

THE EFFECTIVENESS OF CUSTOMIZED COURSEWARE IN TEACHING GRAMMAR

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ABSTRACT

The widespread use of computer courseware in numerous fields and domains has given quite an impact on education especially on the second and foreign language education. With the advent of technologies, courseware with multimedia elements and interactive contents has emerged to assist English language teaching. Since teachers are considered as the guardians of the classrooms, it is important to look into another alternative as a potential assistance to language learning that courseware can offer. However, most readily available coursewares in the market are not tailored to the needs of the local young Malaysian learners. Therefore, this study is to investigate whether a customized courseware specially developed for young learners is effective in teaching specific grammatical items. The study involved 40 young learners in Year 5 at one of the primary schools in the state of Terengganu, Malaysia. A quasi-experimental study was conducted in which 20 learners were put in an experimental group and another 20 learners were put in a control group. The experimental group was exposed to a customized courseware developed based on the syllabus in the teaching of grammatical items and the control group was taught using a traditional method that is using chalk and board and flash cards. A pre-test was administered prior to the treatment and a post-test was administered after the treatment to both groups. The target structures under investigation were past tense and present tense. Under past tense structure, it was further divided into the use of regular and irregular verbs. There were also two components under present tense structure, which were simple and complex structures. The findings showed that generally the customized courseware was effective in teaching grammar. It also found that the effectiveness varied depending on the structures taught. For example, the customized courseware was found effective in the teaching of past tense as compared to the teaching of present tense. The learners in the experimental group also fared better in the irregular verbs as compared to the regular verbs. Nevertheless, the teaching of simple and complex structures by using computer was as effective as teaching the structures by using traditional methods. Since the customized courseware had the potential in improving the learners' knowledge of grammar, it can be considered as an aid to further capacitating the learners to deal with future learning situations. Furthermore, the role of the teachers might not be merely as the instructors, but they can be the instructional courseware designers who can always find new innovative ways to help learners become better language learners.

KEYWORDS

Young learners, Customized courseware, Learning grammar, Present tense, Past tense, Simple structures, Complex structures, Regular verbs, Irregular verbs

INTRODUCTION

The possibility of using computers in the teaching of grammar has dominated discussions of many educationists and applied linguistics especially in the field of computer-aided language learning (CALL). Many studies have been conducted on CALL, but they are still inadequate to support the idea that CALL is effective in all aspects of language teaching including the teaching of grammar by using computer (Chapelle, 1997). These studies concentrated mostly on perceptions of teachers and students, attitudes and motivation towards CALL (Brett 1996; Pienemann 1984; Brooks, 1993).

The use of computer is fast developing in language learning. Language educationists have been integrating the use of computer in teaching. Many educational coursewares are developed to help teaching and learning of English. Authoring tools as they are termed are used to develop courseware and various media elements to be integrated in the courseware to enable effective teaching by using computers. Computer-assisted language learning (CALL) has been defined as the study of applications on the computer in language teaching and learning (Levy, 1997). These application and courseware can be delivered through CR ROM, intranet or internet.

CALL is still studied for its effectiveness to support its use in language teaching and learning. The ability of the computer to give feedback is not good enough to the ability of CALL to give the most effective system to the student learning of language. Underwood (1984) believes that the value of the computer as a learning aid in language acquisition lies in the use of creative communicative software like games and simulations rather than in the use of "wrong-try-again" drills. Not only does he consider the latter to be unimaginative and boring, but he is also concerned that they emphasize form rather than content. Instead of giving 'wrong-try-again' answer, it might be more beneficial to students if the answer comes in an elaborate explanation of why the students get it wrong.

CALL also faces a number of problems regarding the theoretical aspect of its application. Among them are the lack of a unified theoretical framework for designing and evaluating CALL systems. Amongst the issues is the lack of conclusive empirical evidence for the pedagogical benefit of computers in language learning (Chapelle, 2005).

Many people think that mere introduction of computer in language teaching will make it effective. This is not true as there are many other factors attributed to the effectiveness of using computer in teaching grammar including the subjects and the particular grammatical items taught. Using computer without considering the pedagogical aspects associated with teaching of language or any other subjects will make the practice ineffective. The introduction of computer in teaching should also come with appropriate teaching strategy. It needs a complete rethinking of how effective teaching can be carried out in classroom.

With this vague assumption about the effectiveness of using computers in the classroom, decisions are made independently to spend much on the purchasing of large quantity of computers and commercial courseware in education. They are not quite aware that study on the effectiveness of using computer in language teaching is important to make conclusive evidence on the justification for allotting much resource in the use of computer in classroom.

Even though there were studies done on the effectiveness of computer in grammar teaching (Nutta, 1998; Zhuo, 1999; Faizah, 2005), the populations studied were on post secondary education students or students who lived in foreign countries; not primary school students who study in Malaysia. Relying only on our findings to support the massive move toward computerization of Malaysian school system, is inappropriate. More studies are needed based on the local population, using customized courseware that carries content, which is appropriate to the level of Malaysian students' ability.

The present research was based on Malaysian population using the customized courseware in order to help our understanding of the effectiveness of teaching grammar by using computer. This research hopes to shed some light on some of the assumptions and perceptions regarding the effectiveness of using computer in teaching grammar.

THE PURPOSE OF STUDY

The study aims to seek answers to the following research questions:

1. Is teaching grammar by using computer more effective than teaching grammar by traditional method?
2. Do the effects of using computer as compared to using traditional method vary with the different grammatical items?

METHODOLOGY

The research was done based on a quasi experimental research where two groups were assigned as a control group and an experimental group. As stated by Singleton and Straits (1999), a "quasi-experimental design" tries to incorporate elements of an experimental design but without maintaining the same level of experimental control on the research project such as employing randomization. Non equivalent pretest posttest control group design was employed in this study to collect the data.

The purpose of the pretest was to assess the knowledge of the students in both groups before treatment was conducted on them. Both groups under study should have the same ability in the mastery of knowledge of grammatical items selected. The posttest was administered to both groups after the treatment was given to the experimental group.

Participants

The participants were students from one elementary school in Terengganu, one of the states in the East Coast of Malaysia. There were 40 participants: 20 were in a treatment group which was called the experimental group and another 20 were in a control group. There were 11 boys and 9 girls in the experimental group and 15 boys and 5 girls in the control group. These classes were the top two classes of year 5 students in the school and they were chosen based on a purposeful sampling. The students of this elementary school were mostly the children from the Malay villages nearby. The school is run by Terengganu State Education Department and managed by 15 teachers and one headmaster.

Courseware

A customized courseware was developed for the purpose of this research. The courseware built tried to comply with Chapelle (1998) model of Second Language Acquisition. The linguistic characteristics of target language input were made comprehensible so that the students noticed the target language input. In order to make the input language comprehensible, the sentence related to the input language was highlighted with different colors or arranged in a pattern that could be easily recognized. Research has shown that highlighting input in materials to prompt students to notice particular syntactic forms positively influenced the students' acquisition of a language (Doughty, 1991). The courseware that was used on the treatment group was created by using a program called Authorware version 7. This courseware was created by one of the researchers and checked by the senior teaching staff at Teacher Training Institute. Multimedia elements like pictures, animations and buttons were included in the courseware. Sample of the page is in Figure 1 below.

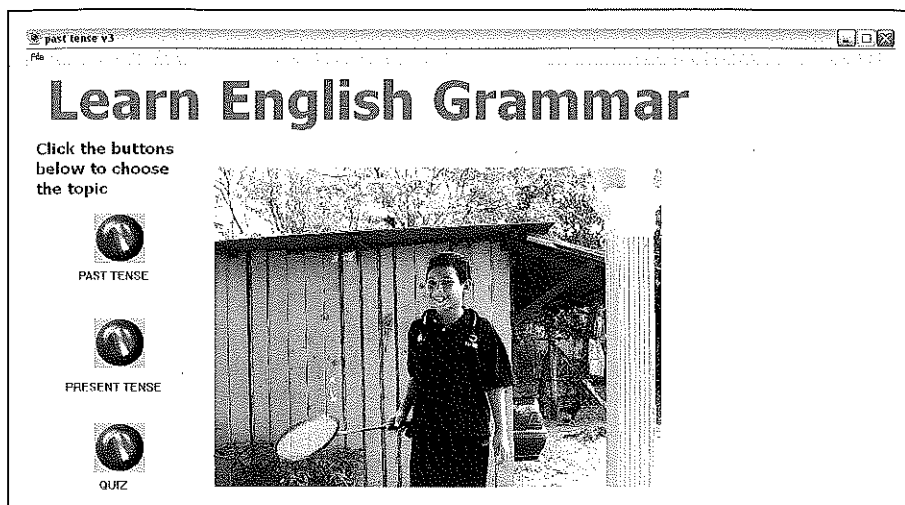


Figure 1. Main menu

Instruments

The instruments that were used in the study were the pretest and posttest which were used to get information on the knowledge of students from both groups on specific grammatical items. The same set of questions was used in the pretest and posttest for both groups. Pretest and posttest were conducted on two groups based on a set of 60 multiple choice questions. The time allocated to complete the test was 60 minutes where one minute was allocated to answer each question. 30 questions were based on past tense and another 30 questions were based on present tense. The questions on past tense were divided into 15 questions on the format of regular verbs and another 15 questions on the format of irregular verbs. The questions on present tense were also divided into 2 categories. 15 questions were based on the knowledge of simple structures and the other 15 were based on the knowledge of complex structure using certain sentence patterns.

Target Structures

Target structures in this research were in two categories. The first category was the regular and irregular verbs and another was the simple and complex structures. Regular verbs in the past tense changes with the addition of 'd', 'ed' or 'ied' at the end of the verbs. Irregular verbs in the past tense are verbs that do not change or change differently in the spelling of the verbs in past tense. Examples of irregular verbs are go - went, eat - ate, see - saw, cut -cut.

In the present tense category, the subject-verb agreement structure was under study. The simple structures consisted of sentences which had subjects immediately followed by the verbs. Meanwhile, the complex structures that were tested came with the phrases of 'either-or', 'neither-nor', 'together with', 'along with', 'no one' and 'each of'. The students were required to choose the right form of verbs by determining the subject of the sentence.

In the past tense category, students were tested on the ability to decide on the right verb format to be used based on time factor. As for present tense they have to decide on the use of right present tense based on time factor and the subject in the sentence.

Research Procedures

The research was carried out based on a quasi experimental study with a purposeful sampling. The students in the experimental group were taught grammar by using computer based teaching method and those in the control group were taught by using traditional method. Before computer based teaching treatment was given, both groups were given pretest and posttest based on a set of 60 questions related to a number of grammatical items. The results from the pretest and posttest were analyzed by using independent sample T-Tests.

Both groups were pretested simultaneously. All students must finish the test in an hour. The next day the teaching session was carried out on both groups. The treatment group was given a two-hour computer-based grammar lesson where the teaching took place by using courseware that had been specially designed based on a prepared lesson plan. In the computer lab each student was equipped with multimedia computer with the courseware installed. This group was taught by one of the researchers. He made use of the courseware to explain the subject matter and students worked on the courseware according to the instruction. Students were given the chance to participate in class and to interact with the computers.

The control group was taught by the same researcher but the lesson was delivered using conventional method without computer and courseware but based on the same lesson plan. The teaching aids were in the form of flash card with pictures, white board and worksheets. This was to ensure that the same grammatical elements taught but the mode was different. The same action words and grammatical items were taught to both groups in both past tense and present tense. Teacher wrote the sentence on the whiteboard and showed flash card in the traditional classroom group.

The post tests were administered the next day after both groups were taught the grammar lesson. The students cooperated well as the tests were conducted simultaneously for both groups.

Analysis Procedures

The data involved in this research was marks from the pretest and posttest from both computer based experimental group and traditional teaching method control group. Marks of the pretest and posttest for both groups were first keyed in into the SPSS programme. A series of T tests was conducted to find out whether there were significant differences in the mean score between the experimental and control groups in categories of past tense, regular verbs, irregular verbs, simple tense, simple structures and complex structures.

FINDINGS AND DISCUSSIONS

The data from the test scores was analyzed by using SPSS where T-tests were conducted on the data to answer the research questions. Output tables from the T-tests were plotted and analyzed. The data was analyzed by using independent sample T-tests where the first group (group 1) was the computer based experimental group and the second group (group 2) was the traditional method group.

Prior to conducting the research, a pilot study was conducted on a different group of students from the same school by using the same set of pretest and posttest questions. The internal consistency of both the pretest and posttest were evaluated by using Kuder-Richardson Formula 20 (K-R 20). The K-R 20 value for the pretest and

posttest were 0.75 and 0.79 respectively. The acceptable value for social science research is more than 0.7 (Bartholomew et al., 2003). This showed that both pretest and posttest were reliable to be used as instruments in this research.

Test of Same Ability in the Pretest for Both Groups

One of the main assumptions in the validity of T test involved in this research was the same ability of the students of the two groups who took part in the research. The students must have the same ability in the knowledge of grammar for both the experimental and the control groups. In order to find out the same ability of the students, marks from the pretest of the students of the two groups were analyzed. T-test result revealed that there was no significant mean difference between these two groups ($t = -0.91$, $df (38)$, $p > .05$). Therefore, it can be concluded that the level of performance between control group and experimental group at the beginning of the study was the same.

The following discussions below are based on the research questions.

Research Question 1: Is teaching grammar by using computer more effective than teaching grammar by traditional method?

The first research question was to find out whether teaching grammar by using computer was more effective than teaching grammar by traditional method. The gain score (post-test score minus pre-test score) was used to analyze the data. Table 1 shows the means of the gain scores of the posttest for the two groups. The total gain score of computer based group was higher than the gain score of traditional group. The finding indicated that the computer group scored higher than the traditional group.

Table 1. The means of the gain scores for the two groups

	Groups	N	Mean
Experimental	1	20	5.7000
Control	2	20	1.9000

To examine whether there was a significant mean difference in the scores, a T-test was run. Table 2 indicates that there was a significant mean difference between the computer group and traditional group in the grammar test ($t = 2.116$, $df(38)$, $p < .05$).

Table 2. T-test comparing the means of the gain scores of the two groups

t	df	Sig (2-tailed)
2.116	38	0.041
2.116	31.933	0.042

It means that teaching grammar by using computer is more effective than teaching grammar by using traditional method. This finding agreed with the research of Nutta's (1998) on the post secondary students enrolled in an intensive ESL program in the effectiveness of using computer to teach grammar by using computer. There was a significant difference in the scores of test between the computer based group and the traditional based group. The group which was taught by using computer scored better in the open ended question category in immediate posttest and delayed posttest compared to the group which had teacher directed grammar teaching.

The difference of this research and Nutta's research is just that the computer based group in Nutta's research made use of a standard grammar courseware ELLIS Middle Mastery while this research used customized courseware specially created by one of the researchers. Past tense was the grammatical item under study in Nutta's research but no analysis was done on regular and irregular verb in past tense. This research included an analysis of the effectiveness of different grammatical items which included regular and irregular verb under past tense form and simple and complex structures in present tense.

Based on the result from the first research question, the teachers in the primary schools could use computers to make grammar teaching effective. With the development of computer technology and internet, better courseware can be developed and integrated with more multimedia content such as video audio and animation.

Research Question 2: Do the effects of using computer as compared to using traditional method vary with the different grammatical items?

This section discussed the effects of using computer on various grammatical items under study specifically, present and past tense. Under present tense, two components which were simple and complex structures were investigated. Meanwhile under past tense, it was further divided into regular and irregular verbs.

Present Tense

Table 3 shows that the mean gain score for the computer-based group was higher than the score of traditional group. The finding indicated that the computer group scored better than the traditional group in the present tense category.

Table 3. The means of the gain scores in the present tense category

	Groups	N	Mean
Experimental	1	20	1.5000
Control	2	20	1.2000

To examine whether there was a significant mean difference in the scores, a T-test was run. Table 4 indicates that there was no significant mean difference between the computer group and traditional group in the present tense category ($t = 0.291$, $df(38)$, $p > .05$).

Table 4. T-test comparing the means of the gain scores in the present tense category

t	df	Sig (2-tailed)
0.291	38	0.773
0.291	37.789	0.773

This means that teaching present tense by using computer is as effective as the teaching grammar by using traditional method. Further examinations on simple structure and complex structure categories under present tense also revealed there were no significant mean differences with $t = -1.375$, $df(38)$, $p > .05$ and $t = 1.562$, $df(38)$, $p > .05$ respectively. The result of this particular finding was in contradiction

with the statement of Zhuo (1999) who said that the students who used customized hypermedia to learn subject-verb agreement fared better scores as compared to those in the non hypermedia learning environment.

Past Tense

Table 5 shows the mean gain scores on the past tense category of the computer group and traditional group. The mean gain score by the computer group was much higher than the traditional group.

Table 5. The mean gain scores on the past tense category

	Groups	N	Mean
Experimental	1	20	4.2000
Control	2	20	0.7000

To examine whether there was a significant mean difference in the scores, a T-test was run. Table 6 indicates that there was a significant mean difference between control group and experimental group in past test category ($t = 2.637$, $df(29)$, $p < .05$). We can say that teaching of the past tense by using computer is more effective than the teaching of the past tense by using traditional method.

Table 6. T-test comparing the means of the gain scores in past tense category

t	df	Sig (2-tailed)
2.637	38	0.012
2.637	28.555	0.013

This agreed with Nutta's (1998) research who found that there was a significant difference between computer based group and traditional based group in the teaching of past tense. The computer based group scored better in the open-ended question on past tense in immediate post test. The computer based group also scored better in filling in the blank questions on past tense in the immediate posttest. Based on both of Nutta's research and this research we can conclude that past tense was better taught by using computer as compared to the traditional based method.

Regular Verbs

Table 7 shows the mean of the gain score of regular verbs by the computer group was higher than the score of the traditional group. The finding indicated that the computer group scored higher than the traditional group.

Table 7. The means of the gain scores of the regular verbs

	Groups	N	Mean
Experimental	1	20	1.7000
Control	2	20	0.4000

To examine whether there was a significant mean difference in the scores, a T-test was run. Table 8 indicates that there was no significant mean difference between the computer group and traditional group in the regular verb category ($t = 1.406$, $df(29)$, $p > .05$).

Table 8. T-test comparing the means of the gain scores in regular verbs

t	df	Sig (2-tailed)
1.406	38	0.168
1.406	28.822	0.171

This means that teaching regular verbs by using computer is as effective as the teaching regular verbs by using traditional method.

Irregular Verbs

Table 9 shows the mean of the gain score of computer group was higher in the irregular verb category than the score of traditional group. The finding indicated that the computer group scored higher than the traditional group.

Table 9. The means of the gain scores of the irregular verbs

	Groups	N	Mean
Experimental	1	20	2.5000
Control	2	20	0.3000

To examine whether there was a significant mean difference in the scores, a T-test was run. Table 10 indicates that there was a significant mean difference between the computer group and traditional group in the category of irregular verbs ($t = 2.522$, $df(38)$, $p < .05$).

Table 10. T-test comparing the means of the gain scores in irregular verbs

t	df	Sig (2-tailed)
2.522	38	0.016
2.522	37.517	0.016

This result showed that the teaching of irregular verbs, in the past tense form by using computer is more effective than teaching grammar by using traditional method. This result is in line with Pica's (2008) claim which stated that irregular past was easier to notice and learn as compared to the regular past '-ed'.

IMPLICATIONS OF THE STUDY

Grammar is usually taught by using traditional method before the availability of computer in the classroom teaching. Grammar lesson is always seemed complex to students, and teaching grammar is challenging. Teachers always rely on blackboard and poster as their teaching aids. With the finding on the effectiveness of computer in grammar teaching, computer with all the multimedia can be effectively used for teaching of grammar. Graphic images, clear photo, sound and videos can be used to help teachers in grammar teaching. Grammar lesson will become more effective, motivating and interesting.

However to make teaching of grammar more effective, it should be supported with suitable teaching method with teacher themselves skilled in computer. Fernandez (2001) discusses how the role of language teacher should change when multimedia is going to be introduced in classroom. Therefore, the training of teacher in teaching using computer should be done on a regular basis. This means that the school administration must come up with systematic training courses to prepare the teachers for this new challenge in classroom teaching. Training of teachers in the use of computer in classroom and the methodology of teaching by using computer can be carried out as a preparation for the full force use of computer in school. School administrators can now confidently plan the integration of computer in grammar teaching. They must equip their schools with computer facilities to make sure that every teacher and student has the opportunity to have technological-based teaching and learning environment.

Teachers can play a more active role in computer-based classrooms. Instead of being merely the instructors, they can also be the designers of their own instructions by producing a customized courseware which could cater to the students' needs. They can always creatively design the content of the courseware in making teaching and learning more meaningful. Students can use courseware to study grammar and with the guidance from a skilled teacher, grammar can be learned effectively and interestingly. The courseware to teach grammar can be strengthened with other multimedia elements like video and animations and these will help students to understand complex concept in grammar.

CONCLUSION

The use of computer is fast developing in language learning. Language educationists have been integrating the use of computer in teaching. Educational software is creatively developed to help teaching and learning of English. However, there are many factors that contribute to the effectiveness of the use of computer in language teaching, for instance, the content, the quality of the design, the interactivity, the skills of the teachers as well as of the students and the language acquisition theory integrated with computer-based teaching and learning. It is best to remember that computer is not a substitution for teachers but rather it is an enabler to help both teachers and students have more opportunities to experience various innovative methods in teaching and learning.

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