The relationship between EFL learners’ learning styles and their L2 achievement

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Abstract

This research aimed to determine if there are significant differences in learning styles of Iranian pre-university EFL learners across different levels of proficiency, majors and genders. Productivity Environmental Preference Survey (PEPS) was used to reveal the students’ learning styles. To determine their achievement in language learning, the proficiency test was administered. The results showed that the participants preferred visual style the most, followed by auditory, tactile and the least preferred learning style was kinesthetic. Though the tendencies were different, the success of these students did not show significant differences. Furthermore, major and gender did not affect the learning style preferences.

Keywords: Learning; Learning style preferences; EFL achievement ;(PEPS) Questionnaire; Learning strategy

1. Introduction

Language learning is one of the most challenging activities one has to deal with. Such lifelong learning process, obviously, involves the professional and educational guidance as well as personal systematic, conscious and attentive engagements in an L2. Therefore, the personal reflection on how one learns a language is regarded as a key to an academic mastery of the native language, and the learning of the second or foreign language. The teacher should know that everyone has his/her own innate strengths and abilities. That is, s/he performs well in some specific fields. According to Stevenson and Dunn (2001), some students can still learn simple knowledge even when their learning styles and the learning material
or resources are mismatched, but they can do more effectively and rapidly when the learning material is in line with their learning style strength. Therefore, the individual differences toward learning have been regarded as an important issue by more and more educators and researchers. There are several reasons for the language teachers to understand the logic of studying the learning styles. “Everyone has a learning style. Our style of learning, if accommodated, can result in improved attitudes toward learning and an increase in productivity, academic achievement, and creativity” (Griggs, 1991, p.85). In fact, to reveal the relation between learning style and achievement in language learning might be of great benefit for the learners, teachers, researchers and syllabus designers.

As for Iranian context, learning English as a required course starts at the second year of guidance school and continues up to the end of high school. However, due to different factors, such as the content of the textbooks, teachers’ methodology and the evaluation system, high school students do not learn much English. The researchers find that most of their students did not have any successful English learning experiences or they had an extreme fear of learning English when they were in junior high school. As for Iranian context, the learning styles of university students, either English majors or non-English majors, have already been investigated; however, the learning styles of pre-university students have yet been required to be investigated. In fact, the predictive power of learning styles in the prediction of academic success needs to be replicated, across different contexts, among different participants, and through different instruments.

2. Research Questions

1. What are the common learning styles of Iranian pre-university EFL learners?
2. Are there significant differences between Iranian pre-university high achievers and low achievers in terms of learning style?
3. Is there any significant relationship between field of study and learning style of Iranian L2 learners studying at pre-university level?
4. Is there any significant relationship between gender and learning style of Iranian pre-university learners?

3. Participants

The sample for this study consisted of one hundred and thirty one pre-university EFL students who were selected from high schools in Khansar. They were male and female learners whose age range was between 17 and 18. Eighty-five female students (64.9%) and forty-six male students (35.1%) participated in the research to state their views as to their learning styles. (Selection of the participants was based on convenience sampling). In addition, they were grouped according to their majors. Data from the following major categories were analyzed: mathematics (n=44); humanities (n=44) and experimental sciences (n=43). Data were also analyzed according to their gender to identify further variability in the sample.

4. Instruments

4.1. General English proficiency test

A general English achievement test functioning as proficiency test containing multiple-choice items of vocabulary, reading comprehension and grammar was developed and administered by the researcher. This test was administered in order to determine the participants’ proficiency in English. The test items were based on the contents of the English books 1, 2 and 3 which students had passed in previous semesters. This test was administrated in a pilot study to make sure that it was valid and reliable. Based on the
students’ response to the test, Cronbach alpha coefficient of internal consistency was applied to guarantee its reliability. The result indicated reliability indexes of 0.76, and showed that the test was reliable. Moreover, some experienced teachers teaching at the high school verified the content validity of the test.

4.2. Productivity environmental preference survey (PEPS)

The PEPS has been adopted from the Dunn and Dunn Learning-Style Model. The PEPS measures preferences pertaining to the following 20 modalities: noise, light, temperature, design, motivation, persistence, responsibility, structure, peer orientation, authority orientation, multiple perceptual preferences, auditory, visual, tactile, kinesthetic, intake, evening/ morning, late morning, afternoon, and mobility. Each modality is represented by a subscale, with performance expressed in standard score units, ranging from 20 to 80 (M=50, SD=10). According to the instrument's authors, individuals having a standard score of 40 or less or 60 or more find that modality important when they study or work. Individuals scoring between 40 and 60 typically differ with respect to how much that variable is important to them. The reliabilities of the PEPS subscales exceed 0.70 (Dunn, Dunn, Price, 1991). The modified version of the PEPS was used to analyze data. The short form that was used in this study consists of 100 questions that are grouped into four dimensions as follows (see Table 1).

Table 1. Dimensions of Productive Environmental Preferences Survey

<table>
<thead>
<tr>
<th>Sub-dimension</th>
<th>Items</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>Needs quiet</td>
<td>21,83</td>
</tr>
<tr>
<td></td>
<td>Sound is acceptable</td>
<td>9,75</td>
</tr>
<tr>
<td>1. Sound</td>
<td>Requires much light</td>
<td>1,34</td>
</tr>
<tr>
<td></td>
<td>Requires low light</td>
<td>13,53,66,77</td>
</tr>
<tr>
<td>2. Light</td>
<td>Needs cool environment</td>
<td>8,11,25,46,82</td>
</tr>
<tr>
<td></td>
<td>Needs warm environment</td>
<td>100</td>
</tr>
<tr>
<td>3. Temperature</td>
<td>Requires formal design</td>
<td>30,38</td>
</tr>
<tr>
<td></td>
<td>Requires informal design</td>
<td>7,14,99</td>
</tr>
<tr>
<td>4. Seating Design</td>
<td>Self-motivated</td>
<td>57,72,90</td>
</tr>
<tr>
<td></td>
<td>Other-motivated</td>
<td>81,85</td>
</tr>
<tr>
<td>5. Motivation</td>
<td>Persistent</td>
<td>15,29,42,49,50,55,62</td>
</tr>
<tr>
<td>6. Persistent</td>
<td>Responsible</td>
<td>5,64</td>
</tr>
<tr>
<td></td>
<td>Not very responsible</td>
<td>10,22,52,89</td>
</tr>
<tr>
<td>7. Responsible</td>
<td>Need structure</td>
<td>37,60,68,76,96</td>
</tr>
<tr>
<td>8. Structure</td>
<td>Alone</td>
<td>2,33,39,58</td>
</tr>
<tr>
<td></td>
<td>Peer-Oriented</td>
<td>12,20,24,26,35,45</td>
</tr>
<tr>
<td>9. Learning Alone/Peer Oriented</td>
<td>Alone</td>
<td>6,31,47,54,93</td>
</tr>
<tr>
<td></td>
<td>Peer-Oriented</td>
<td>16,23,43,56,61,71</td>
</tr>
<tr>
<td>10. Authority Figures Present</td>
<td>Not oriented</td>
<td>28,36,41,51,67,73,80,97</td>
</tr>
<tr>
<td>11. Auditory</td>
<td>4,84,88</td>
<td></td>
</tr>
<tr>
<td>12. Visual</td>
<td>63,65</td>
<td></td>
</tr>
</tbody>
</table>
5. Procedure

Persian version of Productivity Environmental Preference Survey (PEPS) was used to reveal the students’ learning styles. To determine their achievement in language learning, the General English Proficiency Test developed by the researcher was administered. The general proficiency test had 50 multiple choice questions and lasted 40 minutes to respond. The questionnaire contained 100 statements and took about 20 minutes to complete. To ensure the participants’ maximum understanding, the questionnaire was written in the participant’s native language, Farsi. The questionnaire was checked by three professors at Najafabad University who were experts in research methodology and English language.

6. Discussion of Results in Detail

6.1. The first research question

(1) What are the common learning styles of Iranian pre-university EFL learners? Regarding the “environmental” dimension, the Mean score of girl students in humanities is more than other majors. The Mean score of boy students in experimental sciences is more than other majors. Generally, the Mean score of boy students is more than that of girl students in this dimension.

Regarding the “emotionality” dimension, the Mean score of girl students in humanities is more than other majors. The Mean score of boy students in humanities is more than other majors. Generally, the Mean score of girl students is more than that of boy students in this dimension.

Regarding the “sociological” dimension, the Mean score of girl students in humanities is more than other majors. The Mean score of boy students in experimental sciences is more than other majors. Generally, the Mean score of boy students is more than that of girl students in this dimension.

Regarding the “physical” dimension, the Mean score of girl students in experimental sciences is more than other majors. The Mean score of boy students in humanities is more than other majors. Generally, the Mean score of boy students is more than that of girl students in this dimension.

In this part, sensory modality, which refers to the "physical, perceptual learning channels with which the student is most comfortable"(Oxford, 2001, p.360) has been investigated too. Regarding the “auditory” sub-dimension, the Mean score of girl students in humanities is more than other majors. The Mean score of boy students in experimental sciences is more than other majors. Generally, the Mean score of boy students is more than that of girl students in this sub-dimension. Regarding the “visual” sub-dimension, the Mean score of girl students in experimental sciences is more than other majors. The Mean
score of boy students in humanities is more than other majors. Generally, the Mean score of boy students is more than that of girl students in this sub-dimension.

Regarding the “tactile” sub-dimension, the Mean score of girl students in mathematics is more than other majors. The Mean score of boy students in mathematics is more than other majors. Generally, the Mean score of boy students is more than that of girl students in this sub-dimension. Regarding the “kinesthetic” sub-dimension, the Mean score of girl students in experimental sciences is more than other majors. The Mean score of boy students in humanities is more than other majors. Generally, the Mean score of girl students is more than that of boy students in this sub-dimension.

The results showed that visual stimulus was the major style; followed by auditory, tactile and kinesthetic style. So, students’ preferred learning style was visual. Also, students were not in favour of kinesthetic learning compared to the other modes of learning. This demonstrates that most pupils have a preference for visual features in learning in the study, which is reflected in their interest in the use of images, graphs and other structures to support their learning.

The results of this study are consistent with the study done by Mulalic and Mohd Shah and Ahmad (2009) who indicated that visual learning style was the preferred way of learning, and kinesthetic learning style was the least preferred way of learning for Indian students. Also, the results are congruent with the study that Chinese students at college level demonstrated strong preferences for visual and auditory learning style (Wintergerst, DeCapua & Verna, 2003).

The results of this study are in contradiction with the study done by Mulalic and Mohd Shah and Ahmad (2009) who indicated that Kinesthetic learning style was reported as a major learning style for Chinese and Malay students. Furthermore, the results of this study are in contradiction with the results of the Chen’s (2004) study which pointed out that most students had strong motivation for learning and preferred kinesthetic and tactile learning styles.

6.2. The second research question

(2) Are there significant differences between Iranian pre-university high achievers and low achievers in terms of learning style? Based on the results, there are significant differences between high achievers and low achievers in terms of “responsible”, “structure”, “learning alone/peer”, “requires intake” and “late-morning” sub-dimensions. But in other sub-dimensions no significant difference was found.

The results of the present study indicate a significant main effect for the proficiency effect in “responsible” sub-dimension \((F (1, 25) =5.643, p=.02<.05)\). Based on the results of the third column, high achievers are more responsible than low achievers. And low achievers are not very responsible. Also, there is a significant main effect for the proficiency effect in “structure” sub-dimension \((F (1, 25) =3.961, p=.05<.05)\). The Mean score of low achievers is more than that of high achievers. It indicates that low achievers need clearer structure while learning and like to have clear instruction and steps for them to follow while learning.

Also, there is a significant main effect for the proficiency effect in “learning alone/peer” sub-dimension \((F (1, 25) =6.452, p=.01<.05)\). Based on the results of the third column, regarding the “alone” sub-sub-dimension, the Mean score of high achievers is more than that of low achievers. It indicates that high achievers prefer to learn by themselves independently of their peers. As far as the “peer-oriented” sub-sub- dimension is concerned; the Mean score of low achievers is more than that of high achievers. It
seems they feel more comfortable, productive, and relaxed by working in other ways, e.g. in pairs, or in
groups where their voices would be heard, and views listened to and valued.

Also, there is a significant main effect for the proficiency effect in “requires intake” sub-dimension \( (F(2, 25) = 13.259, p=.00<.05) \). Based on the results of the third column, regarding the “requires intake” sub-sub-dimension, the Mean score of low achievers is more than that of high achievers in different majors. So low achievers prefer to drink and take snacks while learning material but, in terms of “not requires intake” sub-sub-dimension, the Mean score of high achievers is more than that of low achievers in different majors. It indicates that high achievers prefer not to eat while learning.

Also, there is a significant main effect for the proficiency effect in “Late-Morning” sub-dimension \( (F(1, 25) =13.609, p=.00<.05) \). The Mean score of low achievers is more than that of high achievers in different majors. So, low achievers prefer to learn material in late morning.

We can say, at least for this sample of Iranian pre-university students, learning style may not be a strong predictor of foreign language proficiency. As such, this finding is consistent with the findings of several researchers (Ehrman & Oxford, 1995; Daley, Onwuegbuzie & Bailey, 1997), who have reported that learning style and/or personality variables are only weakly or indirectly related to foreign language achievement.

This study is in contradiction with the majority of researches that reported enhanced student achievement, as indicated by course grade and exam scores, when there was a match between students’ preferred learning styles and instructors’ preferred teaching styles (Matthews, 1995; Miglietti, 1994)

6.3. The third research question

(3) Is there any significant relationship between field of study and learning style of Iranian L2 learners studying at pre-university level? Based on the results, there is significant relationship between field of study and learning style in terms of “sound” and “requires intake” sub-dimensions. But in other sub-dimensions no significant difference was found.

There is a significant main effect for the major effect in “sound” sub-dimension \( (F(2,125) =5.572, p=.00<.05) \). Based on the result of the post hoc test, there is the Mean difference among students in different majors. It clearly indicated that students in different majors have different sensitivity to sound concern. Based on the results of the third column, regarding “acceptable sound” sub-sub-dimension the Mean score of students in experimental sciences is more than the Mean score in mathematics and is more than the Mean score in humanities. Based on the “needs quiet” sub-sub-dimension, the Mean score of students in humanities is more than the Mean score in mathematics and is more than the Mean score in experimental sciences. This indicates that the sound does not interrupt the students in experimental sciences while learning; they can work comparatively in noisy environment, but the students in humanities are more sensitive to sound concern and need a noise free environment while learning.

Also, there is a significant main effect for the major effect in “requires intake” sub-dimension \( (F(2,125) =3.357, p=.03<.05) \). Based on the result of the post hoc test, the Mean difference among different majors was so slight that was omitted during the post hoc test. It indicates that there is only a slight difference between students in different majors regarding “Requires Intake “sub-dimension. Based on the results of the third column, regarding the “requires intake” sub-sub-dimension, the Mean score of students in humanities is more than the Mean score in experimental sciences and is more than the Mean score in mathematics. Based on the “not requires intake” sub-sub-dimension, the Mean score of students in
mathematics is more than the Mean score in experimental sciences and is more than the Mean score in humanities. It indicates that the students in humanities prefer to drink and take snacks while learning, but the students in mathematics prefer not to eat while learning, but based on the result of the post hoc test, the Mean difference is not statistically significant.

The study is not consistent with study done by Matthews (1995) who indicated that there was a relationship between majors or college disciplines to learning style. Also, the study is not cohered with the study done by O’Brien (1991), whose subjects represented a variety of majors including business, education, and arts and sciences; found that differences in learning styles were associated with academic achievement.

6.4. The fourth research question

(4) Is there any significant relationship between gender and learning style of Iranian pre-university learners? Based on the results, there is significant relationship between gender and learning style in terms of “sound”, “motivation”, and “requires intake” sub-dimensions. But in other sub-dimensions no significant difference was found.

There is a significant main effect for the group effect in “sound” sub-dimension \( (F(1,125) = 4.431, p = .03 < .05) \); the Mean score of male participants is more than that of the female ones. It’s clearly indicated that male students are more sensitive to sound concern than female ones.

Also, there is a significant main effect for the group effect in “motivation” sub-dimension, \( (F(1,125) = 34.887, p = .00 < .05) \), the Mean score of female participants is more than that of male participants. Based on the results of the third column, female participants obtained higher score on the elements of “self-motivated” and “other-motivated” sub-dimensions than the male ones which shows that there is significant differences between male and female students regarding motivational concern. Female participants show higher motivational power than male ones, and they are strongly motivated.

Also, there is a significant main effect for the group effect in “requires intake” sub-dimension \( (F(1,125) = 6.569, p = .01 < .05) \). Based on the results of the third column, regarding the “requires intake” sub-sub-dimension, the Mean score of boys is more than that of girls. So boys prefer to drink, or take snacks while learning than girls. But, in terms of “not requires intake” sub-sub-dimension, the Mean score of girls is more than that of boys. So girls prefer not to eat while learning.

Based on the results, there is only a slight differentiation between male and female participants in four dimensions (environmental, emotionality, sociological and physical stimuli). Moreover, male participants have a relatively higher Mean than female ones for all the elements except for emotionality stimulus. In fact, although the Mean score of boy and girls was different, no significant differences by gender existed in results except in “sound, motivation and requires intake” sub-dimension. In other words, the learning style between females and males was similar, and gender did not seem to be the crucial element in affecting the learning style preferences.

7. Conclusion

When the statistical data in this research is considered carefully, it is possible to say that, considering the pre-university students participated in this research, there is not a strong, but low statistical relationship between the learning styles and their foreign language achievement. Though the tendencies were different, the success of these students did not show significant differences. Therefore, this study
confirms that learning styles of pre-university students do not make much difference to achieve success in foreign language education. Nevertheless, classroom experience clearly suggests that learning can suffer in classrooms where a dominant teaching or curricular style does not allow for mismatched students to use their preferred styles. Of course, in the reality of the EFL classroom teaching, it is impossible to always take all of learning preferences into account; also, it is impossible to constantly remember how each student learns best, learning style is just one of the many factors which influence the learning process and the learning results. Knowledge of learning styles cannot be used to remove all difficulties in understanding the learning process and other troubles in foreign language teaching, it is necessary for teachers to combine learning style with other individual differences, such as a learner’s personality, language aptitude, and so on.

References


