Full Length Research Paper

The effect of computer assisted grammar teaching on the academic success of classroom teacher candidates

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The aim of this study is to determine the effect of computer assisted grammar teaching on the academic success of classroom teacher candidates. The study group consists of 2nd grade students from Karadeniz Technical University Fatih, Faculty of Education, Department of Classroom Teaching in the educational year of 2010 to 2011. Experimental pattern with pretest-posttest groups was applied in the study. The experimental and control groups were selected randomly. "Grammar Achievement Test" developed by the researcher was used as data collection tool in the study. The achievement test had 33 items. Data obtained were analyzed using statistical package for social sciences (SPSS) 16.0 software package. T-test method was used for independent groups and dependent groups in data analysis. At the end of the study, it was determined that there was an increase in the academic success of students both from the experimental and control groups in their grammar courses. However, it was ascertained that the increase in the academic success of students in the experimental group where the courses were given by the computer assisted teaching method was higher in comparison to students from the control group where courses were given by conventional teaching methods.

Key words: Computer-assisted teaching, grammar teaching, classroom teacher candidate, academic success.

INTRODUCTION

Language is a fundemantal and indispensable element of social life. Language is a multifaceted and well-developed system used as a means of mutual communication among people, woven with sounds which facilitate the transmission of emotions, ideas and wishes to others with the use of common rules formed according to the value judgements of any given society in terms of phonetics, morphology and semantics (Korkmaz, 2007). Language has an important role in ensuring healthy communication among people, in their interactions with their social environments, in accessing information and in effective expression of their emotions and thoughts. The proper and effective use of language is not an innate capability, rather it is acquired through education. And this can only be achieved by a good education on the native language.

Children learn their native language primarily by listening and living it. This language acquired from the family members and close relatives is compatible with the basic rules of language. But the child starts to acquire such rules without knowing it. It is systematically subjected to language learning after starting school. In the primary school period, it is seeked to make the child understand the rules of the language and to form a linguistic consciousness in the child (Özbay, 2007). Native language education in primary education is among the objectives of Turkish language courses. In Turkish language courses which aim to ensure that students gain the four linguistic skills of reading, speaking, listening and writing, the teaching of language is also integrated with grammar activities. Because, according to Erdem and Basaran (2010), success can not be achieved through teaching of language skills without grammar. Because structural and semantic connections within the language, semantic grouping between wordi connections between language indicators, cohesion and coherence factors are realized through grammar.

Grammar is a discipline which examines the sounds, word types of a language, their structures and organization as a sentence, their functions within the sentence and rules regarding their inflection (Göğüs, 1978). Grammar teaching in primary schools aims to ensure that students learn to use their native language effectively and fluently and communicate with their social environments by acquiring skills of comprehension and expression (Dolunay, 2010). A successful grammar teaching enables the acquisition of four basic linguistic skills, helps to correct the errors made in relation to the language we use, to improve the mind, to establish an effective communication, to gain language-related self-confidence and tolerance, to ensure a more comfortable learning of the language (Barin and Demir, 2008). Also, according to Sever (2004), students bring out the possibilities, limits and the potential of language through grammar teaching.

Also in schools, it is seeked to make the students internalize and learn the rules within the scope of grammar by means of various activities. While grammar teaching is predominantly on making the students understand the rules in the first stage of primary education (MEB, 2005), rules and concepts are added to that understanding with the second stage. Consequently, students in the first stage of primary education start the second stage without having learned any concept in grammar. In grammar teaching from the first stage of primary education to university years, it is seeked to teach the students rules, concepts and terms by applying various practices.

In Turkey, it has been stated by many researchers that the desired level of success has not been reached and there are certain problems in grammar teaching in schools (Kayman, 1997; Sağir, 2002; Anilan, 2004; Özbay, 2004; Özyürek, 2004, Karadüz, 2007; Şahin, 2007; Erdem, 2008; Erdoğan, Gök, 2009; Erdem, Başaran, 2010). Problems relating to grammar teaching can be classified under two headings in general. The first one relates to training teachers who are capable of teaching grammar; and the second one is the teaching methods which indicated the procedures to follow in determining the contents of Turkish language books used as a tool in teaching of the native language and in transmitting these contents (Aşici, 1996).

Especially in Higher Education Institutions which train teachers; courses are given with no regard to inefficient curriculums, limited course hours and crowded classrooms, but the education is not provided on a satisfactory level in such institutions. What Turkish language is or the role of grammar subjects in Turkish and the role of Turkish in grammar subjects are not clearly understood in these institutions, and consequently, the grammar courses are not given the importance they deserve (Sağir, 2002). Therefore, teacher candidates are not able to master the grammar subjects and face certain difficulties as to how they are

supposed to give the course after graduation. One of the other problems relating to grammar teaching is the content of course books. In a study conducted on grammar course books, Karadüz (2006) ascertained that definitions and terms are predominant in books, activities, practices and exercises to support the linguistic skills of the students are not given enough place in the books, and the concepts and illustrations included in the books were not sufficient in number nor were they educational.

One of the main reasons of the failure in grammar teaching is the implementation of conventional teaching methods in courses (Sağir, 2002; Aydin and Mahiroğlu, 2004; Yaman, 2009). The fact that these methods which place the teacher rather than the learner at the center, and they are based on rote-learning and the lack of practices reveal the need for fresh methods.

The age of global communication we live in necessitates the use of alternative methods which take the interests and needs of students in grammar teaching into account and is suitable for their varying learning styles. Studies conducted on the human brain and the discovery of multiple intelligence types requires the use of learning-teaching methods which take into account the personal traits of students (Yaman, 2009). Especially today which is often referred to as the age of technology, with the various technological tools introduced to our lives, certain methods have been developed to suit these tools in learning environments. The first and foremost of these technological means is the use of computers considered to be the most efficient communication and individual teaching tools in the process of education (Duarte, 2000; Hargreaves et al., 2004). The use of computers in education has brought the computer-assisted teaching method to the foreground.

Computer-assisted teaching is a method of using computers in the educational process in order to ensure that student identify his/her deficiencies and performance, take control of his/her learning process by receiving feedbacks and is more interested in the lesson with the help of graphics, sounds, animations and shapes (Baki, 2002). According to Barker and Yeates (1985), the objectives of computer assisted teaching is to make conventional teaching methods more effective, to speed up the learning process, to prepare a rich material, to ensure cheap and efficient teaching, to ensure need-based teaching, to provide compensatory teaching, to ensure that the quality of teaching is constantly improved and to provide individual teaching.

In computer-assisted teaching, it is essential that computers be included in the process of teaching as complementary tools, rather than temporary alternatives (Demirel, 2005). Because it is observed that, when used in support of regular classroom teaching, computer-assisted teaching increases the students' success rate and has little or no consistent effect on success (Atkinson, 1984).
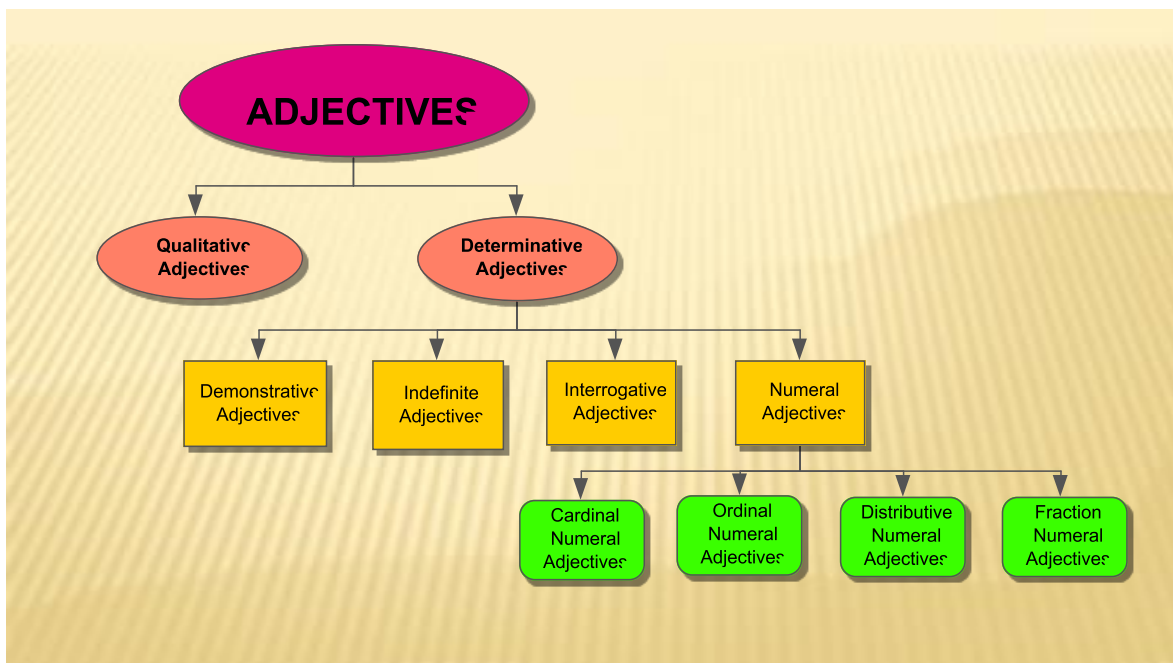
Studies conducted to investigate the effect of computer-

Figure 1. The slide belonging to topic of adjectives.

assisted teaching on students' success have shown that computer-assisted teaching have improved student success in general. Therefore, computer-assisted education is needed in order to establish a more effective process in language education (Arslan, 2009).

In this study, the question whether the use of computer-assisted teaching in learning grammar subjects during the undergraduate education of teachers, which is one of the important issues in grammar teaching starting from primary education, has any effect on their academic success was investigated.

METHODS

The model with pretest-posttest groups was applied in the study. This model consists of two groups formed through random assignment. These are the experimental group and the control group (Karasar, 2009: 97). The experimental design applied in the study is the independent variable "Computer-Assisted Teaching" whose effect on the experimental group is investigated. In the control group, however, courses were given using conventional teaching methods. The same dependent variable "academic success" was observed in both groups and comparisons were made within and among the groups using pretest-posttest scores.

Research group

Population of this study consists of students studying in Karadeniz Technical University Fatih Faculty of Education Department of Classroom Teaching in the educational year of 2010 to 2011. The sample of the study consists of 80 students from 2nd grade students studying the Department of Classroom Teaching. The sample is divided into two random groups which are the

experimental group and the control group. The experimental group and the control group has 40 students each.

Procedure

1. The study was conducted on classes 2-A and 2-B out of second grade classes in the Department of Classroom Teaching and the experimental and control groups were formed randomly.
2. The students in the experimental group were given information on "Computer-Assisted Teaching" and examples on how it will be applied in the classroom were presented in the application stage of the study
3. The students in the control group were given information on the conventional teaching methods and they were provided with various examples.
4. "Grammar Achievement Test" was applied to students from both groups as pretest.
5. Courses in the experimental group were given by computer-assisted teaching method for two hours in a week and for eight week in total. Presentations on "word types" was prepared by the researcher. These presentations included important information on the subject of nouns, adjectives, pronouns, adverbs, prepositions, conjunctions and exclamations along with various activity examples and exercises to draw the attention of students. The teacher and the student have followed the course on the computer. The students received immediate feedbacks for the parts they did not understand or answered wrong. Also, the question-and-answer method was applied to support the subject in the course. Bellow, it was given the examples of the materials that were used in the lessons with experimental group (FigureS 1 and 2).
6. "Word types" were studied in the control group for eight weeks using such conventional teaching methods as narration and question-and-answer.
7. At the end of the study, "Grammar Achievement Test" was applied as the post-test on both the experimental and control groups.
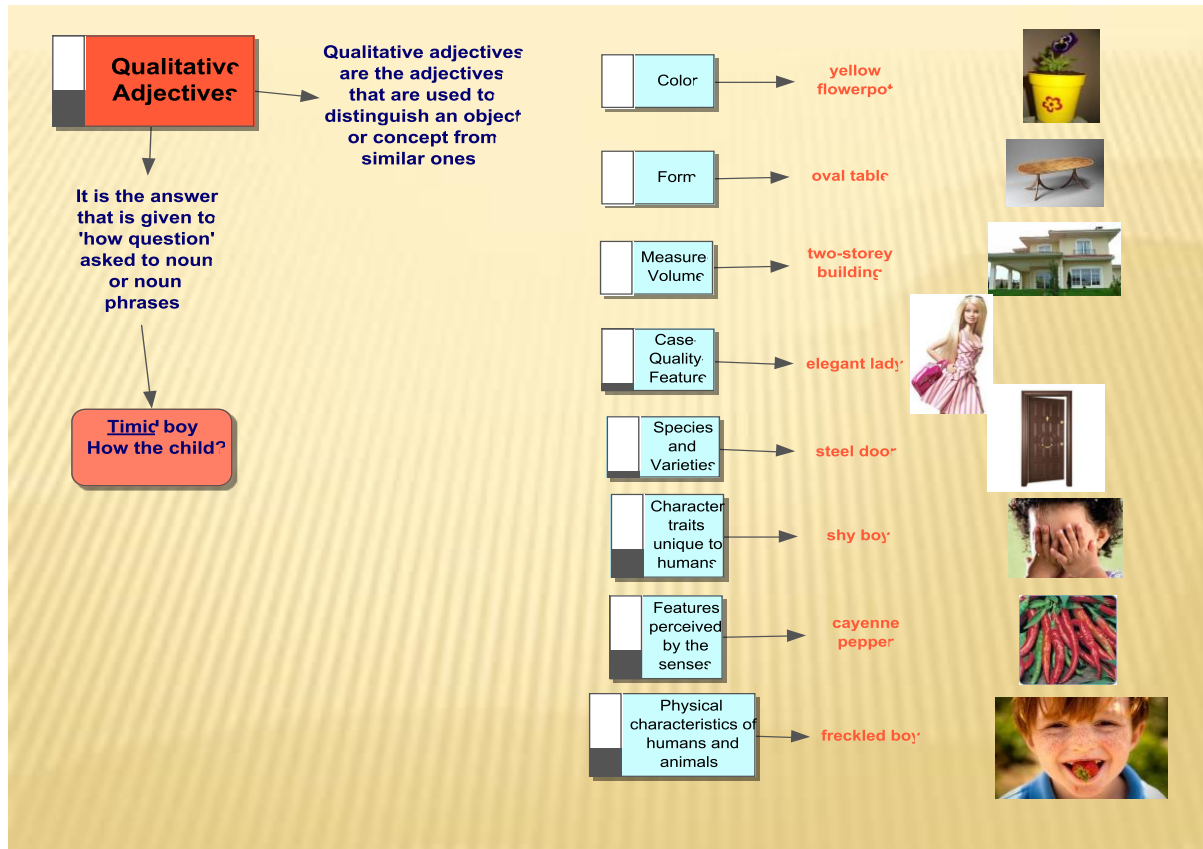
Figure 2. The slide belonging to topic of qualitative adjectives.

8. Data obtained from the pretest and the posttest were entered in the software package SPSS 16.0 and analyzed by using the necessary statistical methods.

Data collection tool

'Grammar Achievement Test' was prepared by the researcher by review of the relevant literature on the subject and making use of OSS and OYS (university entrance examination conducted by the country) questions for different years. Pilot scheme of 50 multiple-choice questions with five choices made up of one correct answer and four distractors was applied on 75 students. 17 questions with levels of reliability below 0.25 and above 0.85 were omitted. The final test consisted of 33 items. Cronbach's alpha reliability coefficient for the test was found 0.74. The test's average difficulty was at 0.55 level. The test was applied on the students in the control and experimental groups as pretest before the courses were given and as post-test afterwards. Scores of the students were determined according to the number of questions that were correctly answered and each correct answer was counted as 1 point.

Data analysis

Data obtained from pretest and posttest after the experimental study finished were entered in SPSS 16.0 software package. In data analysis, t-test was used for dependant groups while t-test techniques were used for independent groups.

FINDINGS

In this section, data from the experimental group at the end of the experimental study conducted to determine the effectiveness of computer-assisted teaching method on grammar teaching were compared to and analyzed with the data from the control group where the grammar teaching was done using conventional methods.

Table 1 demonstrates the results of the t-test conducted on independent groups in order to determine whether there were any differences between the academic success scores of the students from the experimental group where computer-assisted teaching was applied and that of the students in the control group where conventional teaching methods were applied on grammar subjects. Based on these results, there is no significant difference between the academic success scores of students in the experimental group and the control group on grammar subjects before the study ($t_{(78)}$= -0.383; p > 0.5). When the data from the study were examined, it was observed that there was a similarity between academic success levels of the students in the control group ($\bar{X}$ =21.027) and that of the students in the experimental group ($\bar{X}$ =20.701) on word types which is one of the subjects from the grammar course before the

Table 1. t-test results for dependent groups on the academic success pretest scores for the grammar subjects given in the experimental and control groups.

Group	N	$\bar{X}$	S	sd	t	p
Experimental	40	20.701	3.896	78	-0.383	0.703
Control	40	21.027	3.739			

Table 2. t-test results for independent groups on the academic success post-test scores for the grammar subjects given in the experimental and control groups.

Group	N	$\bar{X}$	S	sd	t	p
Experimental	40	24.924	3.489	78	3.275	0.002
Control	40	22.327	3.557			

Table 3. t-test results for dependent groups on the academic success pretest and posttest scores for the grammar subjects given in the experimental group.

Measurement	N	$\bar{X}$	S	sd	t	p
Pretest	40	20.701	3.887	39	4.977	0.000
Posttest	40	24.924	3.489			

Table 4. t-test results for dependent groups on the academic success pretest and posttest scores for the grammar subjects given in the control group.

Measurement	N	$\bar{X}$	S	sd	t	p
Pretest	40	21.027	3.896	39	9.633	0.000
Posttest	40	22.327	3.557			

experimental study.

Table 2 demonstrates the results of the t-test conducted on independent groups in order to determine whether there were any differences between the academic success scores of the students from the experimental group where computer-assisted teaching was applied and that of the students in the control group where conventional teaching methods were applied on grammar subjects, after the study. Based on these results, a significant difference was observed between academic success scores of the students in the experimental group and those in the control group ($t_{(78)}$= 3.275; p < 0.5). After the study, the result was positive for the students in the experimental group ($\bar{X}$ = 24.924).

Table 3 demonstrates the results of t-test conducted on dependent groups in order to determine whether there is any significant difference between academic success scores of students in the experimental group where computer-assisted teaching was applied before and after the study. Upon examination of Table 3, a significant difference was observed between the academic success scores of students before and after the study ($t_{(39)}$=4.977;

p < 0.5). While pretest score of the students in the experimental group was $\bar{X}$ =20.589 before the study, their posttest score rose to $\bar{X}$ =24.924 after the study.

Table 4 demonstrates the results of t-test conducted on dependent groups in order to determine whether there is any significant difference between academic success scores of students in the control group where conventional teaching methods were applied before and after the study. Based on these data, a significant difference was observed between pretest and posttest scores of students in the control group ($t_{(39)}$= 9.633; p < 0.5). Posttest scores of the students ($\bar{X}$ =21.027) was found significantly higher than their pretest scores ($\bar{X}$ =22.327).

RESULTS, DISCUSSION AND CONCLUSION

This study was conducted in an attempt to determine whether the computer-assisted teaching method applied in grammar teaching had any effect on the academic

success of classroom teacher condidates. Therefore, while the experimental group received the grammar courses based on the computer-assisted teaching method, and the control group received the courses based on the conventional teaching method. At the end of the application, it was determined that there was an increase in academic success levels of students both in the experimental group and the control group. However, it was found that the increase in the academic success of the students in the experimental group ($\bar{X}$ =24.924) was higher than that of the students in the control group ($\bar{X}$ =22.327).

In conclusion of the study, it was determined that the application of the computer-assisted teaching method in grammar courses increased student success. The fact that prospective teachers are more successful in courses given by computer-assisted teaching indicates that computers help to ensure effective learning in students. Studies conducted in an attempt to determine whether it is as effective in increasing the success level in different courses have demonstrated that the computer-assisted teaching method is an efficient teaching method and increased the success level (Demircioğlu and Geban, 1996; Akçay et al., 2003; Akşin, 2006; Alacapinar, 2006; Kara, 2009).

In line with these results, the computer-assisted teaching method can be more widely used in courses to ensure that the teacher candidates in faculties of education learn grammar courses and other courses more effectively in order for them to be more qualified. Also, giving the courses by the computer-assisted teaching method can draw the interest of teacher candidates to computer technology and, thus, they can make use of this technology also in the courses they will give in the future.

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