On the effectiveness of using web- and print-based materials in teaching grammar to Iranian EFL learners

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Abstract

The present study aimed at investigating the extent to which using two types of instructional materials—websites vs. textbooks—may affect learners’ knowledge and ability to use certain grammatical rules. Ninety homogenous adult Iranian intermediate EFL learners were randomly assigned to three groups—Textbook Group (TG), Website Group (WG) and Control Group (CG). A pre-test was given to the three groups to measure their command of the grammar rules in focus prior to any treatment. In the treatment phase, the instructor used two grammar teaching textbooks to teach the learners in the TG whereas for those in the WG the same grammatical rules were taught on line in a language lab using a number of English language teaching websites. The CG learners received a placebo task. After the treatment phase, a post-test was administered to measure the gains. The results indicated that websites were as effective as textbooks in teaching grammar. Accordingly, it can be concluded that integration of web-based materials in the EFL classrooms (at least as supplement to print-based materials) can help motivate and enhance learners’ mastery of English grammar. The study has implications for EFL practitioners and materials developers.

Keywords: Instructional materials; Textbooks; Language teaching websites; Grammar

1. Introduction

It is increasingly acknowledged that creating opportunities for language learners to use technology in their learning can be beneficial in different ways (Zhao, 2007). In fact, a growing number of instructors around the world are seeking to enhance the quality and efficiency of their language instruction through innovative activities and experiences made available by technology. In this regard, it has been claimed that the internet in general and educational websites in particular play an increasingly important role in learning and instruction of many subjects including second or foreign languages. For instance, Ngai et al. (2007) argue that web-based teaching materials serve as a platform to facilitate teaching and learning and provide new approaches for conducting classes and delivering course materials. Moreover, application of web-based activities and integration of technology in language instruction were found to have a positive effect on learners’ attitudes and their motivation for learning a second or foreign language (Chen, 2004; Garcia and Arias, 2000).

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Accordingly, throughout the past decades, many researchers have made an attempt to investigate the effectiveness of integrating a variety of technologies in teaching grammar to second and foreign language learners. Bowen (1999) examined the efficacy of websites and CDROM virtual environments whereas McEnery (1995) used a Cyber Tutor that provided instant feedback and helped facilitate the grammar learning process. Schnackenberg (1997) used a Learning English Electronically (LEE) software which consisted of several lessons, emphasizing grammatical concepts and accurate sentence structure. Hall (1998) examined the effectiveness of implicit, explicit and exploratory grammar teaching approaches using the World Wide Web (WWW) in helping foreign language learners overcome their “grammar deficit”. Corkhill (1996) adopted a computer software program with a user-friendly personal tutor for teaching and reinforcing a wide range of grammatical topics. Moreover, the findings of several other studies have confirmed that web-based instruction is effective in teaching grammar and vocabulary (Nagata, 1996; Collentine, 2000; Al-Jarf, 2005; 2007).

The application of web-based teaching materials and online courses is not yet commonplace in Iranian EFL classrooms due to insufficient number of PCs, lack of high speed internet, scarcity of trained instructors, and lack of administrative support. As such, the potential effects of web-based instruction on Iranian EFL learners’ achievement appear to be under-researched. Thus, this study aimed to fill this gap by answering the following research questions:

1. Does using grammar teaching websites exert a significant effect on the acquisition of grammatical rules and structures by Iranian EFL learners?
2. Is there a significant difference between using grammar teaching websites and textbooks with regard to the influence they exert on the acquisition of grammatical rules and structures by Iranian EFL learners?

2. Method

2.1. Participants

The participants in this study were 120 Iranian intermediate EFL learners, aged 19-27, attending a language center in Isfahan, Iran. In order to make sure in objective terms that these learners were truly homogenous with regard to their English proficiency level, a Nelson English Language Proficiency Test (Fowler and Coe, 1976) was given to them. Having obtained the proficiency test results, the researchers decided to choose those participants whose score range fell one standard deviation above and below the mean (i.e. mean±1). This being so, 90 students met this homogeneity criterion and were thus selected to serve as the participants of this study. Later, they were randomly assigned to the three groups (two experimental and one control) involved in the study (30 students each).

2.2. Linguistic target

All of the participants were exposed to the same grammatical rules and structures. The topics covered were: present and past passive structures, conditional sentences (types I and II), tag questions, future perfect tense, defining and non-defining relative clauses, order of multiple adjectives before nouns, and past modals for expressing regret and possibility.

2.3. Procedures and treatment

The experimental sequence of the study was carried out over a period of around twelve weeks. As noted earlier, 90 homogenous learners were randomly assigned to three groups: a Textbook Group (TG), a Website Group (WG), and a Control Group (CG). One week prior to the first treatment session, all of the participants took a pre-test which consisted of items designed to elicit the grammatical rules and structures in focus and assess the learners’ knowledge of such forms. Then, every group underwent ten different treatment sessions. There was an interval of around 5 or 6 days between the treatment sessions, and the post-test followed the last teaching session a week later. In an attempt to control for outside exposure to the target forms, after completing the post-test, the learners were asked whether they had consulted anyone or anything about the target forms. The data from those who reported having done so were discarded. For this reason, the groups slightly differed in size; there were 24, 27, 27 participants in the TG, WG and CG, respectively.

After the pre-test and during the treatment phase of the study, participants in all the three groups separately attended ten sessions of treatment and they were taught a certain number of grammatical rules and structures.
Grammar was taught to the learners in the TG from two grammar textbooks, namely—Understanding and Using English Grammar (4th edition) by Betty Schrampfer Azar (2009) and English Grammar in Use by Raymond Murphy (2004). After the instructor’s explanations about the grammatical topic, the learners completed the grammar exercises in their textbooks. Meanwhile, the instructor monitored their work and provided feedback regarding the errors related to the grammatical forms under study.

The same instructor taught the same grammatical forms to the students in the WG in a language lab using a number of English language teaching websites that he had found relevant prior to the treatment. The learners sat at their computers and used the websites that contained daily grammar lessons, explanations, examples, exercises, and quizzes on the grammatical topics in focus.

The learners in the CG were given a placebo task. They were asked to complete grammar quizzes on grammatical rules other than those under study.

2.4. Tests and scoring procedures

Since this study was designed to focus on the acquisition of some grammatical rules and structures by Iranian intermediate EFL learners after certain types of instructional materials were employed during the treatment phase, a pre-test and a post-test were constructed by the researchers to assess the subjects’ knowledge of those grammatical topics. Both tests comprised 30 multiple-choice and fill-in-the-blanks items, and the subjects were required to complete the sentences by selecting the correct choice. It should be noted that since the pre- and post-test utilized in this study were researcher-made ones, they were both piloted prior to use and an alpha Cronbach method was applied to estimate their reliability. Reliability indexes for the pre- and post-test (0.72 and 0.70, respectively) revealed that the researcher-made tests were acceptable for the purpose of the study.

In scoring the pre-test and the post-test, each correct answer was given a single point, and all the correct answers added up to a total sum. There was no negative point for the wrong answers or for the items not answered at all.

3. Statistical analyses and results

3.1. Pre-test of the study

The pre-test was to ensure the researchers that the learners in the experimental and control groups enjoyed the same level of knowledge regarding the grammatical forms under investigation. Table 1 shows the descriptive statistics of the participants’ mean scores on the pre-test across the three groups.

<table>
<thead>
<tr>
<th>Groups</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TG</td>
<td>24</td>
<td>12</td>
<td>19</td>
<td>15.2601</td>
<td>1.62513</td>
</tr>
<tr>
<td>WG</td>
<td>27</td>
<td>14</td>
<td>17</td>
<td>14.9012</td>
<td>1.57325</td>
</tr>
<tr>
<td>CG</td>
<td>27</td>
<td>11</td>
<td>16</td>
<td>15.1246</td>
<td>1.71502</td>
</tr>
</tbody>
</table>

It can be seen in the above table that the mean scores for the three groups are statistically very close (TG: 15.2601≈WG: 14.9012≈CG: 15.1246). Therefore, it can be concluded that the learners in the three groups did not differ greatly from one another in terms of their knowledge of the target forms in question.

3.2. Research question 1

The first research question asked whether using grammar teaching websites exerts a significant influence on the acquisition of certain grammatical topics by Iranian intermediate EFL learners. To investigate this, a paired-samples t-test was run. The t-test was intended to compare the obtained mean scores of the participants in the WG on the pre- and post-test to indicate the effectiveness of the treatment. The descriptive statistics, along with the results of the t-test for the WG, are presented in Tables 2 and 3, respectively.
Table 2 Descriptive statistics for the WG

<table>
<thead>
<tr>
<th>Pair</th>
<th>Pre-test</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>14.9012</td>
<td>24</td>
<td>1.57325</td>
<td>.30512</td>
</tr>
<tr>
<td>Post-test</td>
<td>27.8913</td>
<td>24</td>
<td>1.59842</td>
<td>.31879</td>
</tr>
</tbody>
</table>

Table 3 Paired-samples t-test results for the WG

<table>
<thead>
<tr>
<th>Mean</th>
<th>Std. deviation</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre/post-test</td>
<td>-11.7342</td>
<td>1.24319</td>
<td>-45.579</td>
<td>23</td>
</tr>
</tbody>
</table>

Given the information in Table 2, one can clearly see that the mean score obtained on the post-test (27.8913) is higher than the one obtained on the pre-test (14.9012). However, a paired-samples t-test was run to ensure that the observed difference was significant. Table 3 shows that there is a significant difference in the scores obtained from the pre- and post-test (0.000<0.05). Accordingly, it can be claimed that using websites was shown to exert a significantly positive effect on the acquisition of the given grammatical forms.

3.3 Research question 2

The second research question asked whether there is a significant difference between using grammar teaching textbooks and websites with regard to the influence these two approaches to teaching exert on the acquisition of grammatical forms by Iranian intermediate EFL learners. To compare the performance of the three groups on the post-test to determine whether there were significant differences between the three groups after the treatment, the researchers ran a one-way between-groups ANOVA. Table 4 provides the results of the ANOVA.

Table 4 The results of ANOVA on the post-test

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>f</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2470.654</td>
<td>2</td>
<td>1086.652</td>
<td>330.548</td>
</tr>
<tr>
<td>Within Groups</td>
<td>313.780</td>
<td>75</td>
<td>3.720</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2641.205</td>
<td>77</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On a closer inspection of Table 4, one can conclude that the three groups differed significantly with respect to their mean scores on the post-test (.000<0.05). However, the information in Table 4 does not reveal where the observed differences lie. The researchers, therefore, ran a Scheffe Post-hoc test. This post-hoc test indicates where the differences among the three groups (i.e. sets of scores) occur. Table 5 provides the results of the post-hoc test.

Table 5 The results of the Post-hoc test

<table>
<thead>
<tr>
<th>Teaching</th>
<th>Teaching</th>
<th>Mean Differences</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>TG</td>
<td>WG</td>
<td>-8.432</td>
<td>.48150</td>
<td>.287</td>
<td>-1.8763</td>
</tr>
<tr>
<td></td>
<td>CG</td>
<td>11.4432*</td>
<td>.48150</td>
<td>.000</td>
<td>8.2268</td>
</tr>
<tr>
<td></td>
<td>WG</td>
<td>.8432</td>
<td>.48150</td>
<td>.287</td>
<td>-.5217</td>
</tr>
<tr>
<td></td>
<td>CG</td>
<td>10.3300*</td>
<td>.48150</td>
<td>.000</td>
<td>11.1165</td>
</tr>
<tr>
<td>CG</td>
<td>TG</td>
<td>-11.4432*</td>
<td>.48150</td>
<td>.000</td>
<td>-10.6542</td>
</tr>
<tr>
<td></td>
<td>WG</td>
<td>-10.3300*</td>
<td>.48150</td>
<td>.000</td>
<td>-12.6530</td>
</tr>
</tbody>
</table>

* The mean difference is significant at the .05 level.

In the above table, an asterisk (*) next to the values listed in the second column shows that the groups being compared are significantly different from one another. In the first row of the table, the asterisk next to 11.4432 indicates that the difference between the TG and CG is significant. Likewise, the difference between the WG and CG is significant because an asterisk can be seen next to 10.3300 in the second row of the table. In a nutshell, it can be claimed that the CG is significantly different from the WG and TG, but there seems to be no significant difference between the WG and TG. As a result, it can be claimed that using textbooks and websites had a
significantly positive effect on the acquisition of grammatical rules and structures. Moreover, it can be argued that there is no significant difference between using grammar teaching textbooks and websites in terms of the influence they exert on the acquisition of grammar.

4. Discussion

This study set out to investigate two research questions: (1) whether using language teaching websites exerts a significant influence on the acquisition of grammatical forms by Iranian intermediate EFL learners; and (2) whether there is a significant difference between using language teaching websites and textbooks with regard to the influence these two types of instructional materials exert on the acquisition of grammatical forms by Iranian intermediate EFL learners. The findings revealed that using websites had a positive impact on the acquisition of the target forms. That is, learners in the WG made significant gains in terms of their knowledge of grammatical forms, as suggested by the post-test results. Moreover, the findings indicated that language teaching textbooks and websites were not significantly different with regard to the influence they exerted on the acquisition of the target forms.

Such findings lend further support to previous studies using other forms of technology in grammar instruction (Al-Jarf, 2005; Collentine, 2000; Nagata, 1996; Zhuo, 1999). Nagata (1996) reported that ongoing intelligent computer feedback was more effective than simple work book answer sheets for developing learners’ grammatical skills. Zhuo (1999) concluded that hypermedia-based instruction was effective in grammar teaching and learning. Collentine (2000) contended that integrating technology in classroom instruction promoted the abilities of foreign language learners. Moreover, Al-Jarf (2005) has reported positive effects of using websites on the acquisition of grammar by low-proficiency ESL learners.

Accordingly and in line with the findings of prior studies (Chen, 2004; Kong, 2009), it can be claimed that websites, as a new medium for instruction, can increase learners’ motivation and improve their performance. Bearing the findings of this study in mind, it is recommended that language teaching websites be applied more frequently by language teachers. In fact, using language teaching websites and online materials (at least as a supplement to classroom instruction) should be extended to other courses and other levels of proficiency.

It seems necessary for materials developers and language instructors to consider the usefulness of language teaching websites more than before and invest more in designing and applying such online instructional materials. Apparently, websites are beginning to appropriate the traditional methodology and language use adopted in teaching English grammar through textbooks; such appropriation seems to be more successful in certain ways. For instance, websites appear to be more user-friendly for the new generation of language learners with higher computer literacy. Moreover, application of a variety of visuals has improved the page layout and interactivity of websites, leading to their popularity with EFL learners (Hemard, 2003; Jewitt, 2006). On the whole, although this study urges materials developers and language teachers to integrate online materials in their professional careers, further research is necessary to examine the more subtle differences between books and websites to help us perceive their advantages and disadvantages more precisely.

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