The Impact of Augmented Reality on Vocabulary Acquisition in Iran

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This paper explores gender differences among the students that used augmented reality (AR) in Iranian secondary schools. Vocabulary learning is considered as basic in foreign language acquisition, and it has a great importance in Iranian language education. Participants of the study were both female and male students due to the fact Iranian schools are considered gender-based. The Iranian education system is not based on co-education, and for this reason male and female students attend different schools. The current study is based on experimental design, and data was collected using pre-test and post-test. The findings show that there are no differences in learning English vocabulary due to gender among the Iranian students who use the AR-based approach.

Keywords: Augmented Reality, Gender, English Language, Vocabulary Acquisition

1. INTRODUCTION

Technology has become the most widely used medium for communication in schools. Gender equity in education involves the inclusion of the experiences, perceptions, and perspectives of girls as well as boys, in all aspects of education. Some researchers and educators argue that this gender equity is not being achieved in technology use in education today. The national center for education statistics (NCES, 2000) states that females make up only a small percentage of students in computer science and computer design courses. Additionally, females are less likely than males to say that they like and are good at technology, and they are less likely than males to exhibit computer confidence and have a positive attitude about computers.

For improving educational technologies, it is important to investigate the way technology aids students’ learning procedure. The investigation of technology-supported learning is considered fundamental in educational technology as existing education places a need regarding a learners’ intellect as well as capability of understanding both complex and abstract issues in the past, current, or future. Some researchers have examined augmented reality (AR) as an educational technology. AR technology improved during the 1990s as a development on or compliment to virtual reality that had previously arrived on the technological scene. AR is considered as the superimposition of virtual issues on a real setting, a unified combination of actual and virtual data in actual time. By improving technology, computers have been combined with other media and have been widely used in language education contexts. Among the student’s factors such as their age, academic background, and technological information, and sex, gender might be considered an effective factor. For instance, several investigations focused on male and female learners’ perceptions regarding the computer use as a tool for learning languages. Findings of the studies that have been conducted in Asia are in line with the above tendency summarized by Oxford. For instance, Hyland did a survey among Japanese English as a second language (ESL) and English as a foreign language (EFL) learners. Results of the study showed that Japanese female learners revealed stronger preferences compared to their male counterparts in each style preference and applied more tactile learning compared to the male learners. Two investigations, including Chinese EFL learners investigated gender differences. Both investigations showed that females have superior preferences for kinesthetic and tactile learning compared with the male learners. While in Melton’s investigation the differences were statistically significant, the differences in the study conducted by Zhang were not significant, although some inconsistent results are available. In the investigation that was conducted by Zhang, females preferred auditory and group learning meaningfully more than males. On the other hand, the study of Melton showed a different result in which females were considered significantly superior auditory students and males were significantly more group-oriented compared to their female equivalents. An investigation into tertiary level learners in Singapore by Chew, Kitchen showed other results. In their investigation, females stated superior preferences for auditory and tactile learning, but less preferences regarding kinesthetic, visual and group learning compared to the male learners. But all of the mentioned differences were minor and, in general, gender could not be considered as a statistically important issue. According to Goh and Foong, there were significant differences between males and females in compensation. Furthermore, in a video-based Computer Assisted Language learning setting, male and female L2 students applied significantly different groups of strategies to understand video-based language lessons.
This study is aimed at investigating the noted difference if the noted difference is significant, we assume the group of students experiencing their first exposure to the learning of the English language and represent the ideal group for examining learning of English with regards to the objectives of the study. As revealed in Table 1.1, 48.72 percent of the participants were female and 51.28 percent of them were male.

### Table 1.1: Distribution of participants in the study

<table>
<thead>
<tr>
<th>Cumulative percentage</th>
<th>Frequency percentage</th>
<th>Frequency</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>48.72</td>
<td>48.72</td>
<td>19</td>
<td>Girl</td>
</tr>
<tr>
<td>100</td>
<td>51.28</td>
<td>20</td>
<td>Boy</td>
</tr>
<tr>
<td>100.0</td>
<td>39</td>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

### 4. QUANTITATIVE ANALYSIS OF DATA

To examine the research question, an independent sample t-test was conducted to assess if differences exist on a dependent variable by an independent variable. An independent sample t-test is the appropriate statistical test when the purpose of research is to assess if differences exist on a continuous (interval/ratio) dependent variable by a dichotomous, (male, female) independent variable.

Table 1.2 shows the pre-test and post-test means of the experiment; the pre-test means where 1.6974 and 2.8625 and the post-test means were 6.1184 and 5.0750 for males and females, respectively.

### Table 1.2: Pre-test and post-test group

<table>
<thead>
<tr>
<th>Group Statistics</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>female</td>
<td>19</td>
<td>1.6974</td>
<td>.82318</td>
<td>.18885</td>
</tr>
<tr>
<td></td>
<td>male</td>
<td>20</td>
<td>2.8625</td>
<td>1.09867</td>
<td>.24567</td>
</tr>
<tr>
<td>Post-test</td>
<td>female</td>
<td>19</td>
<td>6.1184</td>
<td>1.16479</td>
<td>.26722</td>
</tr>
<tr>
<td></td>
<td>male</td>
<td>20</td>
<td>5.0750</td>
<td>1.62849</td>
<td>.36414</td>
</tr>
</tbody>
</table>

The result shows that pretest mean are high for males (2.89) than for females (1.69) whereas posttest means for females are higher than males. This is an indication that females performed better or learned more effectively using the ARenVA approach. To assumption if the noted difference significant, we conducted an independent sample t-test. The results are shown in table 1.3.

Table 1.3 shows the pre-test and post-test variances, where the pre-test F and significance were 1.296 and .262, and the post-test significance and F were 1.560 and .219 for males and females, respectively.

### Table 1.3: Comparing pre-test and post-test

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of variances</th>
<th>F</th>
<th>Sig</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>1.296</td>
<td>.262</td>
<td>-1.16513</td>
</tr>
<tr>
<td>Post-test</td>
<td>1.560</td>
<td>.219</td>
<td>1.04342</td>
</tr>
</tbody>
</table>

According the results, there are not any significant differences between males and females in vocabulary acquisition with the ARenVA approach.

### 5. CONCLUSIONS

Technology is considered as a fundamental part of the educational context since its debut in the early 1980s. According to Goodman (2001), integrating technology into...
education might construct new kinds of learning contexts for learners and will, in fact, improve fundamental learning procedures. With technology becoming significant in education, gender characters, which are important in comprehending the use of technology in general, are even more vital in explaining educational usage of technology. The aim of this study is to understand the differences between female student’s outperformance of males in their EFL achievement tests in 7th year secondary school in Iran. After using the Statistical Package for the Social Sciences (SPSS) program and getting the results, what we got from the analyses was that there were no significant differences between female and male students using the ARenVA approach.

References and Notes

2. Aydin, S., Attitudes of EFL learners towards the Internet. TOJET: The Turkish Online Journal of Educational Technology, 2007. 6(3).