Relationship between Thinking Styles and Academic Achievement of the Students

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Abstract

Academic achievement of the students and the factors affecting is one of the most important issues in psychology. This study aimed to determine relationship between the thinking styles and academic achievement of the high school students in Ahvaz. This was a descriptive and correlational study. The statistical population included all high school students of Ahvaz, of who 320 students were selected using the multistage random sampling method. Thinking styles scale was used to measure the variables and the mean scores of the students was used for measuring their academic achievement. SPSS-18 was used for data analysis and the results were reported in form of descriptive statistics and Pearson Correlation. Results showed that there is a significant relationship between the variables of legislative, executive, oligarchic, monocratic, anarchic, hierarchic, judiciary thinking styles and academic achievement.

Keywords: Thinking Styles, Academic Achievement, Students.
Introduction

Academic achievement has been substantially considered by education professionals during the past three decades. The academic achievement in all educational systems is one of the indicators of success in scientific activities. The results show that in addition to the structure and educational content of classes, other factors including cognitive ability and personality traits and family play a major role in the academic achievement of the students (Pashaei et al., 2009). Academic achievement has been considered by education professionals in since a long time ago and many studies are conducted in this regard. In fact, the academic achievement is one of the important in the educational environments, especially schools. Students as efficient human forces play a key role in the development of societies, so that nowadays, the richest and developed countries are characterized by their efficient human forces. Therefore, currently, investment in this regard is of high priority and recruiting the productive human resources is one of the concerns of the social authorities (Saki et al., 2010). Education professionals seek to provide conditions for the learners to have the highest academic achievement. Identifying and controlling the variables that affect academic achievement of learners is one of the most important goals of the educational systems in the world in order to increase academic achievement of the learners. Therefore, since learning is the main goal of teaching, and since the learning is mainly measured with respect to the academic achievement of the learners, therefore, identifying the factors affecting the academic achievement is important (Frhadi Motlagh, 2012).

Academic achievement means the ability of the students in solving the problems of the predetermined content for a curriculum (Sepahvandi, 2006). Moreover, academic achievement includes recording all cognitive activities of the learners that are measured by a common scoring system with respect to the different levels of the emotional and educational activities and schedule and is considered as a process of academic achievement (Khoshkonesh, 2007). Casidy (2013) investigated the relationship between thinking styles and academic achievement and showed that the conservative thinking style positively predicts the academic achievement and general thinking styles liberal thinking styles negatively predicts it. Sternberg is one of the first scholars who introduced the concept of the thinking styles and classified them. He defines the thinking styles as different techniques used by the people in processing the data. Thinking style does not denote the ability, it shows the way people use their abilities (Sternberg, 1997). Thinking styles are different from the intelligence; intelligence refers to the individual potentials and abilities; however, thinking styles refers to the individual preferences (Seif, 2008). In general, thinking styles refers to the preferred ways that people use their abilities (Nico and Sternberg, 1997). These 13 styles of thinking can be divided into two kinds of style. The first type of thinking styles (legislative, judicial, global, hierarchical, and liberal thinking styles) lead to the creativity and need the processing of the complex data. People who use this style of thinking tend to challenge norms and accept the risks. Second kind of thinking styles (the executive, local, monarchic, and conservative thinking styles) need the processing of simple data. People with this kind of thinking styles tend to preserve the norms and are authoritative. Other four thinking styles
(anarchic, oligarchic, internal, and external thinking styles) may be classified into the complex or simple thinking styles based on the certain task (Zhang and Postiglione, 2001). Fan and Zhang (2009) investigated the relationship between the thinking styles and motivation of the students and showed that some thinking styles including creative thinking style can predict the motivations for achievement. Bernardo et al. (2002) investigated the relationship between thinking styles and academic achievement of the students in the Philippines and concluded that the executive and judicial thinking styles positively correlated with academic achievement. Zhang (2001 and 2001), Zhang, and Sternberg (2000) showed that conservative thinking styles and hierarchical thinking styles positively correlated with academic achievement and legislative and judicial thinking styles negatively correlated with it.

Zhang (2001) investigated the relationship between thinking styles and academic achievement and showed that conservative thinking styles positively predict the academic achievements and general thinking styles and liberal thinking styles negatively predict it. Sternberg and Grigorenko (1993) and Grigorenko and Sternberg (1997) studied the role of thinking styles in academic achievement between the two groups of gifted children participating in a summer school program at Yale and showed that the judicial and legislative thinking styles correlated positively with academic achievement of students, while the executive thinking style negatively correlated with it.

Therefore, variables of self-regulatory learning strategies and thinking styles are important in academic achievement of the students. Therefore, this study aims to investigate the relationship between self-regulatory strategies and thinking styles with academic achievement of the students in high school students of Ahvaz.

**Method**

This was a descriptive and correlational study. The statistical population included all high school students in the third grade of Ahvaz in academic year 2014-2015. According to a list prepared by the Education Department, the statistical population includes 3590. The statistical population in this study includes 2500 people, according to statistics from the Department of Education, of whom, 320 were selected based on the Krejcie and Morgan table and using the multi-stage random sampling method from four districts of Ahvaz, namely District 1 and District 4. Then, 10 high schools were randomly selected with 110-280 students. Then, 10% of the students of each high school were selected that included 320 students. After selecting the sample, questionnaires were distributed and then, 310 questionnaires were responded and then data were analyzed.

**Research Instruments**

**Thinking Styles Inventory (Sternberg and Wagner, 1997):** This questionnaire includes 104 items that are scored from 1 for LEAST LIKE YOU and 5 for MOST LIKE YOU and 13
subscales that was developed by Sternberg and Wagner (1997) based on the theory of Sternberg's mental autonomy (1991) and translated by Ahari and Khosravi (2001). This questionnaire measures 13 thinking styles including legislative, executive, and judiciary, anarchic, monarchic, hierarchic, oligarchic, global, local, external, internal, liberal, and conservative thinking styles. All eight items in this questionnaire measures one subscale. Total scores of eight questions determine the score of this subscale. Sternberg (1997) conducted a factor analysis to determine the validity of thinking styles test using the construct validity. The results of factor analysis have confirmed the validity of the test. Sternberg and Wagner (1997) have conducted different studies to analyze the ranking of the thinking styles questionnaire. For example, reliability coefficient of thinking styles questionnaire has been calculated for 75 students. Reliability coefficient of the subscales was calculated for from 0.56 executive style to 0.88 for global style with the mean of 0.78 for the subscales. Emamipour and Saif (2003) also calculated the test reliability using the test-retest and with an interval of three weeks. Reliability coefficient was calculated for the subscales from 0.43 for legislative thinking style to 0.67 for conservative thinking style with the mean of 0.67.

For measuring the academic achievement of the students, GPA of the students was used.

Results

descriptive data are provided concerning the research variables. Table 1 shows the mean, standard deviation, minimum, and maximum score of the subjects, styles of thinking and academic achievement.

Table 1. the mean, standard deviation, minimum and maximum score of the subjects in the variables of

<table>
<thead>
<tr>
<th>Statistical indicators variables</th>
<th>SD</th>
<th>maximum</th>
<th>minimum</th>
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<tbody>
<tr>
<td>Legislative thinking</td>
<td>36</td>
<td>54</td>
<td>16</td>
</tr>
<tr>
<td>Executive thinking</td>
<td>41</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>Judicial thinking</td>
<td>39.38</td>
<td>49</td>
<td>14</td>
</tr>
<tr>
<td>Monarchic thinking</td>
<td>33</td>
<td>54</td>
<td>15</td>
</tr>
<tr>
<td>Anarchic thinking</td>
<td>35</td>
<td>50</td>
<td>19</td>
</tr>
<tr>
<td>Hierarchic Thinking</td>
<td>39.1</td>
<td>49</td>
<td>14</td>
</tr>
<tr>
<td>Oligarchic Thinking</td>
<td>38.5</td>
<td>49</td>
<td>16</td>
</tr>
<tr>
<td>Academic achievement</td>
<td>13.4</td>
<td>19.5</td>
<td>13</td>
</tr>
</tbody>
</table>

Research hypotheses with their results are as follow. Table 2 shows the simple correlation coefficients between the predictor and criteria variables.
Table 2 simple correlation coefficients between predictor and criteria variables

<table>
<thead>
<tr>
<th>Criterion variable predictor variables</th>
<th>Academic achievement</th>
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<tbody>
<tr>
<td></td>
<td>Correlation coefficient (r)</td>
</tr>
<tr>
<td>Legislative thinking</td>
<td>0.43</td>
</tr>
<tr>
<td>Executive thinking</td>
<td>0.42</td>
</tr>
<tr>
<td>Judicial thinking</td>
<td>0.50</td>
</tr>
<tr>
<td>Monarchic thinking</td>
<td>0.18</td>
</tr>
<tr>
<td>Anarchic thinking</td>
<td>0.30</td>
</tr>
<tr>
<td>Hierarchic Thinking</td>
<td>0.31</td>
</tr>
<tr>
<td>Oligarchic thinking</td>
<td>0.20</td>
</tr>
</tbody>
</table>

H1: there is a significant relationship between the legislative thinking and academic achievement.
As shown in Table 2, the correlation coefficient between legislative thinking and academic achievement 0.43 that is significant at 0.001. Therefore, the first hypothesis is confirmed.

H2: There is a significant relationship between executive thinking and academic achievement.
As shown in Table 2, the correlation coefficient between executive thinking and academic achievement 0.42 that is significant at 0.01. Therefore, the second hypothesis is confirmed.

H3: there is a significant relationship between the judiciary thinking and academic achievement.
As shown in Table 2, the correlation coefficient between judiciary thinking and academic achievement 0.52 that is significant at 0.001. Therefore, the third hypothesis is confirmed.

H4: there is a significant relationship between the anarchic thinking and academic achievement.
As shown in Table 2, the correlation coefficient between anarchic thinking and academic achievement 0.30 that is significant at 0.01. Therefore, the fifth hypothesis is confirmed.

H5: there is a significant relationship between the monocratic thinking and academic achievement.
As shown in Table 2, the correlation coefficient between monocratic thinking and academic achievement 0.18 that is significant at 0.05. Therefore, the fourth hypothesis is confirmed.

H6: there is a significant relationship between the hierarchic thinking and academic achievement.
As shown in Table 2, the correlation coefficient between hierarchic thinking and academic achievement 0.31 that is significant at 0.01. Therefore, the sixth hypothesis is confirmed.

H7: there is a significant relationship between the oligarchic thinking and academic achievement.
As shown in Table 2, the correlation coefficient between oligarchic thinking and academic achievement 0.20 that is significant at 0.05. Therefore, the fourth hypothesis is confirmed.
Discussion and conclusion

This study aimed to investigate the relationship between self-regulatory strategies and thinking styles with academic achievement of the students. As shown in Table 2, the correlation coefficient between legislative thinking and academic achievement 0.43 that is significant at 0.001. Therefore, the first hypothesis that states there is a significant relationship between the legislative thinking and academic achievement. This shows a direct Therefore, the first hypothesis that states there is a significant relationship between the legislative thinking and academic achievement. This result is consistent with the Casidy (2013) that states legislative thinking predicts the academic achievement. According to Sternberg’s theory of mental autonomy (1988, 1996, quoted by Zhang, 2004), people with legislative thinking enjoy the creative tasks. These learners prefer unorganized tasks in order to organize them. Other tasks include writing short stories and innovative articles, composing poems, create the mathematical problems, and scientific projects (Seif, 2008). These people can solve the problems too and this is useful for academic achievement. These result is consistent with findings of Bernardo et al. (2002). They believe that legislative thinking styles positively correlated with academic achievement. Since these students are interested in analysis and evaluation, they can analyze their academic tasks and solve their problems. These students can pass the difficult tests relying on their deep understanding and analytical power. As shown in Table 2, the correlation coefficient between judiciary thinking and academic achievement 0.52 that is significant at 0.001. Therefore, the third hypothesis that states there is a significant relationship between the judiciary thinking and academic achievement is confirmed. This is consistent with findings of Bernardo et al. (2002). They believe that executive and judicial thinking styles positively correlated with academic achievement. Since these students are interested in analysis and evaluation, they can analyze their academic tasks and solve their problems. These students can pass the difficult tests relying on their deep understanding and analytical power. As shown in Table 2, the correlation coefficient between monarchic thinking and academic achievement 0.18 that is significant at 0.05. Therefore, the fourth hypothesis that states there is a significant relationship between the anarchic thinking and academic achievement is confirmed. This is consistent with the findings of Shokri et al. (2006). Due to the weak significant relationship between the monarchic thinking and academic achievement, and based on Sternberg (quoted by Seif, 2008), these students needs to process the simple data. They cannot easily solve the problem but because they divide the data into smaller segments, can overcome their problems and take the acceptable marks. Therefore, it can be predicted that there is a weak positive significant relationship between the monarchic thinking styles and academic achievement. As shown in
Table 2, the correlation coefficient between anarchic thinking and academic achievement 0.30 that is significant at 0.01. Therefore, the fifth hypothesis that states there is a significant relationship between the monocratic thinking and academic achievement is confirmed. These students may be classified into simple or complex thinking styles (Stephan, 2008; quoted by Shokri, 2008).

These students adapt themselves with the difficult tasks. They analyze the task and then solve it properly. Therefore, it can be predicted that significant positive relationship between anarchic style and academic achievement. As shown in Table 2, the correlation coefficient between hierarchic thinking and academic achievement 0.31 that is significant at 0.01. Therefore, the sixth hypothesis that states there is a significant relationship between the hierarchic thinking and academic achievement is confirmed. These students prefer to concentrate on some prioritized tasks. Tendency for prioritization of the tasks shows the discipline in doing tasks and this is one of the reasons for success. Thus, these people may achieve the desired results. Therefore, a significant positive relationship between hierarchic style and academic achievement can be predicted. As shown in Table 2, the correlation coefficient between oligarchic thinking and academic achievement 0.20 that is significant at 0.05.

Therefore, the fourth hypothesis that states there is a significant relationship between the oligarchic thinking and academic achievement is confirmed. These students may be classified into simple or complex thinking styles. They can solve the difficult problems. Therefore, a significant positive relationship between oligarchic style and academic achievement can be predicted. These students can do several simultaneous tasks without prioritizing them. They enjoy teamwork with potent people by which they acquire new useful experiences and can obtain better marks and this leads to their academic achievement. Therefore, thinking styles are one of the main factors that affect the academic achievement of the students and they should be implemented for them. focusing on the female students as the sample, the lack of causal analysis, using the questionnaires due to the lack of a precise instrument for measuring the academic achievement of the students are considered as some limitations of this study.
References


