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ABSTRACT

The aim of this paper is to investigate the factors involved in applying multimedia in teaching English as a foreign language. In particular, it deals with the non-courseware factors affecting the use of multimedia in improving the pronunciation and oral communications skills of students majoring in English for Specific Purposes at the Jordan University for Science and Technology. The factors under investigation are the following: previous instruction in pronunciation using the conventional classroom teaching method, familiarity with multimedia, English proficiency, academic achievement, free time using multimedia, attitudes toward using multimedia, and socioeconomic class. This study showed that using computers, especially multimedia, as a teaching aid in developing the oral skills of English majors is influenced by several non-courseware factors such as students' academic achievement in English at school, their general grade point average, their achievement in oral courses taught at the university, the extent of their computer use, and their attitude towards it. The results show that there are variations in effect of these factors on using multimedia as a teaching aid in improving the oral skills in a foreign language. (Contains 34 references.) (Author/KFT)

Non-courseware factors involved in using multimedia in foreign language instruction

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Non-courseware factors involved in using multimedia in foreign language instruction

Abstract

The aim of this paper is to investigate the factors involved in applying multimedia in teaching English as a foreign language. In particular, it deals with the non-courseware factors affecting the use of multimedia in improving the pronunciation and the oral communication skills of students majoring in English for Specific Purposes at Jordan University of Science and Technology. The factors under investigation are the following: previous instruction on pronunciation using the conventional classroom teaching method, familiarity with multimedia, English proficiency, academic achievement, free time using multimedia, attitude towards using multimedia, and socio-economic class. The results show that there are variations in the effect of these factors on using multimedia as a teaching aid in improving the oral skills in a foreign language.

Key words (multimedia, oral skills, non-courseware, foreign language)

Introduction

The computer has become one of the most central components of our modern culture. One of the most pervasive aspects of computing is multimedia. The term multimedia means a system which allows the presentation of additional computer interface output beyond the traditional text only output.

Since the facilities of multimedia became available, its main use has been in teaching or presenting information (Baggett, 1998; Slotnick, 1990; Vainio-Larsson, 1991; Ropa, 1991; Reisman, 1993; Earnshaw, 1993). In fact, many studies dealing with using media technology in teaching concentrated on foreign language instruction, especially English as a second or a foreign language (Little, 1991; Gayle, 1992; Wohlers, 1992; Kelm, 1993; Wilson, 1994; Walker, 1994; Gimeno, 1994; Liou, 1994; Bezard, 1994; Golas, 1995; Goertzen, 1995).

Research investigating the theoretical understanding of human-computer interaction is large (Newell & Card, 1985) and can be complex, (Bernard, 1993). Most of this research concerns teaching and learning styles and their effects (Carlson, 1991), and it addresses the importance of matching the students' learning style to the type of multimedia interaction.

In the late 1980's researchers were already trying to evaluate the methods of teaching which were most appropriate to rich multimedia systems. They found that the exploratory nature of multimedia and the possibility to practice dangerous or expensive procedures made the medium as effective as real-life practice (Baggett 1988; Earnshaw, 1993). In 1990's, several studies have reviewed and evaluated the effectiveness of teaching using multimedia systems (Slotnick, 1990; Vainio-Larsson, 1991). For instance, Ropa (1991) looked at the use of multi-media systems in the facilitation of cross-cultural understanding. Also, Chung& Chen (1992) looked at the use of hypermedia, a specialized form of inter-linked items presented in multimedia form (Nielson, 1990), as a tool to enhance creativity among teams and individuals. In addition, (Murananga, 1993)

investigated the use of hypermedia in a creative setting, such as a co-operative writing tool. (Shaw, 1993) reviews the multimedia teaching material and concludes that the three design conditions which he felt were present in all successful teaching multimedia systems were; the absence of fear, the presence of openness and the use of a practical test. On the other hand, some researchers have found that in poorly designed computerized education systems, students perceive an increase in their workload and pressure (Zuckerman, 1987). Others provided evidence that some sections of the population may derive more benefit than others from computer-based education. In particular, they reported that males learn more with computerized instruction than by any other method, but this was not the trend for the females (Hammond et al, 1997). Nevertheless, several studies have supported the finding that computerized instruction can be superior to traditional methods (Forsyth &Archer, 1997). Studies investigating ways of increasing computer use and attitudes in the classroom have found that increasing self-esteem has the biggest effect in perceived feelings towards computer-based instruction (Bagozzi, 1992). It was also found that the quality of the computer- based exposure was more important than the amount of time spent using the computer (Ertmer et al, 1995).

Similarly, studies evaluating using multimedia in second language instruction, reported contradictory findings. Several studies reported positive effects of using multimedia in teaching English as a foreign or a second language (Al-Juhani, 1991, Petersen, 1990; Fern, 1993; Cardillo, 1997). On the other hand, many others reported negative effects. For instance, (Stenson, 1992) showed that using computer-based displays of speech in teaching pronunciation was not significantly effective in training international teaching assistants. Also, (Walker, 1994) found that using Hollywood movies as video resources for multimedia ESL software was not successful. Therefore, several researchers tried to deal with the factors that need to be considered in developing foreign language courseware. For example, (Goertzen and Howard, 1995) looked at the issues that need to be addressed in developing a computer software to teach English as a second language skills to medical doctors. These include : minimization of user anxiety; effective screen layout and color use; the degree of freedom given to the learner in manipulating the materials; and efficient learner navigation through the material.

It is clear from the studies cited above that most research on using multimedia in teaching concentrated on the courseware as a central factor in its success. Only few studies like Hammond et.al 1997; Ertmer et al, 1995; and Bagozzi, 1992 reported that other factors such as attitude, gender, anxiety and self esteem proved to be significant in computer-human interaction. However; most studies dealing with incorporating multimedia in foreign language instruction considered the courseware as the central significant factor in the success or the failure of using media technologies in this field. To my knowledge, there has been no study dealing with factors other than the courseware that effect using multimedia in teaching English as a foreign language. The aim of this study is to investigate the effect of such factors on using multimedia in foreign language instruction, specifically on improving the pronunciation and the oral communication skills of Jordanian students majoring in English for specific purposes.

The Study

The aim of this research project is to investigate the factors involved in using multimedia in teaching English to Jordanian university students. In particular, it deals with the non-courseware factors affecting the use of multimedia in improving the pronunciation and the oral communication skills of students majoring in English for Specific Purposes at Jordan University of Science and Technology. The factors under investigation are the following: familiarity with multimedia, English proficiency, academic achievement, achievement in an aural-oral course in which the conventional classroom method was used, free time using multimedia, attitude towards multimedia and socioe-conomic class.
The data on which the study is based was collected from students taking an advanced course in oral skills in which multimedia was used for instruction and practice.
The instruments used for collecting the data were the following:
a. A student questionnaire administered before using multimedia in the course.
b. A pre-test administered to the students before using multimedia in the course.
c. A post-test administered to the students at the end of the course in which multimedia was used for instruction and practice.
d. Interviews with a random sample of the students taking the course in question.

Participants

The participants in the study were (47) students; 36 females and 11 males, majoring in English for Specific Purposes at Jordan University for Science and Technology. These students were juniors taking an advanced course in pronunciation and expression. They have already taken an introductory course in using computers, and a course in aural-oral skills in which the conventional classroom method was used.
The students taking the course in question used the multimedia laboratory one hour a week for five weeks. They used the advanced level of a program called English Language Learning and Instruction Systems (ELLIS). The program provides videos of certain situations among native speakers and the script of the conversation. The program enables the student to watch the videos as many times as s/he wants, to read the script of the conversation, and to get explanation for the unfamiliar words and expressions and their use in the social context. Also the program enables the student to imitate the native speakers in the video as many times as s/he wants by role-playing and to compare his/her performance with theirs. It is worth mentioning that the (ELLIS) program is accompanied by a student workbook which is used along with the program.

Data and Methodology

The data on which this study is based were collected through a questionnaire and a pre-test administered to the participants before using multimedia in the course, a post-test administered to the participants after using multimedia, and interviews with a random sample of students at the end of the course.

The questionnaire consist of twelve items dealing with the students' English proficiency which is indicated by their grades in the General High School English Exam (Twjihee), their grades in the oral-aural course, and their academic achievement in the university which is indicated by their general point average (GPA). The items also dealt with the students' familiarity and use of multimedia on and off campus. In addition, they dealt with the students' socio-economic class and their attitude towards using multimedia in the course under investigation.

The pre-test consist of two parts; written and oral. The written part was administered to the students after four weeks of receiving instruction in the classroom. It was designed to measure the students' ability to choose the appropriate expressions for certain situation, and their accuracy in using English vocabulary and grammar. This part of the test was administered in a fifty-minute session. The oral part of the test was administered to the students after another four weeks of receiving instruction in the classroom. It was designed to measure the students' fluency, ability to use the appropriate expressions for the different situations, correct pronunciation and accuracy in using English vocabulary and grammar. This part of the test was administered for each student through a ten-minute oral presentation which s/he has to give on a certain topic in front of his/her classmates.

The post-test was administered to the students after five weeks of using multimedia. It was divided into two parts; written and oral; and it consist of several situations some of which the student had to complete and others s/he had to create. Each student was provided with an exam paper on which s/he had to write his/her answers then to record them on the computer using the power point program. The reason for asking the student to answer in this way is to find out if there were any differences between the two answers.

The exam was designed to measure the students' ability to give accurate answers in terms of content and to use the appropriate expressions for various situations orally and in writing. It was also designed to measure students' fluency, correct pronunciation and accuracy in using English vocabulary and grammar orally and in writing.

It should be mentioned that the students received instruction and practice on the types of the questions included in the tests and they were familiar with the criteria used for evaluation.

The interviews were conducted with 15 students selected randomly from the participants to find out what was their attitude towards using multimedia in the course under investigation. Their responses indicated that they considered using multimedia in the course very effective in improving their oral skills. They mentioned that using multimedia provided individualized instruction and practice, and so it helped many students to avoid the embarrassment resulting from giving wrong answers in front their classmates. They also mentioned that using multimedia forced them to use English all the time since the program used in the course was available only in English.

Results and Discussion

The findings of the study were the following:

A. The analysis of the students' responses in the questionnaire indicated that

their academic achievement , in general; and in the English Tawjihee Exam and in the aural-oral course, in particular, was either very good or good as shown in Table(1).

Table (1)

The Participant's Academic Achievement

Grade in oral-aural course	General Point Average in the University	English Grade in Tawjeehee exam	Grades
14.3 %	25.7%	5.6%	60-69
34.3%	42.9%	25.8%	70-79
34.3%	31.4%	37.2%	80-89
17.3%	-	31.4%	90-100

The results in table (1) show that the English grades in Tawjihee were between 80-90 for one third of the students and between 90-100 for another third. They also show that the general point average for almost half of the students was between 70-79 and between 80-89 for one third of them. In addition, the results show that the grades of one third of the students in the oral-aural course were between 70-79 and between 80-89 for another third. These results indicate that the academic achievement of the participants was ,in general, either good or very good.

The students' responses in the questionnaire also indicated that their free time use of multimedia on and off campus was relatively limited as shown in Table (2) and Table (3).

Table (2)

Use of multimedia on and off campus

Student's Percentage	Use of multimedia
54.1%	Using on campus
45.9%	Not using on campus
48.6%	Using off campus
51.4%	Not using off campus

The results in table (2) indicate that only half of the participants use multimedia on campus and also only half of them use it off campus. These results are disturbing because most of the participants passed a course in computer literacy, and they have a reasonable access to computers on and off campus.

Table (3)

Time using multimedia by the students on & off campus

The percentage of students using multimedia		
Off campus	On campus	Time using multimedia
50%	95%	1-3 hours
27.8%	5%	4-6 hours
11.1%	-	7-9 hours
11.1%	-	More than 10 hours

Table (3) shows that most of the students using multimedia on campus use it only for 1-3 hours a week. It also shows that half of those using multimedia off campus use it for that same period, and only one third of them use it for 4-6 hours a week. These results indicate that the participants use of multimedia is relatively limited.

Finally, the data provided in the students' questionnaire indicated that most of them have a positive attitude towards using multimedia in the course under investigation as shown in Table (4), and that most of them belong to the middle or the high middle class as shown in Table (5).

Table (4)

Students' attitude towards using multimedia in improving their oral skills in English

Students' Percentage	Attitude
62.2%	Very positive
35.1%	Positive
2.7%	Fairly positive
-	Neutral

Table (4) indicates that two thirds of the participants showed a very positive attitude towards using multimedia in improving their oral skill and one third showed a positive attitude.

Table (5)

Socio-economic classes to which the students belong

Percentage	Social classes
-	High
40.5%	Middle high
51.4%	Middle
8.1%	Middle low
-	Low

The results in table (5) show that almost half of the participants belong to the middle class and 40% of them to the high middle class.

B. The analysis of the students' results in the tests conducted before and after using multimedia in the course indicated that their achievement in both tests was either good or very good as shown in table Table (6); however, the difference in their results in the two tests was not significant as shown in Table (7).

Table (6)

Students' achievement in the tests conducted before & after using multimedia

Students percentage in the post-test	Students percentage in the pretest	Grades
5.4%	5.4%	60-69
32.4%	40.5%	70-79
35.2%	37.9%	80-89
27%	16.2%	90-100

The results in table (6) indicate that the grades for most of the students' in the pretest were either between 70-79 or between 80-89. They also indicate that the grades for one third of the students in the post-test were between 70-79, between 80-89 for another third, and between 90-100 for the last third. This means that the participants' academic achievement before & after using multimedia was, in general, either good or very good.

Table (7)

The difference in the students' achievement in the pretest & the post-test

The difference in grades					
Total	16-20	11-15	6-10	1-5	Students' percentage
50%	7.4%	2.5%	13.5%	26.6%	Positive effect
44.4%	-	8.5%	16.6%	19.3%	Negative effect
5.6%	-	-	-	-	No effect

The results in table (7) indicate that the effect of using multimedia on the students achievement in the course under investigation was positive for half of the students but was negative for almost the other half. The T-test result (.942) shows that the difference in the students' achievement before & after using multimedia was not significant. This could be also due to the fact that the number of the participants was small (47) and the period of using multimedia was short (only five hours, one hour a week). It could also be due to the variations in the individual use of multimedia.

C. The examination of the relationship between the difference in the students' results in the pretest and the post-test and the non-courseware factors considered in the study indicated that this relationship was irregular with respect to the students' Tawjihee English grades as in Table (8), their general point average as in Table (9), and their grades in the aural-oral course as in Table (10).

Table (8)

The relationship between the students' results in Tawjihee English exam and their results in the pretest & the post-test

Students' percentage			
No effect	Negative effect	Positive effect	Grades
-	-	-	60-69
-	55.6%	44.4%	70-79
7.7%	61.5%	30.8%	80-89
9.1%	18.2%	72.7%	90-100

The results in table (8) show irregular relationship between the students' grades in Tawjihee English exam & the difference in their achievement before & after using multimedia. For instance, the negative difference appearing among those whose grades in Tawjihee English exam were between 80-89, was more than that appearing among those whose grades were between 90-100 and between 70-79.

Table (9)

The relationship between the students' general point average (GPA) and the difference in their achievement in the pretest and the post-test

Students' percentage			
No effect	Negative effect	Positive effect	Grades
-	33.3%	66.7%	60-69
-	53.3%	46.7%	70-79
20%	30%	50%	80-89

Table (9) shows that the relationship between the students (GPA) & the difference in their achievement before and after using multimedia was irregular. For instance, the positive difference appearing among the students whose (GPA) was between 70-79, was more than that appearing among those whose (GPA) was between 60-69 & between 80-89.

Table (10)

The relationship between students' grades in the oral-aural course and the difference in their achievement in the pretest and the post-test

Students' percentage			
No effect	Negative effect	Positive effect	Grades in oral-aural course
-	20%	80%	60-69
-	58.3%	41.7%	70-79
-	58.3%	41.7%	80-89
40%	-	60%	90-100

The results in table (10) indicate that the relationship between the students' grades in the oral-aural course & the difference in their results before and after using multimedia is irregular. For example the positive difference appears in the achievement of the students whose grades in the oral-aural course were between 60-69 & between 90-100. On the other hand, the negative difference appears among those whose grades were between 70-79 & 80-89. These results could be explained by the variations in the individual use of multimedia .

On the other hand, the analysis of the data indicated that the relationship between the difference in the students' results in the pretest and the post-test, and other non-courseware factors considered in the study seems to be positive with respect to the students' use of multimedia on and off campus as in Table (11) and Table (12), their attitude towards using multimedia in the course as in (Table 13) , and their socio-economic class as in (Table 14).

Table (11)

The relationship between the students' use of multimedia and the difference in their achievement in the pretest and the post-test

Students' percentage			Use of multimedia
No effect	Negative effect	Positive effect	
10.5%	31.6%	57.9%	Using multimedia on campus

-	58.8%	41.2%	Not using multimedia on campus
5.9%	23.5%	70.6%	Using multimedia off campus
5.3%	63.6%	31.6%	Not using multimedia off campus

Table (11) shows that using multimedia individually on & off campus has a positive effect on the difference in students' achievement before and after its use. For instance %70.6 of the students using multimedia off campus and 57.9% of those using it on campus were affected positively. On the other hand, 63.6% of those who don't use it off campus & 58.8% of those not using it on campus were affected negatively.

Table (12)

The relationship between the period of multimedia use by the students on &off campus and the difference in their results in the pretest and the post-test

Students' percentage on Campus			Students' percentage off campus			Time using multimedia
No effect	Negative effect	Positive effect	No effect	Negative effect	Positive effect	
11.1%	33.3%	55.6%	-	22.2%	77.8%	1-3 hours
-	-	100%	20%	—	80%	4-6 hours
-	-	-	-	-	100%	7-9 hours
			-	-	100%	More than 10 hours

The results in table (12) indicate that the period of using multimedia off & on campus has a noticeable effect on the difference in the students' achievement before & after its use. For instance, the positive effect was noticeable among %77.8 of the students using it for 1-3 hours weekly off campus, and among 55.6% of those using it for the same period on campus. The results also indicate that this positive effect increases to 100% among those using multimedia for 4-6 hours weekly on campus & to 80% among those using it for the same period off campus.

Table (13)

The relationship between the students' attitude towards using multimedia and the difference in their achievement in the pretest and the post-test

Students' percentage			
No effect	Negative effect	Positive effect	Attitude
4.3%	34.8%	60.9%	Very positive
8.4%	58.3%	33.3%	Positive
-	100%	-	Fairly positive

-	-	-	Neutral

The results in table (13) indicate that the students' attitude towards using multimedia in the course under investigation has a direct effect on their achievement before & after its use. For example, 60.9% of those with a very positive attitude were affected positively, but all those with a fairly positive attitude were affected negatively.

Table (14)

The relationship between the students' socio-economic class and the difference in their achievement in the pretest and the post-test

Students' percentage			
No effect	Negative effect	Positive effect	Social classes
-	-	-	High
13.4	13.3	73.3%	High Middle
-	66.7%	33.3%	Middle
-	66.7%	33.3%	Low Middle
-	-	-	Low

Table (14) shows that the achievement of the students belonging to the high middle socio-economic class was affected very positively by using multimedia. The reason for that could be the availability of computers off campus for those students more than for those belonging to lower socio-economic classes.

Conclusion

This study showed that using computers , especially multimedia, as a teaching aid in developing the oral skills of English majors is influenced by several non-courseware factors. These factors include the students' academic achievement in English at school, their general point average at the university, their academic achievement in oral courses taught in the traditional method, the extent of their computer use, their attitude towards its use and their socio-economic class. The results indicated that the there are variations in effect of these factors on using multimedia as a teaching aid in foreign language instruction. While the effect of the last three factors was regular and positive, the effect of the first three was irregular.

Based on the results of this study, it is recommended that the students be given enough training in using computers before incorporaating multimedia as a

teaching and learning aid in the English courses. So, the efficiency of using this device in such courses will be increased.

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