The Effect of Computer-Based Grammar Instruction on the Acquisition of Verb Tenses in an EFL Context

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This paper presents results from two experiments which used computer-based grammar and teacher-driven grammar (chalk and talk) instructional methods. Each method involves teaching verb tenses using two deductive approaches (a) the initial rule-oriented approach (involves initial presentation of explicit rules followed by illustrative examples) and (b) the structure-guessing approach (involves explicit presentation of rules in response to structure-guessing exercises). The effectiveness of these methods and approaches are compared based on the results obtained from the post-test administered at the end of the experiment. The results reveal significant differences between the four groups in favor of the computer-based grammar instructional method, and more specifically the structure-guessing approach except for the present perfect tense. However, the study shows that both methods (computer-based and teacher-driven) and both approaches (the initial rule-oriented and the structure-guessing) are effective in teaching English verb tenses.

As the use of computers in language teaching increases, they gain much of the attention and interest of researchers and language practitioners. Second Language Acquisition (SLA) researchers have asserted that the computer should be used to replicate what they believe ought to occur in the classroom (e.g. Quinn, 1990; Underwood, 1993; Figueredo & Varnhagen, 2006). Many proponents of Computer-Assisted Language Learning (CALL) have advocated the development of communicative computer programs that provide opportunities for meaningful communication (Garrett, 1991; Lavine, 1992; Lambek, 2004; Fukushima, 2006). Although some educators have decried the use of computers as electronic workbooks for drill and - practice exercises (Chun & Brandl, 1992; Underwood, 1993), others have advocated their use for tutorials and drills to free up more classroom time for real communication (Gilby, 1996; Hoffman, 1996).

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Although computer-based grammar instruction offers many potential benefits, the use of computers to teach grammar has not received the same amount of attention as communicative CALL. Nutta (1998) suggests that:

> *Although it is currently impossible for the computer to engage learners in authentic two-way communication, it is, in fact, possible for CALL to provide rich input in the form of integrated multimedia programs and to provide explicit grammar explanations that can be viewed and reviewed at the learner's own pace." (p. 50).*

In a research on the use of multimedia to teach a variety of subjects, Ragan *et al.,* (1993) found that, in general, multimedia instruction reduces learning time by 30% compared to traditional instruction. They further demonstrated that features of multimedia instruction, such as learner interactivity and learner control over programs, produce improved outcomes in achievement.

Ewing (2000) also believes that students find chances for improvement in a CALL environment which are unavailable in traditional L2 classrooms. Learners can receive immediate feedback about their answers and correct their errors from the system. CALL also allows each student to work at his own pace.

There is an increasing interest in the use of computer-assisted language instruction because it has several advantages as summarized by a number of researchers (e.g., Hall, 1998; Nagata, 1996, 1998; Nutta, 1998, Taraban, 2004; Torlakovic & Deugo, 2004; Meskil & Mosoop, 2003; Bikowski & Kissler, 2002; Gruba, 2006; Vilmi, 2003; Toyoda & Harrision, 2002; Wang & Beasley, 2002):

- The computer adds variety to the language learning experience.
- The computer individualizes learning. The learner is not dependent on other members of a class, but can choose the pace at which he or she progresses, control the degree of difficulty (e.g., by leaving out elements which are too easy or too difficult), decide whether and how often to repeat an exercise, and so forth.
- In CALL exercises, the computer can give immediate feedback for each answer.
- Many aspects of work with the computer have an interactive element which is missing in books, tapes, television, and so on.
- Using the computer can save teachers time and work, with routine marking, for example, that can then be used for more creative aspects of language teaching (thus benefiting the learner).
- CALL is a helpful environment for student-computer interaction.
- Interaction via computer facilitates language acquisition.
- CALL provides interactive computer activities for language learning which helps learners to interact in a communicative way
- Students are motivated to use the computer for all types of activity.
- By using the computer for the presentation, explanation, and application of grammatical structures, more classroom time could be dedicated to real communication that focuses on expressing meaning and using appropriate grammatical structures to express that meaning.

In spite of the abundance of comparative research on computer-assisted instruction (CAI) in other academic fields such as reading (Rachal, 1995) and the growing body of research on methods of teaching grammar, as far as the literature review is concerned, a few research studies have investigated the use of computer-based L2 grammar instruction. For example, Nagata (1996) conducted similar studies whose results indicated that computer-based grammar instruction can be more effective than traditional instruction (e.g., workbooks). Nagata (1996) claimed that self-study computer-based instruction based on natural language processing technology which provides full-sentence production exercises and detailed grammatical feedback to learners' errors is more effective than the non-CALL workbook instruction.

Nutta (1998) also conducted a study that compared post-secondary ESL students' acquisition of selected English structures based on the method of instruction: computer-based instruction versus teacher-directed instruction. The results showed that for all levels of English proficiency, the computer-based students scored significantly higher on open-ended tests covering the structures in question than the teacher-directed students. No significant differences were found between the computer based and teacher-directed students' scores on multiple choice or fill-in the-blank tests. The results indicate that computer-based instruction can be an effective method of teaching L2 grammar.

Nagata (1998) studied the relative effectiveness of computer-assisted comprehension practice and production practice in the acquisition of a second language. Two computer programs were developed: (a) an input-focused program providing students with explicit grammatical instruction and comprehension exercises and (b) an output-focused program providing the same grammatical instruction together with production exercises. The results of the study showed that the output-focused group performed significantly better than the input-focused group for the production of Japanese honorifics and equally well for the comprehension of these structures. The study supports Swain's claim (1985) that 'second language acquisition results from specific interaction, meaning-negotiated conversational turns' (p.247). Comprehensible output drives sources of acquisition that is 'a necessary mechanism of acquisition independent of the role of comprehensible input' (p.252).

As far as the literature review is concerned, the most recent study was that of Torlakovic and Deugo (2004) who investigated whether or not CALL systems could be used for grammar teaching. The researchers hypothesized that L2 learners will show improvement with positioning adverbs in an English sentence. The experiment lasted over two weeks. Two groups of ESL learners were exposed to six hours of grammar instruction. The treatment group used the computer-based grammar instruction method and the teacher-driven grammar instruction method was used with the control group. Both groups studied the same material in terms of format, content and feedback. To find the effect of the methods of instruction, the groups were given three tests: pre-test, immediate post-test and delayed post-test. The findings of the study revealed that the treatment group outperformed the control group in learning adverbs on the post-tests.

Deductive Instruction

Deduction is defined as a process in which learners are taught rules and given specific information about language. Then they apply these rules when they use the language. Deductive instruction involves rule explanation (Norris & Ortega, 2000) by a teacher at the beginning of a lesson before students engage in language practice.

Induction is a process that involves exposing the language learner to samples of language use, from which will emerge patterns and generalizations (Decoo, 1996; Gollin, 1998). Inductive and deductive approaches have been used in teaching grammar, and both have been found useful. Szkolne (2005) suggests that inductive grammar teaching is highly beneficial in that it involves students in the process of knowledge construction, encouraging them to form hypotheses that are to be tested. However, it can lead to incorrect conclusions, which need to be verified and corrected. If grammar is not taught explicitly, the learner is likely to make false assumptions about the FL on the basis of limited data. In support of this view, Hall (1998) believes that the finer points of FL grammar are difficult to pick up implicitly. They may be accessible to exploratory learning with the help of a large corpus, but usually the simplest way is to teach these structures explicitly. Szkolne (2005) adds that the deductive approach to grammar teaching is less conducive to fostering learner autonomy, yet may be much more effective in the contexts where learners' background knowledge or time available favor quick, efficient and correct teacher delivery of grammar information. Students are also motivated to learn grammar, and gain satisfaction from it. Donmall (1996, p. 59) puts it even more strongly, "Finding out about language and its grammar can be sheer fun".

Doughty (1991) compared three kinds of computerized instruction, in which all subjects were presented the same reading texts on the computer, but the rule-oriented instructional group received explanations of the grammatical rules in relative-clause constructions, the meaning-oriented instructional group was encouraged to focus on both the content and structure, and the control group was merely exposed to the reading texts. While both the rule-oriented instructional group and the meaning-oriented instructional group improved equally well in relativization ability and significantly better than the control group, the meaning-oriented instructional group performed best in comprehending the reading texts.

Robinson's study (1996) employed computerized instruction to teach both simple and complex structures of English, under several conditions. All subjects were presented the same target sentences on the computer, but, for example, the rule-instructed subjects were asked metalinguistic questions regarding the sentences, the rule-search subjects were asked if they identified any rule in the given sentences, and the implicit subjects were instructed to memorize the target sentences. The rule-instructed subjects performed significantly better than the rule-search subjects and the implicit subjects for the simple structure on the grammaticality judgment test. The rule-instructed subjects also outperformed the other groups for the complex structure although the difference was statistically significant only between the rule-instructed subjects and the rule-search subjects.

As far as the literature review is concerned, except for those of Doughty (1991) and Robinson (1996), it is noticed that no studies have held a comparative study that investigated the effectiveness of the two deductive grammar teaching approaches: (a) the initial rule-oriented approach that involves initial presentation of explicit rules followed by illustrative examples and (b) the structure-guessing approach that involves explicit presentation of

rules in response to structure-guessing exercises. Besides, very few studies have compared the deductive approaches in traditional (Talk and Chalk) and computerized settings (e.g., Deugo, 2004). Finally, a research relevant to an EFL Saudi context is lacking; therefore, it is the aim of this study to fill this research gap.

THE PRESENT STUDY

During the last decade, Saudi Arabia has witnessed an expansion in the use of computers in second language teaching and learning. Language teachers as well as language learners believe that CALL is very beneficial and helpful in raising the level of proficiency in the target language, and that a foreign language should no longer be taught strictly by the talk and chalk grammar-translation method. The Ministry of Education has integrated this technology into the English language curriculum, but at a very limited scale. Teachers use audio CDs which were developed as part of the English language curriculum to expose the Saudi learners to English as it is spoken by its native speakers. Nutta (1998, p. 50) states, "Computers and other technologies are relied upon to provide a model of native speech that the instructors, many of whom are nonnative speakers of English, cannot offer." Therefore, many private and a few government institutions set up multimedia labs for the general English language courses they teach, and commercial software programs, such as BBC English, New Dynamic English and Learn to Speak English are used.

Objective of the study

The present study examined whether computer-based grammar is as effective as teacher-driven grammar instruction for freshmen English majors in the English Department, King Saud University, Saudi Arabia. It also aimed to compare two deductive approaches: (a) initial rule-oriented approach that involves initial presentation of explicit rules followed by illustrative examples and (b) structure-guessing approach that involves the presentation of explicit rules in response to structure-guessing exercises. The computer-based structure-guessing instruction involved a program that provided the learners with the rules after the time given to thinking and guessing, whereas, the computer-based initial rule-oriented grammar instruction involved presenting the rules followed by illustrative examples and applications.

Questions of the study

The study focused on the relative effects of structure-guessing and initial rule-oriented deductive approaches on the acquisition of English verb tenses in computerized and traditional (teacher-driven) settings. This study addressed the following questions:

1. Are there any significant differences between the groups of learners due to method of instruction (computer-based grammar instruction vs. teacher-driven grammar instruction)?
2. Are there any significant differences between the groups of learners due to teaching approach (structure-guessing grammar instruction vs. initial rule-oriented grammar instruction)?

3. Are there any significant differences between the individual verb tenses due to method of instruction (computer-based grammar instruction vs. teacher-driven grammar instruction), and teaching approach (structure-guessing grammar instruction vs. initial rule-oriented grammar instruction)?
4. Do computer-based structure-guessing and initial rule-oriented instructional treatments have an effect on acquisition of verb tenses as measured by the post-test?
5. Do teacher-driven structure-guessing and initial rule-oriented instructional treatments have an effect on acquisition of verb tenses as measured by the post-test?

METHODOLOGY

Setting and subjects

This study was conducted in a multimedia language laboratory in the Department of English at King Saud University, Saudi Arabia. The sample of the study consisted of 128 male freshmen students enrolled in Remedial Grammar course during the first semester of the academic year 2005/2006. This course aimed to train students in basic sentence structure with gradation moving from the simple to the complex. The main components of the course include parts of speech, phrases, tenses, types of sentences (including simple, compound and complex), various types of modifiers, as well as linking words. Emphasis was also laid on the extensive use of exercises and sentences in the classroom. However, the present study was limited to the following verb tenses: simple present, simple past, present perfect, present continuous and simple future.

The sample of the study was divided into four groups taught by the same instructor forming two experiments based on the teaching method:

- Group 1: Computer-based structure-guessing instruction (28 students),
- Group 2: Computer-based initial rule-oriented instruction (33 students),
- Group 3: Teacher-driven structure-guessing instruction (30 students), and
- Group 4: Teacher-driven initial rule-oriented instruction (27 students).

The purpose of having two experiments was to examine the acquisition of verb tenses in English in computer-based and teacher-driven environments.

Instructional software and material

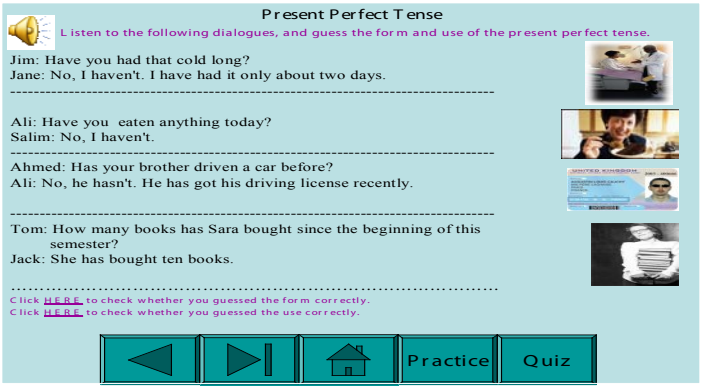
The researchers of the present study designed software for teaching the material using *PowerPoint* program. It was chosen because it is available with Windows system and easy to use. To check the student's progress, and to provide detailed grammatical feedback to learners' errors, the program was designed using *Visual Basic.* The computer-based instructional software provided the students with help about how to use the program, applications about the rules, formative evaluation with questions hyperlinked to model answers, more information which provides feedback such as enrichment activities, post-test, and useful links that included links related websites. In addition, the program included sound, graphics, and animation to make the material clear and interesting. In the computer-based grammar instruction, the instructor used *Net-support-School* to display his screen to students' workstations, send them the tasks they should do, and receive their assignments.

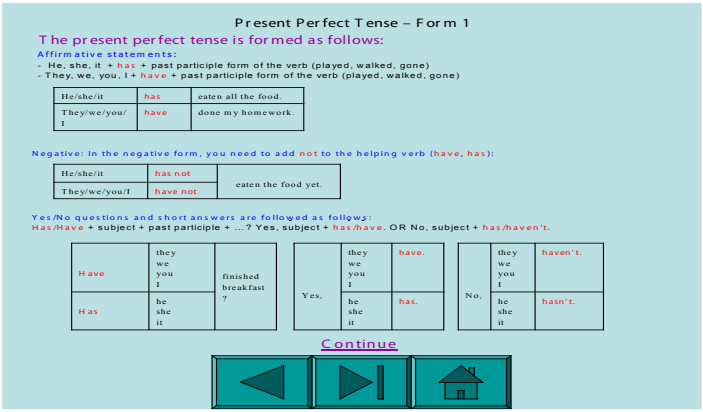
The material was presented in two versions: a printed version for the teacher-driven groups (3 & 4) and a computer-based version for the computer-based groups (1 & 2). In each version, the material was presented using two deductive approaches: structure-guessing grammar teaching and initial rule-oriented grammar teaching. Both versions were identical in terms of the verbs, sentences and dialogues used, except for the difference in the feedback the students receive. The instructor provided feedback in the printed version and the computer program provided feedback in the computer-based version. The material was authentic, and the activities were communicative and task-based. The verbs were practiced in context. The material aimed to train students on basic sentence structure with gradation moving from the simple to the complex. Emphasis was also laid on the extensive use of exercises and sentences. However, this study was restricted to five verb tenses: simple present, simple past, present perfect, present continuous, and simple future.

The researchers designed the material and tailored it to suit the purpose of the study. That is, the training material for Group 1 and Group 3 was presented according to the structure-guessing deductive approach in which the rules were preceded by clarifying examples, exercises and a test. The students were then required to elicit the grammatical rules before they had an access to the answer. However, the training material for Group 2 and group 4 was presented differently. The rules were presented first, followed by clarifying examples, exercises and a test. The exercises and tests were followed by feedback about the students' answers. Each verb tense was presented separately; however, the exercises and quizzes or tests were mixed. For example, two verb tenses were included in the exercises or quizzes, and more than two tenses were included in the tests.

Presentation of the verb tenses included real-life situations, such as dialogues. Different types of exercises and practice such as fill-in-the-blank, click the correct answer, match sentence and tense, and multiple-choice questions. Illustrative pictures were added to make the context clear. The screenshots below provide a detailed illustration of the tasks that were carried out.

Figure 1. A Computerized Lesson Designed According to the Structure-guessing Deductive Instruction Approach




Present Perfect Tense – Form 1
The present perfect tense is formed as follows:
Affirmative statements:
- He, she, it + has + past participle form of the verb (played, walked, gone)
- They, we, you, I + have + past participle form of the verb (played, walked, gone)
He/she/it has eaten all the food.
They/we/you/I have done my homework.
Negative: In the negative form, you need to add not to the helping verb (have, has):
He/she/it has not
They/we/you/I have not
eaten the food yet.
Yes/No questions and short answers are followed as follows:
Has/Have + subject + past participle + ...? Yes, subject + has/have. OR No, subject + has/haven't.
Have / Has
they we you I / he she it
finished breakfast ?
Yes,
they we you I have.
he she it has.
No,
they we you I haven't.
he she it hasn't.
Continue


Present Perfect Tense – Form 2
Wh - questions are formed by using:
Question word + have/has + subject + past participle + ...?
What
has / have
he she it / they we you I
just said?
Contractions
Long form
They have not
We have not
You have not
I have not
He has not
She has not
It has not
Short form
They haven't
We haven't
You haven't
I haven't
He hasn't
She hasn't
It hasn't
drunk the milk yet.
Long form
They have
We have
You have
I have
He has
She has
It has
Short form
They've
We've
You've
I've
He's
She's
It's
just drunk the milk.

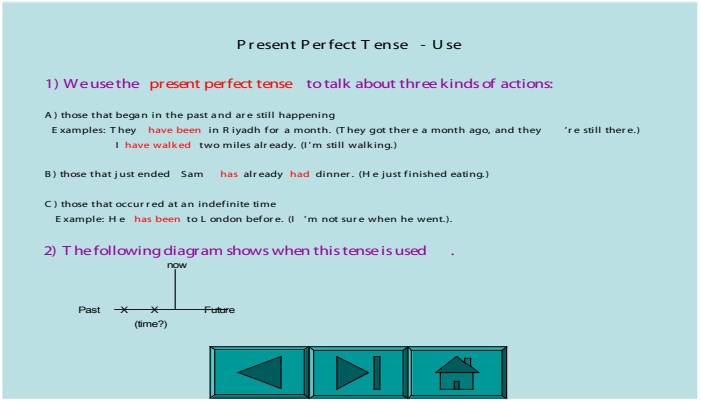
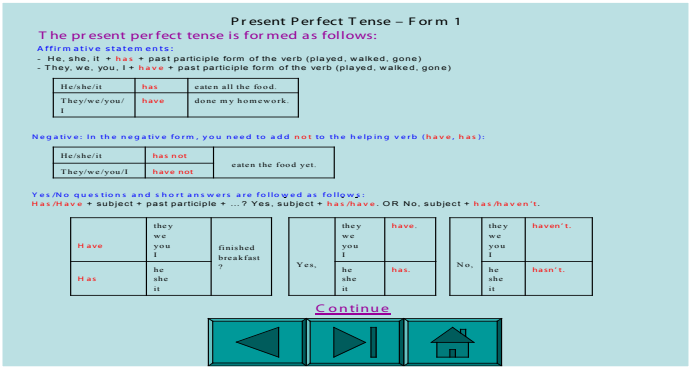
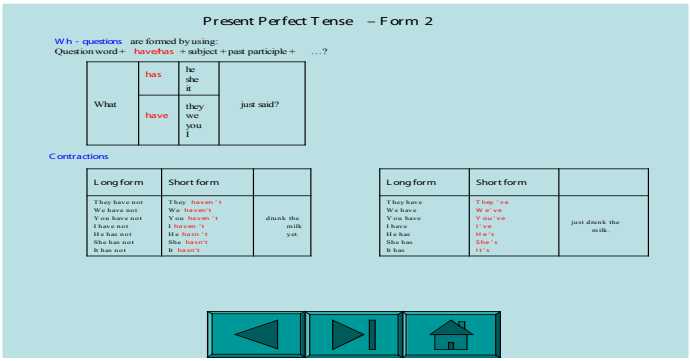
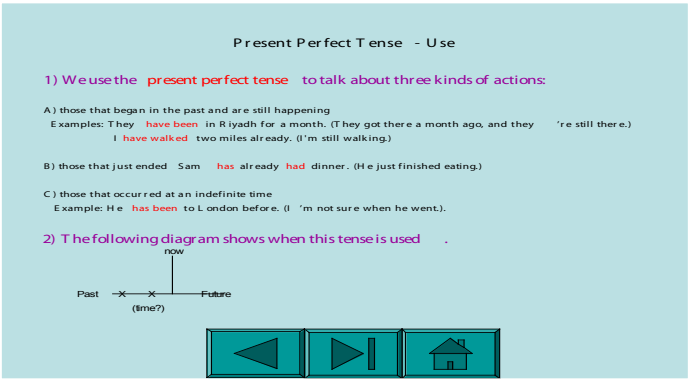

Present Perfect Tense - Use
1) We use the present perfect tense to talk about three kinds of actions:
A) those that began in the past and are still happening
Examples: They have been in Riyadh for a month. (They got there a month ago, and they 're still there.)
I have walked two miles already. (I'm still walking.)
B) those that just ended Sam has already had dinner. (He just finished eating.)
C) those that occurred at an indefinite time
Example: He has been to London before. (I 'm not sure when he went.).
2) The following diagram shows when this tense is used .
now
Past
Future
(time?)

Figure 2. A Computerized Lesson Designed According to the Initial Rule-oriented Deductive Teaching Approach







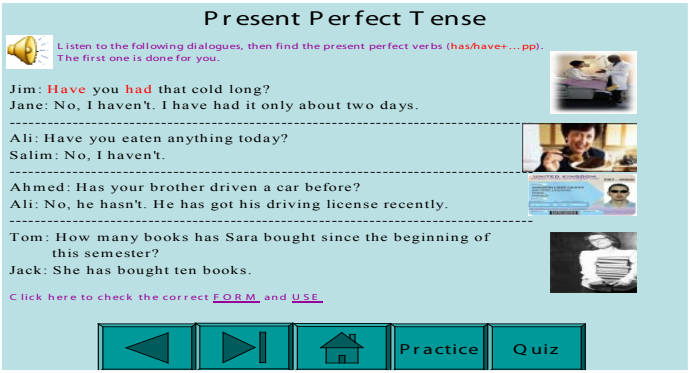
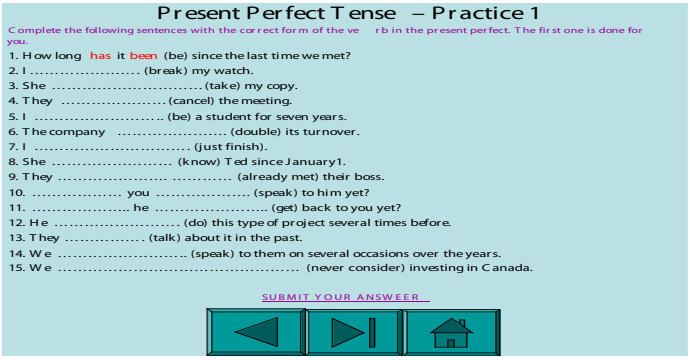
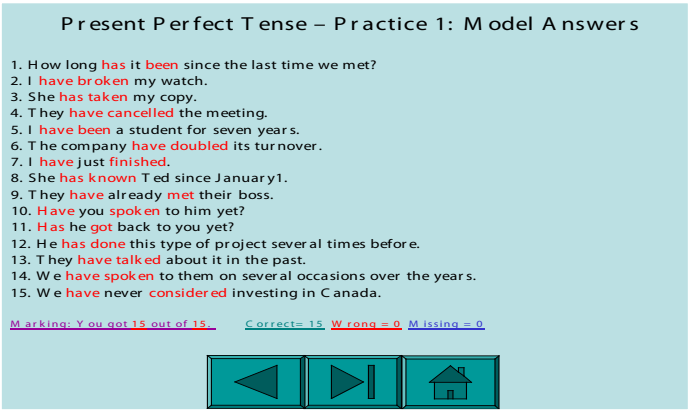


Figure 3. Sample Exercises





Test

A pre-post-test was used to measure the subjects' knowledge in verb tenses and to find out if there were any significant differences among the groups before and after the treatment. The test was about the course objectives related to the five English verb tenses: simple present, present continuous, simple past, present perfect, and simple future. Ten multiple-choice questions were dedicated for each of the tenses. Each question was followed by four choices; one is the model answer and the others are distracters. The tenses were all mixed into the same context, so students have to choose between different tenses. The pre-test was administered two days prior to the beginning of the treatment. The purpose of the pre-test was to see if all the four groups were equal in terms of their English verb tense knowledge so that any significant differences found at the time of the post-test will be due to the effect of the treatment. The results of the pre-test showed that there were no significant differences between the four groups participating in the experiment. At the end of the experiment, after four weeks, the same test was used as the post-test. The computer-based grammar instruction groups took a computerized test, whereas the teacher-driven grammar instruction groups took a paper-based test.

To establish the validity of the test, it was given to three colleagues, who have ample experience in teaching Remedial Grammar course to check whether the test items measure what they are supposed to measure. They were also requested to evaluate the test in terms of its clarity of instructions, relevance of questions to the content of the course, and suitability of distracters. Their comments and suggestions were taken into consideration in writing the final draft of the test. The test was several times field-tested. That is, it was used as mid-term exam for a number of sections studying Remedial Grammar for two semesters. Cronbach's Alpha was also determined to be .80, which is statistically accepted.

Instructional Treatments

All students in the four groups were taught the same verbs tenses which were presented differently (i.e., structure guessing vs. initial rule-oriented, and computer-based vs. teacher-driven); however, they were given the same activities. Students first practiced each tense in isolation. Then, two tenses were mixed in short quizzes, and all the five verb tenses were mixed in practice tests to ensure that students might not have more exposure to some of the tenses than others, and when they sit for the post-test they will not feel that there are differences between what they practice and what they encounter in the post-test. During the practice phase of the teacher-driven vs. the computer approach, students received feedback about rules, model answers, and practice exercises, quizzes and tests. All kinds of feedback to the four groups were indeed comparable in terms of providing the correct answers and the explanations, but the how was different.

Group 1 studied and practiced grammar according to the structure-guessing deductive computer approach. Computer-based structure-guessing grammar instruction refers to presenting grammar items in context (e.g., a dialogue). Students could read and listen to the sentences and dialogues, and they were asked to elicit the grammatical rules from examples and applications given previously. The instructor used to send the students a file which contained examples and applications illustrated by sound, graphics, and animation. Students were divided into small groups, and they were asked to discuss the examples to arrive at the rules/forms. Each group reported their answer, and then the instructor asked them to click the icon on the screen that provided them with the rules/forms. More examples were then presented. Finally, they were asked to do some activities which provided them with immediate feedback regarding their answers along with an explanation. On the other hand, the same structure-guessing deductive approach was adopted in teaching Group 3, but by the teacher-driven method where the same training material was presented to the students, but on paper.

However, Group 2 did the same activities according to the initial rule-oriented deductive computer approach. Computer-based initial rule-oriented grammar instruction refers to presenting rules to learners followed by samples of the grammar items in context. Students can read and listen to the sentences and dialogues. They were also divided into small groups who did some of the exercises collaboratively, and each group reported their answers, and then the instructor asked them to click the icon on the screen that provided them with feedback. Similarly, Group 4 was taught according to the initial rule-oriented deductive approach, but by the teacher-driven method where the same training material was presented to the students, but on paper and the teacher provided the feedback.

Statistical Analysis

The independent variables were (i) method of teaching (computer-based instruction vs. teacher-driven instruction), and (ii) teaching approach (structure-guessing vs. initial rule-oriented). While the dependent variable was the achievement of the study subjects in English verb tenses: simple present, present continuous, simple past, present perfect, and simple future. SPSS software was used to analyze the subjects' responses. Mean scores and standard deviations of their scores on the pre- and post-test were calculated. To find if

there were any significant differences between the pre-and post-test results of the groups in method (computer-based vs. the teacher-driven grammar instruction), and approach (structure-guessing vs. initial rule-oriented) at $P < .05$ level, ANOVA analysis of variance and Scheffe Post Hoc Test (Multiple Comparisons) were used to find whether there were statistically significant differences between the groups' achievements in the computer-based and the teacher-driven grammar instructional methods, and the structure-guessing and initial rule-oriented approaches.

Table 1 below shows the descriptive statistics in the pre-test for all groups.

Table 1. Mean Scores and Standard Deviations in the Pre-test

Group	N	Mean out of 50	SD	F	Sig.
1	28	18.178	1.846	2.175	.103
2	33	17.545	2.386		
3	30	17.566	3.530		
4	27	16.370	2.857		

One-way ANOVA analysis for pre-test scores revealed no significant differences among the four groups before treatment. These results support the conclusion that any differences among the groups on the post-test cannot be attributed to prior knowledge of verb tenses.

Results

Learners' Overall Achievement on the Pre-test and Post-test

Table 2 below shows the learners' overall achievement on the pre-test and post-test.

Table 2. Overall Means Scores of the Four Groups on the Pre-test And Post-test

Group	Pre-test		Post-test	
	Means		Means	
	Out of 50	SD	Out of 50	SD
1	18.178	1.846	37.79	4.94
2	17.545	2.386	27.89	7.83
3	17.566	3.530	37.14	6.07
4	16.370	2.857	29.02	7.96

As shown in Table 2 above, there are observed differences between the four groups' mean scores on the pre-test and post-test. These differences are most likely due to grammar instruction these groups received. This indicates that the learners' knowledge of verb tenses improved whether they are taught by the computer-based or the teacher-driven method and the structure-guessing or initial rule-oriented approach.

Learners' Achievement According to Method of Instruction

Post-test results were analyzed using t-test to answer the question posed earlier: *Are there any significant differences between the groups of learners due to method of instruction (computer-based grammar instruction vs. teacher-driven grammar instruction)?* The results are shown in Table 3 below:

Table 3. Means and Standard Deviations by Group in the Post-test

Method	Group	N	Mean out of 50	SD	T	Sig.
Computer-based instruction	1+2	61	37.79	4.94	8.26	.000*
Teacher-driven instruction	3+4	57	27.89	7.83		

* The results are significant at the *p.* < *.05* level.

Table 3 shows a significant difference between the computer-based instructional groups and the teacher-driven instructional groups, T= 8.26, p.< .05. The results drawn form the post-test show that computer-based instructional groups achieved a higher mean score (*37.79*) than the teacher-driven instructional group (*27.89*). Based on these results, it can be concluded that computer-based instruction could be more effective in teaching and learning verb tenses.

Learners' Achievement According to Teaching Approach

The second question posed in the present study says: *Are there any significant differences between the groups of learners due to teaching approach (structure-guessing vs. initial rule-oriented)?* Table 4 below shows the mean scores, standard deviations, and t-value for the results of the structure-guessing vs. initial rule-oriented approach.

Table 4. Means, Standard Deviations, and t-value in the Post-test in Approach

Approach	Group	N	Mean out of 50	SD	T	Sig.
Structure-guessing	1 + 3	58	37.14	6.07	6.22	.000*
Initial rule-oriented	2 + 4	60	29.02	7.96		

* The results are significant at the *p.* < *.05* level.

A comparison between the groups was made to find out whether there was any statistically significant difference between the mean scores of the teaching approaches: structure-guessing and initial rule-oriented. Table 4 shows that the first and the third groups (structure-guessing teaching approach) performed better than the second and the fourth groups (initial rule-oriented teaching approach), with the mean scores of 37.14 and 29.02 respectively. T-test results showed that there were significant differences between the groups, T= 6.22, p. <. 05. It can be inferred that the structure-guessing teaching approach could be more effective than the initial rule-oriented approach for teaching English verb tenses included in the present study.

Learners' Achievement in Verb Tenses

The third question posed in the present study was answered by having a comparison among individual verb tenses to find out if there were any differences between the mean scores of learners' achievement on the post-test. Table 5 below presents the descriptive statistics for the results of the four groups: structure-guessing computer-based instruction, initial rule-oriented computer-based instruction, structure-guessing teacher-driven instruction, and the initial rule-oriented teacher-driven instruction.

Table 5. Means and Standard Deviations of the Subjects' Answers on the Post-test in Verb Tenses

Tense	Method	Structure-guessing		Initial rule-oriented	
		Mean out of 50	SD	Mean out of 50	SD
Simple present	Computer-based	8.61	.83	7.21	1.93
	Teacher-driven	6.23	1.83	4.49	1.83
Simple past	Computer-based	8.43	.84	6.48	2.21
	Teacher-driven	6.43	2.45	3.22	1.81
Present perfect	Computer-based	7.25	2.55	7.45	1.89
	Teacher-driven	6.80	2.40	6.26	2.74
Present continuous	Computer-based	8.61	.50	7.03	1.41
	Teacher-driven	6.80	2.40	4.41	2.21
Simple future	Computer-based	8.25	1.38	6.76	1.99
	Teacher-driven	6.80	2.40	3.41	1.70

Table 5 shows that the structure-guessing computer-based approach in teaching simple present tense had a higher mean score on the post-test than the initial rule-oriented computer-based approach. The structure-guessing computer-based approach group's mean score was *8.61* and the initial rule-oriented computer-based approach group's *7.21*. Similarly, the table reveals that the structure-guessing teacher–driven approach group scored higher than the initial rule-oriented teacher–driven approach group. The mean scores were 6.23 and 4.49 respectively.

With regard to simple past tense, analysis revealed that the structure-guessing computer-based approach group outperformed (*mean score = 8.43*) the initial rule-oriented computer-based approach group (*mean score = 6.48*). Moreover, the structure-guessing teacher–driven approach group also performed better than the initial rule-oriented teacher–driven approach group on the post-test. The mean scores were 6.43 and 3.22 respectively.

The present perfect tense revealed different findings. For the structure-guessing computer group, the mean score (7.25) was the lowest among the five different tenses (the scores on the other tenses were 8.61, 8.43, 8.61 8.25). However, for the initial rule-oriented computer group, the mean score of the present perfect (7.45) was the highest among the five tenses (the scores on the other 4 tenses were 7.21, 6.48, 7.03, 6.76). It is evident that the initial rule-oriented computer-based approach was favored for teaching this tense.

The findings related to present continuous revealed that the highest mean score was for the structure-guessing computer-based approach (*8.61*), followed by the initial rule-oriented computer-based approach (*7.03*), and the structure-guessing teacher-driven approach (*6.80*). However, the lowest mean score was for initial rule-oriented teacher-driven approach (*3.41*).

Concerning simple future tense, the structure-guessing computer-based approach group achieved a higher mean score on the post-test (*8.25*) when compared to the initial rule-oriented computer-based approach group's mean score (*6.76*). Similarly, the results on the post-test show that the structure-guessing teacher–driven approach group performed better than the initial rule-oriented teacher-driven approach group. The mean scores were 4.90 and 3.41 respectively.

In order to find out whether the differences stated in Table 5 above were significant, ANOVA analysis of variance was applied to the overall mean scores of the four groups on the post-test. The results are presented in Table 6 below.

Table 6. Source Table for Analysis of Variance for the Students' Achievement on Verb Tense post-test

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig.
Between Groups	5385.817	3	1795.272	85.45	.000*
Within Groups	2395.174	114	21.010		
Total	7780.992	117			

* The results are significant at the $p. < .05$ level.

The analysis revealed that F = 85.45 which is statistically significant at the 0.05 level. Table 6 revealed that there were significant differences among the four groups, F = 85.45 at the 0.05 level. This means that computer-based instruction had a positive impact on the learners' achievement in the verb tenses.

Table 7 below summarizes the results of ANOVA analysis of variance for the students' achievement on verb tense post-test. Table 7 revealed that there were significant differences between the learners' achievement on the post-test for simple present (F = 29.45), simple past (F = 33.12), present continuous (F = 31.55) and simple future (F = 41.84) at the 0.05 level. This result means that the teaching approach (Computer-based vs. Teacher-driven) had an impact on the learners' achievement. However, with regard to the present perfect tense, it was found that F = .239 which is statistically not significant at the 0.05 level. This means that the method of instruction whether it is Computer-based or Teacher-driven had no or little impact on the learners' achievement in this particular tense.

A Scheffe post hoc test (Multiple Comparisons) was run to find if there were differences between the achievement of all groups in verb tenses. The results of this test are presented in Table 8 below.

Table 7. Source Table for Analysis of Variance for the Students' Achievement on Verb Tense Post-test

Tense	Source of Variation	Sum of Squares	DF	Mean Square	F	Sig.
Simple present	Between Groups	249.809	3	83.270	29.45	.000
	Within Groups	322.301	114	2.827		
	Total	572.110	117			
Simple past	Between Groups	382.765	3	127.588	33.12	.000
	Within Groups	439.133	114	3.852		
	Total	821.898	117			
Present cont.	Between Groups	248.807	3	82.936	31.55	.000
	Within Groups	299.633	114	2.628		
	Total	548.441	117			
Present perfect	Between Groups	24.447	3	8.149	1.43	.239
	Within Groups	651.417	114	5.714		
	Total	675.864	117			
Simple future	Between Groups	377.992	3	125.997	41.84	.000
	Within Groups	343.296	114	3.011		
	Total	721.288	117			

Table 8. Scheffe Post Hoc Test (Multiple Comparisons) in Verb Tense Post-test

Group	1		2		3		4	
	Mean Difference	Sig.	Mean Difference	Sig.	Mean Difference	Sig.	Mean Difference	Sig.
1			6.20	.000	7.74	.000	-6.20	.000
2	-6.20	.000			1.54	.622	11.62	.000
3	-7.74	.000	-1.54	.622			11.62	.000
4	-19.36	.000	-13.16	.000	-11.62	.000		

Table 8 shows significant differences between the groups in favor of the computer-based method (between groups 1 and 3; and between groups 2 and 4) and the structure-guessing approach (between groups 1 and 2; and groups 3 and 4). However, there was no difference between students' performance in the computer-based initial rule-oriented group (group 2) and the structure-guessing teacher-driven group (group 3).

Concluding Remarks

The study showed that students in the computer-based group made greater gains than those in the teacher-driven group in all verb tenses except for the present perfect. This result provides evidence in support of the effectiveness of computer-based method in

teaching grammar, especially verb tenses. This finding is consistent with Nutta's study (1998) which showed significant differences in favor of the computer-based grammar instruction. It also lends support to the findings of Torlakovic and Deugo (2004). These studies revealed that the treatment group (computer-based) outperformed the control group (traditional) in learning adverbs on the post-tests. Moreover, as it has been documented in CALL research that the use of the computer in language teaching has more advantages over the traditional teaching (i.e., chalk and talk). For example, the computer provides students with chances which are unavailable in traditional L2 classrooms, students can receive immediate feedback about their answers and correct their errors from the system, CALL also allows each student to work at his own pace, and students are motivated to use the computer for all types of activity (e.g., Hall, 1998; Nagata, 1996, 1998; Nutta, 1998; Ewing, 2000; Taraban, 2004; Gruba, 2006; Vilmi, 2003; Toyoda & Harrison, 2002; Wang & Beasley 2002; Torlakovic & Deugo, 2004; Kedrowicz & Watanabe, 2006).

This finding could be attributed to the fact that students in the experimental groups were taught by an interactive program. Students in these two groups studied and practiced tenses, and when they encountered a difficulty, they just clicked a button to receive suitable feedback about the answer and grammatical rules and verb use. This kind of feedback is not usually available in the traditional context; i.e., the teacher-driven method. If it is available, it is not as effective, useful, functional, and fast as it is in the computer-based context. Many studies also found that CALL is a helpful environment for student-computer interaction. It allows cooperative activities (Meskill & Mossop, 2003), encourages negotiating meaning between participants (Toyoda & Harrison, 2002), facilitates language acquisition (Vilmi, 2003), and encourages the learner to play active roles in communication, and be active and have control over his learning (Bikowski & Kissler, 2002). Gruba (2006) also reported that CALL provides interactive computer activities for language learning which helps learners to interact in a communicative way. Wang and Beasley (2002) found that a learner in a CALL environment can possess decision-making capacity for instructional pace (also called speed and rate), sequence (also called display, order, and path), content, cognitive strategy, feedback, difficulty, amount of practice, remediation, choice of exiting, and reaction to advisement.

Results pertaining to the teaching approach, the structure-guessing groups made greater progress in verb tenses than those in the initial rule-oriented groups except for the present perfect. This result contradicts with that of Doughty (1991) which revealed that while both the rule-oriented instructional group and the meaning-oriented instructional group improved equally well in relativization ability and significantly better than the control group, the meaning-oriented instructional group performed best in comprehending the reading texts. However, this finding is consistent with those of Robinson (1996). Robinson's study showed that the rule-instructed subjects performed significantly better than the rule-search subjects and the implicit subjects for the simple structure on the grammaticality judgment test. The rule-instructed subjects also outperformed the other groups for the complex structure although the difference was statistically significant only between the rule-instructed subjects and the rule-search subjects.

Despite the fact that students practiced, studied each tense in isolation, then all tenses were mixed, especially in the exercises, quizzes and tests, students got low scores on the present perfect tense when taught by the structure-guessing. This could be attributed to two main reasons. Firstly, present perfect tense has a variety of uses which are sometimes

difficult for language learners to grasp easily because some of its uses overlap with those of simple past tense. For example, present prefect tense is used to talk about events that just ended or occurred at an indefinite time, whereas simple past is used to talk about actions that happened and finished at a definite time in the past. Secondly, Arab learners of English, we have noticed, encounter a difficulty in distinguishing present perfect from simple past because the former does not exist in their native language, Arabic.

This result implies that the low performance on the present perfect tense which is related to the conceptual difficulty of the present perfect tense and the lack of the present perfect tense in the students' native language (Arabic) could apply only to the structure-guessing computer group, but not to the initial-rule oriented groups (both computer and teacher driven), which scored highest on the present perfect among the five tenses. Consequently, if grammatical rules are complex and difficult to guess, initial-rule deductive explanations may be more effective than letting learners guess the rules first. The level of complexity of the rules, the salience of the rules in the examples, and the clarity of the rules are crucial factors for determining the effectiveness of deductive approaches (Dekeyser, 1995; Nagata, 1997).

The simple future tense mean scores were also low when students were taught by the initial rule-oriented or initial-rule oriented approach. This might be due to the fact that there is no future tense in the students' native language, Arabic, in the same way as used in English. In Arabic language, simple future is only related to one of the usages of the present tense when certain inflections are added before the verb. This implies that more efforts should be made by language practitioners and researchers on this particular tense and different language areas where English and the students' native language contrast. Moreover, a future study might be conducted to find the effect of similarities/differences between students' native language and English on the acquisition of the English verb tense in the structure-guessing vs. initial rule-oriented approach in the computerized vs. traditional instruction contexts.

It is also evident that the structure-guessing teaching approach is more effective than the initial rule-oriented teaching approach. This highlights the importance of learners' involvement in the learning process, especially in the era of information technology where students are motivated to rely on themselves and interact with the computer to elicit rules from examples. This finding seems to be logical and reasonable because the student who uses initial rule-oriented approach does not usually have to think or make any mental efforts to elicit the rules because he or she is provided with explicit rules followed by illustrative examples. He/she, here, receives everything ready-made and depends on using low thinking abilities like memorization, not high thinking skills. However, the student, when the structure-guessing approach is used, first has to think to elicit the rule from given examples, then he receives feedback about the rule from the program. This, of course, requires high thinking strategies such as problem-solving techniques, eliciting and giving a judgment.

The findings of this study should be interpreted cautiously. The study was conducted on a limited number of participants over a limited period of time in a particular context, King Saud University. It is delimited to male subjects due to cultural barriers, which do not allow male professors to teach females face- to-face. Therefore, the results cannot be generalized beyond similar samples. Other studies are needed to enhance the findings of this study. An-

other limitation of the study may be related to studying the long-term effects of the distinct teaching approaches. Only one post-test was administered and another mid-term post-test could be made at a later stage.

To conclude, the results indicate that both computer-based and teacher-driven grammar instructional methods have an effect on the acquisition of English verb tenses in an EFL context. That is, the learners' knowledge of verb tenses improved whether they were taught by the computer-based or the teacher-driven method and whether they were taught by the structure-guessing or initial rule-oriented approach. However, the computer-based seemed to be more effective than the teacher-driven instructional method in the acquisition of verb tenses.

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