Comparing learning strategies in traditional and distance educational systems: A case of Azad University and Payame Noor University students in Shiraz

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Abstract

With the aim of comparing learning strategies among Azad University and Payame Noor University students in Shiraz, 375 students were chosen through stratified ratio sampling and completed the learning strategies questionnaire, including cognitive and metacognitive strategies. The results generally showed that there is difference between Azad University students and Payame Noor University students in using cognitive and metacognitive strategies. It was also demonstrated that there is difference in metacognitive strategies between the first-year students and those in the last year of study in Payame Noor University. The results regarding these findings will be discussed in the discussion.

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Keywords: cognitive strategies; metacognitive strategies; distance education; traditional education;

1. Introduction

Professors and teachers have always expected their students to not only behaviorally, but also cognitively engage in academic tasks. They want the learners to think deeply about the content of learning and use the methods for learning that maximize their understanding of the materials (Pintrich et al. 1992; as cited in Linnenbrinc & Pintrich, 2003). In this regard, it is often observed that some students are not able to use higher-order learning strategies. Conversely, some students report that they have difficulty learning materials through memorization. In fact, we can say that all the above problems are rooted in the lack of cognitive engagement or inappropriate cognitive engagement (i.e., using inappropriate learning strategies).

Learning strategies include those thinking, behavior, beliefs and feelings that facilitate the acquiring, understanding, later transferring of new knowledge and skills (Weinstein, Husman, & Dierking, 2000). Cognitive strategy (rehearsal, elaboration and organization) is predicated to any behavior, thought or act that the learner uses during learning and aims at helping to learn, organize, and store knowledge and skills and the ease of utilizing them in the future. Metacognitive strategies are strategies for monitoring and guiding cognitive strategies and include planning, control, monitoring, and self-regulation (Weinstein & Hume, 1988; as cited in Pintrich, 1999).

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Researchers have shown that those who use deep cognitive processing strategies are more engaged in academic tasks than those using surface cognitive processing strategies and can control and regulate their learning (Weinstein & Mayer, 1986). By the same token, some research findings indicate that metacognitive strategies are positively (Simons, Dewitte, & Lens, 2004; Greene, Miller, Crowson, Duke, & Akey, 2004) and low-level cognitive strategies are negatively related to academic achievement (Ravindran B, Greene BA, DeBacker, 2005; Simons, Dewitte, & Lens, 2004). In this regard, it seems that the use of learning strategies (cognitive and metacognitive) should be studied in association with the specific course. Because the key issue in learning each course is using appropriate learning strategies not low or high level strategies. Furthermore, another issue that so far has been less studied is comparing the quality and amount of utilizing these strategies in traditional and distance educational systems. In their study entitled “investigating the English language students’ metacognitive strategies in distance versus class-dependent educational environments”, Alavi & Ahmadizadeh (2001) concluded that the senior students of distance education use more metacognitive strategies than students studying in a class-dependent educational system. In distance education system, features such as virtual communication of students and professors, physical separation of them, and students’ more control over learning process put the responsibility of learning mostly on the learner and discusses individual study and independent learning as a fundamental strategy. In such a system, the professor conveys his educational message widely but without benefiting the interaction of learner-teacher. In contrast, in traditional educational system the teacher is often the focus of educational activities and the learners are mostly recipients of knowledge. The prominent feature of this system is interaction and face to face communication between the instructor and the learner. So, it is obvious that regarding the differences between two educational systems of traditional (Azad University) and distance (Payame Noor University) from various dimensions, their students also act differently in cognitive engagement and using learning strategies. Therefore, the basic query of this study is comparing the learning strategies of Azad versus Payame Noor University students in Shiraz.

2. Method

2.1. Participants

The population of our study consists of all the fresher and senior students of Azad University and Payame Noor University (N=16500). Of these, 9350 students belong to Payame Noor University and 7150 students belong to Azad University. To select the sample, due to the students being heterogeneous in terms of the kind of educational system, gender, and the time of arrival to the university, stratified ratio sampling was used. 375 students (232 female and 143 male) were selected as sample.

2.2. Measures

To collect data, the cognitive and metacognitive strategies questionnaire was used which included 70 items. The cognitive strategy in our study includes rehearsal, elaboration and organization. Metacognitive strategy also includes planning, monitoring, and regulation. To determine the reliability of the questionnaire, Cronbach’s alpha coefficient was used and confirmatory factor analysis was done for ensuring the construct validity of instruments.

3. Results

In table 1, the result of t-rest for comparing the cognitive strategies of Azad and Payame Noor Universities students have been presented.
As can be seen in the table above, the amount of observed \( t \) (4.13) is significant at level 0.01. This means that there is difference in using cognitive strategies between students of these two universities. With reference to the means, it is obvious that the mean for Azad University students is greater than that of their counterparts in the other university.

In table 2, the result of \( t \)-test for comparing the metacognitive strategies of Azad and Payame Noor Universities students have been presented.

As can be seen, the amount of observed \( t \) (4.76) is significant at level 0.01. In other words, there is difference in using metacognitive strategies between students of these two universities. With reference to the means, it is seen that the mean for Payame Noor University students is greater than that of their counterparts in the other university. In the following the result of \( t \)-test for comparing the cognitive strategies of fresher’s and senior students in Payame Noor University has been presented.

As can be seen, the amount of observed \( t \) (0.68) is not statistically significant. That is, there is no difference between the first and the last year students of Payame Noor University in using cognitive strategies. In table 4, the result of \( t \)-test for comparing the metacognitive strategies of fresher’s and senior students in Payame Noor University has been presented.

As is evident, the amount of observed \( t \) (6.2) is statistically significant at level 0.01. This means that there is difference between the first and the last year students of Payame Noor University in using metacognitive strategies. Considering the reported means, the last year students’ mean is greater than first year students. In table 5, the result of \( t \)-test for comparing the cognitive strategies of fresher’s and senior students in Azad University has been presented.
Table 5. t-test for comparing the cognitive strategies of fresher’s and senior students in Azad University

<table>
<thead>
<tr>
<th>Academic year</th>
<th>N</th>
<th>Mean</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>First year</td>
<td>99</td>
<td>96.97</td>
<td>1.6</td>
<td>159</td>
<td>0.29</td>
</tr>
<tr>
<td>Last year</td>
<td>62</td>
<td>99.4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table shows that the amount of t (1.59) is not statistically significant. That is, there is no difference between the first and the last year students of Azad University in using cognitive strategies. What follows is the result of t-test for comparing the metacognitive strategies of fresher’s and senior students in Azad University.

Table 6. t-test for comparing the metacognitive strategies of fresher’s and senior students in Azad University

<table>
<thead>
<tr>
<th>Academic year</th>
<th>N</th>
<th>Mean</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>First year</td>
<td>99</td>
<td>117.57</td>
<td>2.83</td>
<td>159</td>
<td>0.004</td>
</tr>
<tr>
<td>Last year</td>
<td>62</td>
<td>110.24</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As is seen, the amount of observed t (2.83) is statistically significant at level 0.01. This means that there is difference between the first and the last year students of Azad University in using metacognitive strategies. Considering the reported means, the first year students’ mean is greater than last year students. In table 7, the result of t-test for comparing the cognitive strategies of male and female students in Payame Noor University has been presented.

Table 7. t-test for comparing the cognitive strategies of male and female students in Payame Noor University

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>139</td>
<td>91.84</td>
<td>0.3</td>
<td>212</td>
<td>0.76</td>
</tr>
<tr>
<td>Males</td>
<td>75</td>
<td>91.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As can be seen, the amount of observed t (0.3) is not statistically significant and this implies that there is no difference between male and female students of Payame Noor University in using cognitive strategies. In table 8, one can see the result of t-test for comparing the metacognitive strategies of male and female students in Payame Noor University.

Table 8. t-test for comparing the metacognitive strategies of male and female students in Payame Noor University

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>139</td>
<td>117.99</td>
<td>6.35</td>
<td>212</td>
<td>0.01</td>
</tr>
<tr>
<td>Males</td>
<td>75</td>
<td>132.9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As is seen, the amount of observed t (6.35) is statistically significant at level 0.01. This means that there is difference between male and female students of Payame Noor University in using metacognitive strategies. Considering the reported means, the male students’ mean is greater than females’. In table 9, the result of t-test for comparing the cognitive strategies of male and female students in Azad University has been presented.
Table 9. t-test for comparing the cognitive strategies of male and female students in Azad University

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>90</td>
<td>97.37</td>
<td>.54</td>
<td>159</td>
<td>0.59</td>
</tr>
<tr>
<td>Males</td>
<td>71</td>
<td>99.59</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table shows that the amount of $t (0.54)$ is not statistically significant. That is, there is no difference between male and female students of Azad University in using cognitive strategies. In Table 10, the result of t-test for comparing the metacognitive strategies of male and female students in Azad University has been presented.

Table 10. t-test for comparing the metacognitive strategies of male and female students in Azad University

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>90</td>
<td>116.71</td>
<td>1.77</td>
<td>159</td>
<td>0.07</td>
</tr>
<tr>
<td>Males</td>
<td>71</td>
<td>112.26</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As can be seen, the amount of observed $t (1.59)$ is not statistically significant and this implies that there is no difference between male and female students of Azad University in using metacognitive strategies.

4. Discussion

The results showed that Payame Noor University students use more metacognitive and less cognitive strategies than Azad University students. This finding is in line with that of Alavi & Ahmadizadeh (2001). Zimmerman believes that learning strategies are kinds of learning in which the learner instead of relying on instructor or others for obtaining knowledge and skills leads her/her efforts personally (Zimmerman, 1986). It seems that this definition of strategy is consonant with distance education features which emphasizes on learner independence and less reliance on training materials. And perhaps one of the main reasons for the above finding is the same story. For other reasons, we may refer to the broader dimensions of learner interaction with other elements of learning via internet such as the instructor, content, media and classmates. In this regard, most researchers consider different types of interactions as what produces deep learning processes. One question and one answer structure is the foundation of interaction and encourages learning. When the interaction increases and when it is related to high levels of thinking, its contribution to deep learning process will increase (Offir, Lev, & Bezalel, 2008).

The results also showed that senior students of Payame Noor University used metacognitive strategies more than the first year students whereas there was no such difference regarding cognitive strategies. There was also no difference between the first and the last year students of Azad University in using cognitive strategies. However, first year students by far used more metacognitive strategies than senior students. Perhaps because the learner himself is in charge of learning in Payame Noor University, he initiates and regulates his learning activities and learns that he need to move towards higher level strategies for durability and effectiveness of learning.

Gender comparisons also indicated there was no difference between male and female students of both universities in using cognitive strategies. However, regarding metacognitive strategies male students of Payame Noor University had better conditions than females. This is, of course, not in line with Zimmerman & Martinez-Pons’s (1990) finding. They reported that girls used more metacognitive strategies than boys. The authors of the present study believe that in this regard the important issue is not which strategy is superior to the other one, but the main problem is low understanding of learners of these strategies and the inappropriateness of their selected strategy with the course materials.
References


