

Comparison of Critical Thinking, Achievement Motivation, and First Child Creativity with One childAtefeh Kamaee^{1*}, Parviz Askare¹, Alireza haidary¹¹Department of Psychology, Ahvaz Branch, Islamic Azad University, Ahvaz, Iran.**E-Mail: sadatizadeh@yahoo.com**

Abstract: The aim of this study was to Comparison of critical thinking, achievement motivation and Creativity between first child and one child in the Girls High School. The study had a sample size of 300(150 First Child and 150 One child) they were selected by a multistage cluster random way. To collect the information they have used California Critical thinking skills questionnaire (form B), Hrmans Achievement Motivation questionnaire, and Abedi Creativity questionnaire. The research was a comparative study. For Statistical analysis of data, multivariate analysis of covariance (Mancova) was use. Data analysis showed significant difference in critical thinking and Creativity at ($p < 0.001$) between first Child and One child female students

[Atefeh Kamaee, Parviz Askare, Alireza haidary. **Comparison of Critical Thinking, Achievement Motivation, and First Child Creativity with One child.** *J Am Sci* 2013;9(6): 424-430]. (ISSN: 1545-1003). <http://www.jofamericanscience.org>.

Keyword: critical thinking, achievement motivation, Creativity, First Child, One child.

1. Introduction:

Twenty-first century, the century of rapid and widespread social Cultural, and economic change so the new expectations for the educational system and the family as the core of this change is inevitable. On the other hand education is the main element in the sustainable development of each country, as a result, scholars, to increase productivity and efficiency of two pillars, the family and education, identify and train criteria and critical parameters within these systems.

Development of human intellectual abilities always considered by philosophers and scientists affiliated with the human especially those related to human psychology. Ancient Greek Philosophy and famous philosophers of that time had Special emphasis on mental abilities and intellectual power of man so Several methods have devoted to the development of the human mind (Gralewski and Karwowski, 2012). Psychologists generally believe that creating and nurturing of Thinking especially critical thinking and Creative Thinking is a result of active learning and avoid the passive state.

No doubt it can be claimed that robust stature and complex of contemporary Civilization As a result of evaluation of critical thinking and creativity and achievement motivation as the mental leading strength and maintaining of the efforts (Shabani, 2009, as quoted by Matrody, 2011).

Thinking about thinking for improving the mental process is located in the heart of critical thinking (Paul, 1993). Practitioners and theorists believe that critical thinking involves analysis, evaluation and inference.

Among the key components of critical thinking ate interpretation, explanation and self-regulation.

Critical thinking is defined as search a problem and Status, in order to integrate all available information on the review topic and reach a solution or hypothesis to explain the orientation of a person.

Also critical thinking includes examining hypotheses, understanding the hidden values, assessment of evidence and assessment of conclusions. Evidence suggests that critical thinking occurs and will continue if supported by others, practiced several times and associated with the context of practical situations (Baychak Dashr, 1999, Simpson et al, 2002, as quoted by Yousefi and Gardanshakan, 2011). In this context, there are inconsistencies and contradictions, whether critical thinking is an inherent ability, advanced learning skills, school attitude or cooperative process (Edwards, 2007).

In addition creativity just like critical thinking it's possible to consider as a great need for human in all aspects of life. TWIN BE believes that creating an opportunity for nurturing creativity for each community considers as a matter of life or death. As a result, most communities to identify creative people and use of innovative teaching methods have a serious Planning.

Creativity, such as justice, democracy, freedom, and other abstract concepts, for different people have different meanings but, a common factor in all of creativity include to deal with a new factor that creative factor existence in, and act as a cultural heritage (Khylvn, 2003). Eggen and Kauchak (2001), in definition of creativity, on being authentic emphasis. Creativity is the ability to detect and provide a variety of solutions to problems.

Guilford (1987) looks at creativity , based on personality. On his vision, creativity is a set of

capabilities and characteristics of a person, which leads to creative thinking; he believes that creativity is the ability to solve problems. Sternberg (1989) believes that creativity is the combination of ingenuity, flexibility and sensitivity that enables the learner to think about reasonable results.

In general, to foster creativity and critical thinking in students, children must be innovative and have the opportunity to trial and error. In this way mistakes should be viewed as an opportunity to learn and progress. At school environment thinking and good looking at the world must be taught (Karoskt, 2012).

In addition of critical thinking and creativity, as cognitive parameters that influencing education, in current research we also consider achievement Motivation as a motivational variable that influencing the educational process (Shabane, 2009).

The impetus for progress or achievement motivation means desire or longing for success and attend in activities that their success depends on individual effort and ability (Slavin, 2006) on the other hand achievement motivation means, the desire to do good work accordance with standard of excellence. Contemporary views of achievement motivation, focuses on goals that people determine in a position of progress, like the competition task (solve challenging), the aim of the competition itself (raising the average), aims to compete with others (be the first student class) (Aeeve, translated by Sed mohamady, 2009).

People with high level of achievement motivation trying to solve problems and achieve success. Even after failing to do something, their efforts continue to achieve success. Students with high level of achievement motivation, always want to be successful and when they fail, they make further efforts, they continue to work as long as to succeed (Slavin, 2006).

In this connection, whether high achievement motivation leads to success or success will lead to higher levels of motivation, many studies have been done, But the outcome is not certain and specific. what became clear is that Achievement Motivation initially affected by person experiences in the family and parenting styles of parents but after students learn in school, success and motivation influence on each other (Slavin, 2006).

In recent decades, an extensive effort was taken to identify the factors influencing critical thinking, creative thinking and achievement motivation. These factors can include parenting styles as a result; we will examine the relationship of these variables with birth order, (first child, and one child).

Several psychologists like Zajonk (2001), Sulloway and Zajonk (2007) review the relationship

between birth order with psychological characteristics such as intelligence, self-efficacy, sexual orientation, academic achievement, stress, depression, anxiety and job preferences. In general we can say that different people have different terms of birth order in personality traits, intelligence, academic achievement has beneficial to first child (Abdullah Pur, 2002).

Adler belief that the first child, more conscientious, more dominant and more ambitious than his/her younger brothers and sister and in hardest professions like medicine, engineering and law are more successful. Most of the time they will appear in the role of teacher and leaders because their parents expected, to take care of his younger brother and sister. On the other hand one child spends more time with Parents as a result has early puberty and replicate the behavior and attitudes of adults. Several research review the relationship between birth order with psychological variables, the results of this investigation indicate that birth order has a significant role on these variables, for example Mohamadzade (2008) pay with the relationship between parents' education ,family population, marital status, age, birth order with schizotypal personality patterns. The results of this study revealed that schizotypal traits among children from low-educated parents, extended family, and the last child of the family is seen as more.

Borjali *et al* (2010), have a Research on the relationship between birth order, attachment styles and drug dependency, the research showed that middle children, most of the first child, last child and single child has more tendencies to drug. In this context, Harris argues that middle children are people who their motto is peace at any price, no sense of dominance, like others praise them, and they are trying to please others, this underlying traits cause, attract to friends, surrendering to pressures and attitudes toward drugs.

Ebrahimi (2005), in this study he Survey the relationship between locus of control, birth order, social class, and Achievement Motivation among the Iranian student of Imam Khomeini International University. The results showed that there is a significant relationship between birth order and motivated Progress; First children Compared with the middle child, last child and single child, they have a stronger Achievement Motivation. After the first child, respectively last child, single child, middle child have a strong Achievement Motivation.

Melissa *et al* (2008), they examined the relationship between personality dimensions tested Eiseng with birth order in the large and populous family. The results showed that, last child and three younger children in the family are more extroverted

than first child and three older children in the family. Some research has been done on the relationship between personality characteristics with birth order this research suggested that approximately 35% of the variance in personality can be defined based on birth order (Borkenau, 2001; Jang1996).

The aim of this study is to Comparison of critical thinking, achievement motivation and creativity in first child and one child student.

The research hypotheses:

- 1) There is a difference between the first child critical thinking with single child.
- 2) There is a difference between the first child achievements Motivation with single child.
- 3) There is a difference between the first child creativity with single child.

2. Method:

This method is based on comparison plans that compared critical thinking, achievement motivation and Creativity in First Child and One child student. For Statistical analysis of data, multivariate analysis of covariance (Mancova) was use. It should be noted that in this study socioeconomic status of students were control. The research sample included First Child and One child in the Ramhormoz Girls High School. They were enrolled in school year91-92. The study had a sample size of 300(150 First Child and 150 One child) they were selected by a multistage cluster random way. The sampling was done from 13 Ramhormoz girls high school. Eight schools were randomly selected, from each school randomly 4 classes selected. After coordination with the Department of Education, school administrations, at the right time the questionnaires were given to target students (single child, first child) to complete them.

Research Tools:

California Critical thinking Skills questionnaire

In this research for student critical thinking measurement, California Critical thinking Skills test (CCTST-B) was used (Facione, 1994); the test includes 34, 4 or 5 options questions, with one correct answer. This question were in five areas of cognitive skills of critical thinking (deduction, induction, evaluation, analysis, inference) response time was 50 minutes. In 20 questions there were 4 options and in 14 questions there were 5 options. In Dahghani *et al* research (2011), the reliability coefficient of this scale obtained by using Cronbach's alpha method was 0.78. The reliability coefficient of this test by using Kudr Richardson method that

reported by Facion (1994) was 0.68-0.70. In this research the reliability coefficient by using Cronbach's alpha method was 0.72.

Achievement Motivation questionnaire (AMQ)

In this research for evaluation student Achievement Motivation the Hermans (1970) achievement Motivation questionnaire was used. This questionnaire was translated into Persian by Broman Nasab and Shekar Kan (2002). This questionnaire has 29 clauses, which are semi-finished sentences, for any clause, 4 options are offered. In some of clauses, Option A has a Lowest score, and in the other clauses, Option A has a maximum score. In questions number: 1, 4, 9, 10, 14, 15, 16, 20, 23, 27, 28, and 29, the scoring was as follows: A(1), B(2), C(3), D(4).

In questions number: 2, 3, 5, 6, 7,8, 11, 12, 13, 17, 18, 19, 21, 22, 24, 25, and 26, the scoring was as follows: A(4), B(3), C(2), D(1). The range of scores was 29 to 116. Obtaining a high score on this test translates to a high achievement motivation.

In Herman's research, the reliability coefficient of questionnaire obtained by using Kudr Richardson method, was 0.86. Shekar Kan *et al's* research, which was carried out on students, the reliability coefficient by using Cronbach's alpha method was 0.72. In this research the reliability coefficient by using Cronbach's alpha method, was 0.66.

Creativity Questionnaire

In this research for measure student creativity the Abedi questionnaire (1986), was used. 16 clause for fluid, 22 clause for initiative, 11 clause for flexibility, 11 clauses for expansion. Options represents low to high levels of creativity that respectively a score of 1 to 3, belongs to them. With the sum score of the four components we obtain a total score for creativity, high scores reflect individual creativity and Low scores indicate a lack of individual creativity.

Kefayat (1994), the reliability coefficient of this test obtained by using Tnsyf method, was 0.77 to 0.93, and by using Cronbach's alpha method was 0.70 to 0.81. In the other research (Rafieian, 2003) the reliability coefficient by using Cronbach's alpha method was 0.82. In this research, the reliability coefficient by using Cronbach's alpha method0 was 0.77.

3. Results

In Table 1, the economic-social state of research sample as a control variable is given.

Table1. Economic state of research sample

single child frequency Percent	single child frequency	first child frequency Percent	first child frequency	economic state
28.66	43	19.33	29	high
60.66	91	57.33	86	Moderate
10.66	16	23.33	35	low

As you can see in Table 1, the most sample frequency in both groups have a moderate economic state. In the first child group, 86 persons, namely about 57.33%, and in the single child group, 91 persons, namely about 60.66%, have a moderate

economic state. The minimum frequency in the first child group is related to high economic state with 29 persons, namely about 19.33%, and in the single child group is related to low economic state with 16 persons, namely about 10.66%.

Table 2. Average, standard deviation, minimum score, maximum score, critical thinking, Achievement Motivation, Creativity, one child group and single child group

Groups		Statistical Indicators	Variables
Single child	First child		
8.99	10.90	Average	critical thinking
2.65	2.90	standard deviation	
3	4	minimum score	
18	21	maximum score	Achievement Motivation
84.87	87.12	Average	
7.60	6.37	standard deviation	
65	75	minimum score	Creativity
98	100	maximum score	
121.17	127.4	Average	
11.21	10.68	standard deviation	
95	99	minimum score	
158	154	maximum score	

As you can see in Table 2, critical thinking scale scores for average and standard deviation in first child group respectively are 10.90 and 2.90 and in single child respectively are 8.99 and 2.65.

Achievement Motivation scale scores for average and standard deviation in first child group

respectively are 87.12 and 6.37 and in single child respectively are 84.87 and 7.60.

Creativity scale scores for average and standard deviation in first child group respectively are 127.4 and 10.68 and in single child respectively are 121.17 and 11.21.

Table 3. Summary of multivariate analysis of covariance for comparison critical thinking, creativity, achievement motivation in first child and Single child, with economic-social control.

the significance level	df error	df hypothesis	F	Value	Test	Effect
.001	296	3	22.20	.18	Pills trace	group
.001	296	3	22.20	.82	Willks lambda	
.001	296	3	22.20	.22	Hotellings trace	
.001	296	3	22.20	.22	Roys largest root	

The contents of the table 3 show that between first child and Single child group in one of the variables there was significant difference. To investigate the difference one way analysis of covariance in the text of Mankvva was performed on the criterion variables.

Table 4 show the results of one way analysis of covariance in the text of Mankvva for compared two groups average in critical thinking, achievement motivation and creativity variable with socioeconomic status control.

Table 4. One way analysis of covariance compared to two group's average in critical thinking, achievement motivation, and creativity variable with socioeconomic status control

significance level p	F Ratio	Mean square(Ms)	Degrees of freedom(df)	Total square (ss)	dependent variable	effect
.001	35.19	272.65	1	227.65	critical thinking	group
.05	7.73	380.81	1	380.81	Achievement motivation	
.001	24.23	2907.85	1	2907.85	creativity	

As you can see in Table 4, in first child and single child group there was a significant difference between three variables, (critical thinking, achievement motivation, and creativity). According to above table results, the following conclusions can be extracted:

The first hypothesis: there was a significant difference between first child and single child group in critical thinking. This result in level ($p=.001$, $F=35.19$) is significant. According to comparison of the average in Table 5, we can say that the first child group in critical thinking gets better grades.

The second hypothesis: there was a significant difference between first child and single child group

in Achievement Motivation. This result in level ($p=.05$, $F=24.23$) is significant. According to comparison of the average in Table 5, we can say that the first child group has higher achievement motivation than single child group.

The third hypothesis: there was a significant difference between first child and single child group in creativity. This result in level ($p=.001$, $F=24.23$) is significant. According to comparison of the average in Table 5, we can say that the first child group has higher creativity than single child group.

Table 5 show the results of the average compare test, between two group in three variables, critical thinking, achievement motivation and creativity.

Table 5. Average test results between Group 1 and Group 2 in critical thinking, achievement motivation, and creativity

significance level	Standard error	mean difference 1-2	Group2	Group1	dependent variable
.001	.321	-1.90	first child	single child	critical thinking
.05	.81	-2.25	first child	single child	Achievement motivation
.001	1.26	-6.23	first child	single child	creativity

As you can see in table 5 the first child group has higher score in three variables than the single child. The average Difference in critical thinking, achievement motivation and creativity variable are respectively, -1.90,-2.25,-6.23.

4. Conclusions

Fredrick Adler proposed psychological theories of personality that examine the social and environmental impact on personality traits formation and human behavior. This theory argues that, each person is a social being that social environment and the unique interactions with others shaped our character. So having a relationship with others is the first task of our lives.

A large part of this task is the relationship between parent and child, that this relationship greatly affected by birth order. Adler believe that birth order has a significant social impact on child. Each person's lifestyle occurs according birth order.

Adler believe that Children who live in a house, have the same parents, but do not have the same social environment and have different attitudes of parents, creates different child conditions that helps to determine the formation of the personality and child lifestyle.

The results of research on relationship between birth order, intelligence, academic achievement, character and their capabilities, do not support any particular hypothesis. For example the results of some research show that first child are superior to the next child in intelligence, academic achievement (Oberlander and Jenkin, 1967; McGlynn, 1968; Munroe and Munroe, 1983).

But other research cannot obtain a significant relationship between birth order, intelligence and academic achievement (Farly, 1967; Forbes, 1974; Hauser and Sewell, 1985).

The results of this study show differences according birth order; these differences are in favor

of first child. Most personality traits, such as self-control, rational behavior, the compatibility condition, loyalty are more in the first child (Staford and Beyer, 1998).

Adler believes that First child after the next child born loses the desired position in family and be forced to fight for their rights then they will generalize this situation out of the family, consequently in adulthood, they have a conservative personality, and opposed to changes and always assume that others have rebelled against them. despite the fact that single child also are the first child, however, due to lack of following childbirth experience, No change in the desired position, Not trying to get the last points, as a results they show less incentive for competition. Also, because they spend more time with parents and Feel more dependent, have a less efficacy, creativity and persistence.

Adler also believes that First child often tend to last, are associated with nostalgia and they are pessimistic about the future, so they try to show the capabilities, talents, abilities, academic achievement and trying to entice their parents. It should be noted that the majority of physicians, lawyers, Nobel Prize winners, members of Congress and leaders were the first child of their family. These children being aware of the privileges of power so throughout their life, will be interested in it so try in all areas to maintain the competition and impose their views and opinion on others. These people may feel insecure and feud with others in their life.

Emma eek *et al* (2006), in their research found that the first child in compared with the next child and single child are more conscientious, responsible, creative, innovative and progressive.

Harris (2006) believes that the first child owns concessions like they are born as a commander and always in every business Priority with them. He divides them, into two categories: Submissive or dominant. The first child often are prig, critic, accurate, punctual and efficient. The following points can be noted as the negative point: fierce, minatory and daunting.

Among the positive points of single Child can be noted the reliability, truthfulness, being quiet and the negative point are sensitive, dependent, false rejection and they may be unexceptionable.

These study confirm all three research hypothesis, it show a difference between first child and single child student in critical thinking, achievement motivation and creativity.it should be noted that the difference in all three variables is benefit for the first child, this means that first child have more critical thinking, achievement motivation and creativity than single child. These findings are

acceptable because they are based on view of the Salloy–Zauonk (2007) and Hares (2006).

Evaluation results based on the separation hypothesis:

Hypothesis 1: in critical thinking there is a difference between single child and first child.

Based on Table 4, there is a difference between single child and first child in critical thinking ($p < .001$, $F = 35.19$). Consequently, the first hypothesis is confirmed. Based on average in Table 5, first child have more critical thinking than single child. These findings are acceptable because they are based on view of Pakmahr *et al* (2011), Khalili *et al* (2011), Barkhordary *et al* (2009), and Haris (2006).

Hypothesis 2: in achievement motivation there is a difference between single child and first child.

Based on Table 4, there is a difference between single child and first child in achievement motivation ($p < .05$, $F = 7.73$). Consequently, the second hypothesis is confirmed. Based on average in Table 5, first child have more achievement motivation than single child. These findings are acceptable because they are based on view of Kadeve *et al* (2011), Barkhordary *et al* (2011), Barkhordary *et al* (2009), Ebrahimi (2005), Richard and Todd (2002), and Melesa *et al* (2008).

Hypothesis 3: in creativity there is a difference between single child and first child.

Based on Table 4 there is a difference between single child and first child in creativity ($p < .001$, $F = 24.23$). Consequently, the third hypothesis is confirmed. Based on average in Table 5, first child have more creativity than single child. These findings are acceptable because they are based on view of Afshar Kohan *et al* (2011), Salahi and Dehghan (2010), Rahnama *et al* (1388), Jill and Karl (2007), and Saloy (2001).

References

1. Abdolah poor, Y. (2004). The Relationship between birth order with IQ levels in families with mentally retarded children. Master's thesis, Department of psychology, University of Tehran.
2. Aside, R. (2010). Compared sensation seeking, tolerance, perfectionism in first child and last child. Master's thesis, faculty of Psychology and Educational Sciences, tehran University.
3. Adler, Alfred. (1985). Individual psychology. Translation; Zamane. H. Tehran: Pishgam Publications.
4. Borgali, A., Bershan, A., and Doortaj, S. (2012). The relation between birth order, attachment and

- drug Attachment style. *Journal of order and Social security*, Second year, number 3.
5. Ebrahimi, M. (2007). The Relationship between birth orders, social class with achievement motivation in Imam Khomeini international University. Master's thesis, Department of psychology, University of Tabriz.
 6. Eggen, P., Kauchak, D. (2001). *Educational psychology: windows on classroom* (5th Ed.). Upper saddle river, NJ: Merrill, Prentice Hall.
 7. Emma Beck, Katriina L. Burnet, and Jane Vosper (2006). Birth-order effects on facets of extraversion. *Personality and Individual Differences*, 40, 953-959.
 8. Jafaree, M., Jafaree, A., and Abotorabee. (2012). The Relationship between high school adolescents job-character types with birth order. *Occupational and organizational journal*, Number 4.
 9. Jahn Marshal, R., Translation; Mohamade, Y. (2011). *Motivation and Emotion*. Veraeash Publications.
 10. Jill, S.J., and Karl, P. (2007). Mothers' Favoritism in Later Life: The Role of Children's Birth order. *Journal of Research on Aging*, 29; 32.
 11. Facione. N. C, Facione PA. (1994). The California critical thinking skills test and national league for nursing accreditation requirement in critical thinking. USA: Millbrae Academic; 5.
 12. Gralowski. J, and Karwowski. M. (2012). Creativity and school grades: A case from Poland. *Journal of Thinking Skills and Creativity* 7, 198-208.
 13. Harris. J. R. (2006). No two alike: Human nature and human individuality. (pp: 107-112).
 14. Matrodee, L. (2013). Analysis of the factors influencing critical thinking in Primary school children, department of Education Ahvaz District 1, Master's thesis, Department of education and psychology, Ahvaz Chamran University.
 15. Mohamadzade. A. (2010). The relation between Parental education, household population, marital status, age, birth order with Schizotypal personality patterns. *Science and Research journal*, University of Tabriz. Third year, number 11.
 16. Melissa M. Dixon, A. et. al. (2008). Personality and birth order in large families. *Personality and Individual Differences* 44, 119-128.
 17. Paul R. W. (1993). *Critical thinking: How to prepare students for a rapidly changing world*. 1st ed. Santa Rosa: CA, Foundation for Critical Thinking.
 18. Richard, L.M., and Todd, K. (2002). An Attempted Replication of the Relationships between Birth Order and Personality. *Journal of Research in Personality*, 36, 182-188.
 19. Safe. A. (2012). *Modern educational psychology: Learning and Teaching Psychology*. Tehran: Dooran Publications.
 20. Slavin, R.E. (2006). *Educational psychology: theory and practice* (8th Ed.). New York: Pearson.
 21. Sulloway, F. (2001). Birth order, sibling competition, and human behavior. In P.S. Davies & H.R. Holcomb (Eds.), *Conceptual challenges in evolutionary psychology: innovative research strategies*. pp. 39-83.
 22. Sulloway, F.J., and Zajonc, R.B. (2007). The Confluence Model: Birth Order as a Within-Family or Between-Family Dynamic? *Pers Soc Psychol Bull*, 33, 1187.
 23. Yosafi, A., and Gardanshakan, M. (2013). Critical thinking, *Medical Education Iranian magazine*,
 24. Zajonc, R. B. (2001). The family dynamics of intellectual development. *Journal of American psychologist*, 56, 490-496.