000) describes in his article the notion of genius. While the term "intelligent" is almost always a positive term, the term "genius" can either have a positive or negative connotation depending on the context. Although White (2000) says in his article

that it is unfortunate that geniuses often get stuck with the stigma of being pathological, he admits that one cannot totally discount the correlation between genius and psychopathology.

Sternberg (2001) suggests that creativity, like intelligence, is a trait that is naturally hard to define, but can be linked by the common idea that things that are creative are both novel and high in quality, while things that are intelligent are not novel but merely high in quality. He uses this basis to suggest that creativity in some ways seems to go beyond normal intelligence. It can be seen from the above articles that while intelligence plays an important part in the role of creativity, it is not the all and the end all of what makes a person creative. Creativity has been shown to have most links with genius, yet creativity still seems to exist in ways that go above cognitive thinking skills.

Birth order and its effect on siblings. How can two or three children in the same family be so different? They are brought up in the same broad social environment, under a similar set of rules and an identical family value system. They also come from the same genetic pool yet they can be so different in personality, interests and achievement. While they may be born into the same family they are not born into the same position.

The effects of birth position are significant on children, their behavior and their personalities. In order to really understand children it is useful to look at how their position in the family impacts on their

development. If the first three in birth order are the focus of any study, that is, first, middle and youngest it will be noticed that children born in each position share a similar set of characteristics. Note that birth order presents possibilities only for parents. Also only child shares similar birth order characteristics as of first born they are super first born. Hence this study suggests that the first borns are more

creative and as the only born shares the similar characteristics as that of first born, they will be more creative as well. First borns are more expressive as compared to later born (middle born and last born). First born with siblings of age difference of less than three years are more creative as compared to siblings with more age difference because when there is less age difference than three years, the relationship among siblings is more healthy and friendly and it helps in enhancing creativity in first born. Whereas, on the other hand the siblings with age difference of more than three years tend to adopt parental role and they tend to mature before time, the adaptation of parental role and to act like parents decrease the chances of enhancement of creativity (Plomin, 2000).

The study conducted by Baer, Oldham, Hollingshead, & Jacobsohn, in 2005, examined the possibility that the demographic differences of siblings (i.e., age and sex differences between the focal individual and his or her siblings) and sibling size (i.e., number of children in the focal individual's family) moderate the relation between an individual's birth order and his or her creativity. A total of 359

undergraduates described their family background and then were assigned to small teams to work on 8 problem-solving tasks. Each individual's contributions to the tasks were evaluated for creativity by his or her teammates. Results showed that firstborns with large sibling groups were more creative when they had relatively more siblings close in age or of the opposite sex. Therefore, in this study it was concluded that first borns are more creative than their siblings. Baer et al. (2005) had focused on demographic variables in determining creativity among first borns.

Rationale of study

The present study in Pakistani context is very important, as it would help future researchers to work further on sibling differences and the effects of birth order on an individual. It will also help in understanding the question as to why siblings living in the same house and with the same parents are different from each other. Each birth order has its influences on the individual's personality. The present study is of great importance in Pakistan as not much work has been done on birth order and its effects on an individual. In this study birth was only studied with academic achievement among the first born, as creativity is interrelated with intelligence. Hence, it is assumed that first born would score high on academic achievement as compared to later born, as literature states that first born are more intelligent among siblings.

A study conducted by Zajonc and Markus (2001) shows that earlier-born (first-born) children tend to score higher on tests of

intelligence and aptitude than those born into the family later. The reason behind differences among siblings is their birth order that is responsible for their personalities and creativity. Usually first born individuals are thought to be intelligent and high achievers among siblings. Creativity and intelligence are interrelated and therefore, there is a need to study creativity and birth order. It would help in understanding the importance of birth order and how birth order contributes in developing creativity. There are various studies conducted on birth order and creativity in Western countries but in Pakistan creativity has never been studied with birth order. Therefore, the present study was conducted in order to find that creativity is dependant on birth order and first borns are more creative than second borns and third borns. The objectives of the research were to explore creativity along with gender and to explore creativity along with educational level of siblings. In the light of the literature review the following hypothesis was postulated.

1. First borns would score high on the test of creativity as compared to second borns, and third borns.

METHOD

Sample

The sample was collected by using snowball sampling technique. A total number of 75 participants were taken. Three siblings were taken from 25 families. 25 participants were first borns, 25 were second borns

and 25 were third borns. The age range of participants ranged from 16 to 23 years. The sample consisted of educated individuals (under graduates and above graduates). The sample was collected from cities of Rawalpindi and Islamabad.

Procedure

The data was collected from 25 families and all of them were contacted at their homes. After taking consent of participants, instructions were given to the subjects regarding completion of scale and the objective of the study was assured to all the participants. Three siblings from each family were taken. The Test of Creativity was individually administered on participants. Participants were asked to complete the scale in as much time as they required. The individuals who completed their scale faster than their siblings were scored high on creativity. The study is a comparative research as comparison between First born, second born and third born was done.

Operational Definitions

Creativity

Creativity is the ability to produce work that is both novel (i.e. original, unexpected) and appropriate (i.e. useful, adaptive concerning task constraints) (Sternberg & Lubart, 1999). Creativity involves the following structural elements: 1) (originality, unexpectedness of the

creative work), 2) its (relevance, appropriateness, significance, usefulness, and effectiveness) (Runco & Pritzker, 1999).

Birth Order

Birth order is the chronological order of siblings' births in the family. Birth order is the position into which a child is born within the framework of a specific family. Birth order influences how one copes with people and society, on an individual and on a group basis (Adler, 1956).

First-born/only child

First-Born / Only child is defined as the oldest child in the family or the only child in the family (Adler, 1956).

Middle-born

A child who is born after first-born or who is second in number among siblings (Adler, 1956).

Last-born

A child who is born at the last or has the last number among siblings. (Adler, 1956)

Measures

Test of Creativity

The Test of Creativity was developed by Khan (1999), originally based on Guilford's (1968) model of Intelligence. This test measures four components of creativity namely fluency, flexibility, originality and elaboration. The test consists of seven questions (five verbal and two non-verbal). All questions are open ended and respondents are at their liberty to express their imaginations without any restriction. Items for this test were driven from unusual uses, Guilford (1968), the creative thinking test (Wallace & Gruber, 1989), Torrance test of Creative Thinking (Torrance, 1988), and symbolic equivalence test (Barron, 1988) and adapted for indigenous population. The reliability of this test is .98, which shows high significant reliability of the test, Khan (1999). The more fluent, unique and original responses of the individuals, the more scores will be obtained by them and after 50 percent common responses of the individuals' further responses are scored as 'zero' on the Test of Creativity.

RESULTS

Table 1
Alpha coefficient Reliability of Test of creativity and Components of
Test of Creativity (N = 75)

Components of Test of Creativity Coefficient	No. of items	Alpha Reliability
Test of Creativity	101	.98
Fluency (F)	37	.95
Flexibility (X)	22	.93
Elaboration (E)	5	.82
Originality (O)	37	.91

Table 1 shows the Cronbach's alpha reliability of the creativity scale. The reliability is significantly high for the Test of Creativity. So the scale is highly reliable for present study. Results show that each component of the Test of Creativity is also highly reliable for the study.

Table 2

**Difference between First Born, Second Born and Third Born on the
Test of Creativity (N =75)**

Scale	First borns (n = 25)		Second borns (n = 25)		Third borns (n = 25)		F	P
	M	SD	M	SD	M	SD		
Test of Creativity	253.6	93.2	204.8	94.9	184.4	66.3	4.303	.017
Fluency	94.9	30.2	76.7	30.7	70.1	24.2	5.05	.009
Originality	57.9	21.5	48.7	19.9	44	16.0	3.36	.04
Elaboration	24.4	12.5	19.2	13.6	16.7	9.8	2.57	.08
Flexibility	45.7	20.3	36.0	20.6	32.1	13.3	3.59	.033

Between group df = 2; Within group df = 72; Group total df = 74.

Table 2 shows significant mean differences ($*p < .05$) between first, second and third borns on all the four components of creativity. Results show that first born are more creative than second and third borns. Mean differences show that first born are more creative as compared to second born and third born, as they scored high on Test of Creativity. The results support the hypothesis that first borns are more creative than second borns and third borns, except on elaboration. On the total, test result is significant at $p < .01$ level.

Table 3
Gender Differences on Components of Creativity (N = 75)

Variables	Male Participants (n = 38)		Female Participants (n = 37)			
	M	SD	M	SD	T	P
Test of Creativity	206.2	77.0	222.6	101.1	.79	.43
Fluency	78.0	26.1	83.2	33.8	.74	.46
Originality	49.1	18.2	51.3	21.7	.48	.63
Elaboration	35.8	16.5	40.2	21.2	1.01	.32
Flexibility	19.2	11.0	21.0	13.6	.63	.53

df = 73.

Table 3 shows that there are non significant mean differences of gender on creativity and on the four components of creativity. So, creativity is independent of gender.

Table 4
Differences along Educational Level on Creativity (N = 75)

Variables	Below Graduation (n = 42)		Above Graduation (n = 33)		T	P
	M	SD	M	SD		
Test of Creativity	196.4	91.9	237.1	82.1	1.9	.05
Fluency	73.6	30.7	89.5	27.0	2.34	.002
Originality	45.5	20.3	56.2	18.0	2.38	.020
Elaboration	18.9	12.7	21.6	11.9	.92	.35
Flexibility	35.3	19.7	41.4	17.6	1.39	.17

df = 73.

Table 4 shows that on the overall creativity scores there are significant mean differences along educational level ($p < .05$). Individuals having educational level above graduation scored high on fluency and originality ($p < .01$) but non significant difference is present on flexibility and elaboration ($p > .05$). Overall on the Test of Creativity, the individuals having educational status above the graduate level of education scored significantly high as compared to under graduates, this shows that educational level plays an important role in creativity. Thus, creativity is also dependant on the educational level of the individuals.

DISCUSSION

One of the objectives of study was to explore creativity along with gender and the results were analyzed by applying t-test, the results were non significant suggesting that creativity is independent of gender. Comeau and Helen (1980) conducted a study on the relationship among sex, birth order and creativity, their sample consisted of sixty-four high school students (32 sibling sets). They administered the Figural Form A of the Torrance Test of Creative Thinking. Results indicated non significant difference between creativity and gender on four measures: fluency, flexibility, originality, and elaboration whereas, gender was not significant. Similar finding is contributed by the present study that creativity is independent of the gender; the results were non significant at 0.05 level.

Another objective of the present study was to explore creativity along with the educational level of the participants. The results were analyzed by applying ANOVA. It was found that creativity was higher in the participants having an above graduate degree as compared to under graduate participants, though non significant differences were found on two components of creativity namely, flexibility and elaboration. So, creativity is dependant on the educational level of participants. Matud, Rodriguez, & Grande (2007) conducted a study on the socio-demographic factors on creative thinking. A general population sample of adult women (N = 466) were assessed with the Figural and Verbal Torrance Test of Creative Thinking (TTCT) and the results were statistically significant. The women with a university level education scored higher than those with secondary or primary educational levels on all the measures. So, educational level

Abidi & Aziz

plays an important role in enhancing creativity and the results of the present study were also significant for participants at above graduate level whereas on two components of creativity (flexibility and elaboration) results were non significant. While on the overall Test of Creativity, the result was significant at 0.01 level.

The hypothesis of the study was that first borns are more creative as compared to second born, and third born. The comparison between first born, second borns and third borns was conducted by using ANOVA and the results were found to be significant at 0.05 level. First born scored high on all components of creativity except elaboration, for which the mean differences were not significant at the 0.05 level, whereas, on overall Test of Creativity, first born scored high as compared to later born and the results were significant at 0.05 level. Thus the hypothesis of the study was proved. A study was conducted by Joannes, Lichtenwalner & Mawwell in 1969 to explore the relationship between middle class and lower class Caucasian children attending kindergarten or nursery school. It was hypothesized that first born would be more creative as compared to later born and that the middle class children would be more creative than lower class children. 68 children were administered with an object-identification test and the results were significant showing that first born were more creative as compared to later born and middle class children were more creative as compared to lower class. Thus it is proved that first born are more creative as compared to later born, the results being significant at 0.05 level.

BAHRIA JOURNAL OF PROFESSIONAL PSYCHOLOGY

One of the reasons for first born to be more creative could be the age gap between the siblings. The study done by Joni & Mark in 1992 examined the relationship between age-interval between siblings and children's creative abilities, as well as the parental views on the creative abilities of 116 children (ages 9-12 years). The study found that larger age intervals resulted in greater creativity and that age intervals also interacted with birth order, family size, and age. So, if there is more age difference between first born and later born, the first born will be more creative. The present study also proved the hypothesis that the first born scored high on the test of creativity as compared to later born. The results are significant for mean differences between first born and third born.

Adler emphasized that last born are more creative as compared to elder siblings. In Western countries each individual is given full liberty and there may be various factors that are responsible for creativity in last born, but the scenario is totally change in Pakistan. Here first borns are expected to perform well in every aspect of life, from school to daily life activities, that is the reason their academic achievement is also high as compared to later born, they are considered as a role model for their siblings. It is therefore, concluded that cultural differences also contribute in enhancing creativity.

The study done by Westwood and Low (2003) explores the relationship between cultures and creativity and innovation. It critically reviews the literature in which cross cultural differences in approaches to creativity and innovation are discussed. It examines how creativity is

conceptualized differentially across cultures and how social structural factors account for differences in creativity and innovation. It addresses directly the relationship between cultural values and creativity/innovation. The article draws the following conclusions: culture can and does impact on creative and innovation processes, but the relationship should not be considered universally, simply or un-reflexively. There is insufficient evidence to enable definitive statements to be made about systematic differences across cultures in personality or cognitive style with respect to creativity; creativity and innovation are complex psychosocial processes involving numerous salient factors of which culture is but one; the weight of evidence suggests that the relationship should be viewed contingently and in subtle and nuanced ways. A contingent view suggests that there are different processes, mechanisms, and structures through which creativity and innovation emerge. Cultures are creative and innovative within the context of their own systems and the exigencies and contingencies of those particular systems.

The findings of this study can be linked with present study that creativity is also dependant on culture and there is variation from culture to culture. The aim of the present study was to highlight the relationship between birth order and creativity among siblings in Pakistan and that cultural differences can also play avital role in enhancing creativity. Usually in Pakistan first child is the most pampered child, he/she gains undivided attention of parents and relatives and as a result of this care and love the first-born is the child among siblings who is more independent, more autonomous and responsible. Nurturance, care and autonomy are the factors that foster creativity in an individual. First born are the center of attention for their parents, parents feel the new experience of their first child as pleasant so they

spend all their energies in nurturing the oldest child of their family. These are all factors which are helpful in enhancing creativity, because they receive care and attention, their ideas are not denied by their parents, this is why they do not repress their ideas. They are given a chance to practice new things and as a result their creative ideas become stronger and they seek pleasure in doing innovative things.

Whereas, if the later borns are considered, they do gain their parent's attention and love but their parents' attention is not only focused on them as it was to the first born child. Later borns are not given the liberty to experience new things. Their parents and elder siblings are mostly restricting them. So they repress their ideas, as they know that parents and eldest siblings would not allow them anything. These restrictions suppress their creativity that could be one of the reasons why they scored low on the Test of Creativity. Lim & Smith (2008) studied that those parenting styles that reflected higher levels of acceptance were associated with higher levels of creativity in their children.

In the light of earlier literature mentioned, it is proved that first born are highly represented among creative people. They are fluent, flexible and have original ideas among siblings and whenever they are given chance they perform creatively on every task, they are appreciated by their parents, teachers and from others in their environment. So, first born are advantageous as they get favorable position in the family that is helpful in flourishing creativity, whereas, later borns are devoid of such favorable circumstances. Thus environment and culture plays an important role in enhancing and suppressing creativity and creativity also varies from culture to culture. The studies mentioned suggested that creativity is

independent of gender. Whereas, creativity is dependant on educational level and first borns are more creative among siblings as compared to later borns (second born and third born).

It is concluded that first borns are more creative as compared to later borns (second born and third born). Results obtained from ANOVA show that there are significant differences between first born, second born and third born. Results of t-test show that there are mean differences between first born and second born but are not significant but there is a significant mean difference between first born and third born. The hypotheses of present study are therefore, proved.

Limitations and Suggestions of Study

- Parenting styles are not focused in present study.
- The effect of parents' level of literacy is not seen in present study.
- As creativity is believed to be interrelated with intelligence, therefore, creativity should be studied along with intelligence to find that whether creativity is interrelated with intelligence or not by observing consistency of results of intelligence and creativity.
- Age difference should also be studied that what role age difference plays in determining creativity among siblings.

- Impact of environment, parenting and sibling relationship should be studied.
- Creativity should be studied along with cultural differences.

REFERENCES

- Adler, A. (1956). *The individual psychology of Alfred Adler: A systematic presentation in selections from his writings*. New York: Basic Books
- Baer, J., M, Oldham, G. R., Hollingshead, A. B., & Jacobsohn, C. G. (2005). Revisiting the birth order-creativity connection: *The role of sibling constellation*. *Creativity Research Journal*, 17, 67-77.
- Barron, F. (1988). Putting creativity to work. In R. J. Sternberg (Ed.). *The nature of creativity (PP. 76-98)*. New York: Cambridge University Press.
- Bruce, L. & Tina, K. (2004). *Cultivating creativity in babies, toddlers, & young children*. London: Hodder & Stoughton.
- Comeau, S. & Helen, M. (1980). An examination of the relationship between sex, birth order and creativity. *Creative Child and Adult Quarterly*, 5 (1), 251-258.
- Davis, G. (1998). *Creativity is forever*. (4th.ed.). Dubuque.Iowa: Kendall/Hunt Publications.
- Guilford, J. P. (1968). *Intelligence, creativity, and their educational implications*. California: Robert R. Knapp.

Abidi & Aziz

- Joanne, S., Lichtenwalner & Mawwell, W. J. (1969). The relationship between birth order and socio-economic status to the creativity of preschool children. *Child Development*, 40 (4), 1241-1247.
- Joni, L. G. & Mark, A. R. (1992). Family size, birth order, age interval, and the creativity of children. *Journal of creative Behavior*, 26 (2), 109-118.
- Khan, M. M. (1999). Creativity Among University Students and Its Relation to Their Perceived Style. *National Institute of Psychology, Centre of Excellence, Quaid-i-Azam University Islamabad*.
- Lim, S. & Smith, J. (2008). The structural relationships of parenting style, creative personality, and loneliness. *Creativity Research Journal*, 20 (2), 412-419.
- Matud, C. Rodrigue, C. & Grande, J. (2007). Sociodemographic and Gender differences in creative thinking. *Personality and Individual Differences*, 43(5), 1137-1147.
- Plomin, R. (2000). Behavioral genetics in the 21ST century. *International Journal of Behavioral Development*, 24, 30-34.
- Runco, M. A. & Pritzker, S. R. (1999). *Encyclopedia of creativity*, 1-2, San Diego, Calif; London: Academic Press.

BAHRIA JOURNAL OF PROFESSIONAL PSYCHOLOGY

- Shalley, C. E. (1991). Effects of productivity goals, creativity goals, and personal discretion on individual creativity. *Journal of Applied Psychology*, 76, 179-185.
- Simonton, D. K. (2000). Creativity: Cognitive, personal, developmental, and social aspects. *American Psychologist*, 55, 151-158
- Sternberg, R. J. & Lubart, T. I. (1999). The concepts of creativity: Prospects and paradigms. In Sternberg, R. J. (Ed.). *Handbook of creativity*, pp. 3-15. Cambridge: Cambridge University Press.
- Sternberg, R. J. (2001). What is the common thread of creativity? Its dialectical relation to intelligence and wisdom. *American Psychologist*, 56, 360-362.
- Torrance, E. P. (1988). Creativity as Manifest In Testing. In R.J Sternberg (ed.), *The Nature of Creativity* (pp.43-75). New York: Cambridge University Press.
- Wallace, D. B. & Gruber, H. E. (1989). *Creative people at work*. New York: Oxford University Press.
- Westwood, R. & Low, R. D. (2003). The multicultural muse: Culture, creativity and innovation. *International Journal of Cross Cultural Management*, 3, 235-259.

Abidi & Aziz

- Westwood, R. & Low, R. D. (2003). The multicultural muse: Culture, creativity and innovation. *International Journal of Cross Cultural Management*, 3, 235-259.
- White, S. H. (2000). Conceptual foundations of IQ testing. *Psychology, Public Policy, and Law*, 6, 33-43.
- Zajonc, R. B. & Markus, B. (2001). The family dynamics of intellectual development. *American Psychologist*, 56(7), 490-496.