

# Comparing the Thinking and Learning Styles among the Gifted and Ordinary Female Senior High School Students (Natural Sciences and Mathematics) For the Year 2011-2012

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**ABSTRACT:** The aim of the present study is to compare the thinking and learning styles among the gifted and ordinary female Senior High School students. The study is that of the descriptive. The population comprised of all 360 gifted and 9000 ordinary students. The sample size was determined as 372 for the two groups. To choose the sample size, two gifted schools and three ordinary schools were chosen and the participants were chosen as the sampling. To examine the variables, Stenberg's TSI questionnaire and Kelb's LSI scale were used. The results obtained indicated that there was no significant difference between law-making thinking styles and judgmental styles among the gifted and ordinary schools. Only, there was a significant difference between the implementation thinking style among ordinary and gifted student and that the mean of implementation styles of ordinary students was greater than that of the gifted students. In addition, there was no significant difference between gifted and ordinary students in terms of the learning style and that the attractive learning styles had the most frequencies in both group of students. The correlation coefficient tests showed that only implementation thinking style was correlated with adaptable, attractive and convergent learning styles at 0.05 level. Ultimately, it was found that law-making and judgmental thinking style was not correlated with any of the learning styles.

**Keywords:** thinking styles, learning styles, ordinary and gifted students

## INTRODUCTION

Thinking is the basis for human life since the humanity of humankind and his perceiving of the people and God depend on the quality of thinking. It is through the thinking that the latent talents of humankind gets potentially active and offer the perfectionism. The enjoying of humankind from the thinking power is the distinguishing point of individual and any other type of living thing. Hence, humankind has been able to keep on living through making use of these feature. People think about the quality of task doing and do different tasks through relying on individual differences. Thus, understanding the thinking styles and the related variables in medication are of great importance due to the fact that many of the differences in performance of individual can be related to their thinking styles so that in case the thinking styles are understood, then one can lead them toward positive status.

What is meant by thinking styles, as indicated by Stenberg (1997) is that the style is not synonymous with capability, but it is the interest style of thinking. Based on the point of view of Stenberg, people do not share a specific thinking style, but they enjoy profiles of styles. It is feasible that individual have similar capabilities but different thinking styles. This theory describes 13 thinking styles which are categorized by dive dimensions involving performances, forms, levels, domain and tendencies (Stenbergy, cited in Sarogad et al., 2010).

Based on the conducted studies on the role and importance of thinking style in learning and training, one can say that thinking styles are important factors of academic achievement and much more effective training in different courses. Development and offering educational activities based on the interests and thinking styles of individual result in active learning on the part of the students (Abdollahzade, 2009).

In two recent decades, studies such as the ones conducted by Pari (1999), Ching and Chan (2004), Foji (1996), Razavi and Shiri (2005), Admolaei (2009) have addressed the learning and thinking styles and that the relationship between different styles and other psychological as well as educational styles have been examined. Studies such as the one carried out by Zhang (2006) showed that training the thinking styles to the students results in academic achievement.

## Defining Gifted Kids

Different definitions have been suggested on the term gifted which are discussed as follows:

Havighurst et al. believe that the gifted kid is the individual who shows extremely considerable capabilities in one of the valuable fields (cited in Afroz, 1993).

Gallagher indicates that gifted kids are the ones who are capable of doing much more complicated tasks compared to ordinary kids and they require different trainings (cited in Golinejad, 2011).

Renzulli (1978) describes that when it comes to defining the gifted kid, following features are manifested: extraordinary mental intellect, motivation, creativity and motif divided by task-understanding, persistency and risk-taking. Also, mental capabilities are described to be extraordinary when the score reaches up to 130. Creativity is the capability of individual in line with resolving the issues in an indent, dynamic and original form (cited in Ejei, 2004).

Brown (1993) demonstrates that being gifted has to do with different dimensions. Gifted students have higher mental age than the ordinary age, they have capacities and specific talents which result in facilitated advances in science and learning.

Renzulli and Declount (1986) define the giftedness as the capability to generate specific things on account of the creativity. Motivating and mental quality as well as the combination of all these qualities in a distinguished from when compared to their peers (cited in Golinejad, 2011).

### **Thinking Styles Principles**

Stenberg (1997) suggests thinking style principles for much more understanding:

Styles are not capability, rather they are the priorities for employing the capabilities. In case one does not distinguish between styles and capabilities, then there is no need for understanding the term style. So, styles are different from capabilities.

The consistency between styles and capabilities leads to an increasing power which is higher than the sum of them. People who do not experience the consistency between their styles and capabilities feel failed due to the difference between what they tend to do and what they do. Styles play a great role in the quality of what is done and what is enjoyed.

The choices of life are required to be consistent with the capabilities. In many of the life choices such as the education field, choosing the partner, it is required to have consistency.

People have different thinking style paradigms. An individual who tends to be creative might be organized person or totally non-organized. It might be possible that such an individual tend to be introvert or work with others. However, people tend to have one-dimension view towards the things which means that people who have one feature lack other possible features while such a correlation might exist or vice versa.

### **Dimensions Of Thinking Styles**

Stenberg understands his mental ruling theory as the assumption that people require rule on themselves. It is worth noting that form, level and territory dimensions. Three main domains of ruling include law-making, execution, judging, four monarchical form of government (single dominance), hierarchy (order of democracy), oligarchy (oligarchy) and anarchy (Anarchy democracy). Also, two general levels, namely internal and external affairs as well as conservative and free-thinking aspects. Based on the mental ruling theory, the ruling styles of the universe are the external reflections of minds. To get more insight into the thinking styles, one can examine different aspects of ruling to understand what is internal and external (Stenberg, 1998, cited in Emamipour, 2004).

## **DESIGN OF THE STUDY**

The design of the study is that of the causative-comparative. It falls into the type of quantitative research which seeks the potential reasons and their effects through comparing the individual with specific behaviors and features with those individuals who lack such features (Gal and Borg, translated by Nasr et al., 2010).

The comparative groups were ordinary and gifted students who were compared to examine the thinking and learning styles. Also, ordinary and gifted students were considered as independent variable, thinking and learning styles were considered as dependent variable.

The stoical population comprised of all 9360 gifted and ordinary senior high school female students of natural science and mathematics majors in Urmia for the year 2011-2012. 360 students were gifted and 9000 students were ordinary.

### **Procedure**

Having verified the certification of conducting the study issued by the university, the researcher embarked on carrying out the study in schools. In so doing, the questionnaires were distributed across the schools through running discussing among the parents and cooperation of students followed by elaborating on the questions which were vague for students. It is worth noting that the researcher recollected the questionnaire to avoid any type of biases.

### DATA COLLECTION

Following questionnaires were used to collect the data. To examine the thinking styles of students, Stenberg's (2002) thinking styles scale involving 104 items and 13 subscales was used. Also, it measured 13 types of thinking style developed on Likert 7 point scale ranged from strongly bad strongly well and each 8 question of this questionnaire was related to measuring one subscale (thinking style).

### DATA ANALYSIS

Is there a significant difference between thinking styles of gifted and ordinary students?  
The difference between law-making thinking style of gifted and ordinary students:  
Independent t-test was used to make the related analysis.

Table 1. Statistics related to law-making thinking style of gifted and ordinary students

Student	Number	Mean of scores for style	Standard deviation
Gifted	186	5.35	0.87
ordinary	186	5.50	0.83

Table 2. Statistical indexes of two-sample independent t-test regarding the law-making thinking style

Student	Mean difference of the two groups	Calculated t	Degree of freedom	Level of significance
Independent sample t-test	-0.14	-1.619	370	0.106

There is no significant difference between law-making thinking style of gifted and ordinary students. As table presents, the level of significance for the test (0.106) is greater than 0.05.  
The difference between executive thinking style of gifted and ordinary students:  
Independent t-test was used to make the related analysis.

Table 3. Statistics related to executive thinking style of gifted and ordinary students

Student	Number	Mean of scores for style	Standard deviation
Gifted	186	4.90	0.93
ordinary	186	5.44	0.78

Table 4. Statistical indexes of two-sample independent t-test regarding the executive thinking style

Student	Mean difference of the two groups	Calculated t	Degree of freedom	Level of significance
Independent sample t-test	-0.53	-6.01	370	0.0001

There is a significant difference between executive thinking style of gifted and ordinary students. As table presents, the level of significance for the test (0.0001) is less than 0.05.  
The difference between learning styles of gifted and ordinary students:  
Chi-square test was used to make the related analysis.

Table 5. Frequency related to the difference between learning styles of gifted and ordinary students

	Student		Total
	gifted	ordinary	
Divergent learning style	28	25	53
Adaptable learning style	24	30	54
Attractive learning style	76	69	145
Convergent learning style	58	62	120
Total	186	186	372

Table 6. Statistical indexes of Chi-square test regarding the learning styles of students

Student	Number	Degree of freedom	Level of significance
$\chi^2$	1.308	3	0.727

There is no significant difference between learning styles of gifted and ordinary students. As table presents, the level of significance for the test (0.727) is greater than 0.05.

Is there a significant relationship between thinking styles (law-making, executive and judging) and learning styles (attractive, adaptable, divergent and convergent) among gifted and ordinary students?

Two-point correlation coefficient  $r = \frac{\bar{x}_1 - \bar{x}_0}{S} \sqrt{\frac{n_1 n_0}{n_0(n-1)}}$  was used

Where

$\bar{x}_1$  is the mean of scores for gifted students' thinking styles

$\bar{x}_0$  is the mean of scores for ordinary students' thinking styles

$S_x = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n-1}}$  is the standard deviation for all students' thinking styles

$n_1$  is the number of gifted students

$n_0$  is the number of ordinary students

$n$  is the total number of students

### CONCLUSION

The present study compared the thinking style and learning style between gifted and ordinary students. Three research questions were posed. The analysis showed that there is no significant difference between the gifted and ordinary students of natural science in terms of law-making and judging thinking styles. Law-making and judging thinking styles are of type 1 and require complicated processing. Natural science and mathematics students choose complicated issues and process them; however, there is no significant difference between gifted and ordinary students in terms of the executive thinking styles which implies that ordinary students make use of executive thinking styles more than the gifted students where they tend to follow the rules. The executive styles in educational contexts of great value since people with executive thinking style perform the tasks when they are asked to do so and the gifted students show reluctance to this type of thinking. The comparisons of learning styles showed no significant difference and the most frequency was related to the attractive and convergent thinking styles in two groups. Since the two comparison groups were natural science and mathematics students, the non-significant difference is justifiable since it has been found no other studies that the learning styles of natural science and mathematics students are convergent and attractive. Also, the findings showed that divergent learning style was not correlated with any type of thinking styles and adaptable, attractive and convergent styles were in correlation with executive thinking style. According to the previous studies, thinking styles have relationship with academic achievement and teachers can assist the learners in increasing the motivation, self-efficacy and satisfaction through making use of proper teaching and evaluation methods. As an example in case, teachers make use of speech teaching methods and solved problem methods for ordinary students with executive thinking style. Also, teachers make use of discussion, project, on-questioning methods are used for gifted students. In addition, multiple-choice and descriptive writing evaluation methods are liable to be used for ordinary students, analytic composing, project and research on evaluation methods are liable to be used for gifted students. Furthermore, teachers can assist the senior high school students to choose their academic major when it comes to their admission for university through understanding their learning styles since the studies have showed that attractive and convergent styles result in admission for medicine and basic sciences majors, divergent and adaptable styles lead to the admission for art and humanities majors.

### SUGGESTIONS

Based on the findings of the present study, it seems that following suggestions influence the increase of quality for the future studies.

Regarding the fact that thinking styles and learning approaches have educational dimensions and that family and educational contexts have great part to play in their formation, getting the parents acquainted with thinking styles and creativity can result in development and balancing of some styles and their propensity to different positions.

Conducting studies in the field of thinking style results in increasing the knowledge in these domains. Also, such an action assists the teachers to make use of proper teaching and evaluation methods in line with the thinking levels of students.

Informing the learners of different thinking styles can lead to the fact that they reform their thinking style. Since normal behavior roots in positive thoughts, one should embark on proper training and enhancing thinking styles.

Studying each of the variables is of great importance since obtaining sufficient information in this field can develop proper educational programs with thinking and learning styles of learners, resulting in increase of efficiency and creativity of different groups of students.

It is suggested that educational generating centers generate proper broadcasting of different thinking styles.

Holding consulting meetings for students with equal learning styles lead them towards proper educational majors with proper style along with increasing the efficiency and productivity.

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