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Learners' Interaction in Computer Assisted Language Learning Environment Using Off-the shelf Multimedia Software.

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VOL. (83) **October 2010**

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ABSTRACT

This study examines the nature of EFL students' oral interaction when exposed to off-the-shelf multimedia software. Learners' oral interaction was determined by the quantity and quality of their talk. The quantity of learners' talk was determined by the number of words they produced per minute and the quality of talk was measured by three indicators: (1) turn length, (2) types of language functions, and (3) length of acts.

A problemolving, game-like multimedia software "the Oregon Trail", was used in the study. Students were divided into eight groups of three students each, and were asked to work on language activities that were based on the computer program. Live observation, audio recordings, interviews and background questionnaire were used to collect the data for the study. The analysis of data gathered in this study shows that off-the-shelf multimedia software, authentic ones, can be very useful for learning a foreign language with computers provided that pedagogically sound language learning activities are designed and used.

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1. INTRODUCTION

Multimedia use in second and foreign language learning contexts can be very productive considering the rich environment it creates as video, audio, graphics, still pictures and digitized speech are combined together to form a single means of language input (Chapelle, 1998; Hanson-Smith, 1999; Plass and Jones, 2005). However, many second/foreign language teachers who integrate computer assisted language learning (CALL) in their courses through traditional computer software do not usually take advantage of the multimedia capabilities available. Results of studies on students' interaction when exposed to software that focus on grammar and text manipulation tasks or based on drill and practice format indicate little or no meaningful interaction (Abraham and Liou, 1991; Chang and Smith, 1991; Chapelle, 2001; Meskill, 1993; Piper, 1986) These findings emphasize the need for interactive CALL tasks that engage students in meaningful communication, and provide them with a wealth of language input to foster communication in the target language (Grgyrovic' and Hegelheimer, 2007).

CALL literature presents different views about the role of computers in language learning and teaching (Egbert and Hanson-Smith, 2007; Levy, 1997; Smith, 2003; Taylor and Perez, 1989; Warschauer, 1996). Some see it as a tool, others see it as a tutor, yet few see it as a stimulus for talk. However,

there is a wide agreement among CALL researchers that the focus of CALL should not be on providing language learners with formal language instruction, but it should focus on promoting communicative language use among them (Coniam, 2008; Egbert and Hanson-Smith, 2007; Mohan, 1992). This type of focus is conducive to achieving communicative competence through meaningful use of the target language (see Coniam, 2008; Holliday, 1999; Krashan, 1985; Schwienhorst, 2009; Smith, 2003).

The nature of software used in a CALL lesson contributes to the effectiveness of learning with computers (Hubbard, 1992, 2009; Robin, 2007). The software that is based on drill and practice and grammar based methods does not support interaction among language learners (Bax, 2003; Chapelle, 2001; Meskill, 1993). However, multimedia software that takes advantage of computers' capabilities to combine digitized speech, video images, still pictures and written text can overcome these limitations apparent in traditional software, provided it is supplemented with well-designed language activities that promote interaction among language learners and enhance their use of the target language for authentic communication (Grgyrovic' and Hegelheimer, 2007; Levy and Stockwell, 2006; Plass and Jones, 2005). This view is supported by Pujol's statement that, "...software by itself is not enough. Computers activate need to be skillfully planned and designed if they are to create rich environments in which learners express themselves freely and interact with one another successfully (1995: 2)". The date needs to be here if the quotation is from the same book" Thus, the role of language activities is essential to the successful integration of computers in language learning. Computer software and language learning activities combined are likely to influence positively the quantity and quality of learners' language if used properly (Dudley, 1995; Egbert and Hanson-Smith, 2007;

Mohan, 1992). Robin supports this view stating that, "in the immediate future –the next five to ten years-the frontier in language learning and technology will not be found in what programs does what better, but rather which students use off-the-shelf technology to best facilitate their own learning in their own learning style" (2007: 109).

Previous research studies on interaction between non-native speakers on one hand, and native speakers and non-native speakers on the other, show that interaction among non-native speakers generated the greatest language practice opportunities and resulted in greater negotiation (Roed, 2003). These findings support the fact that interaction among non-native speakers can provide both greater quantity and quality of comprehensible input (Holiday, 1999; Schwienhorst, 2008). Interaction at the computer among language learners may, therefore, be a favorable environment for talk, and a prime source of input and negation in the target language. This corresponds with Krashen's (1985) theory of comprehensible input supported by Mohan's argument that, "....What is important about a computer program is not whether it aims to teach language, but whether it leads to comprehensible input (1992: 114)."

Contrary to the case with unidirectional mass media forms such as television and radio where such feedback is not possible (Mohan, 1992; Sotillo, 2000), computer-based language learning programs can be advantageous for language learners if they are engaged in interactive dialogues that allow feedback, adjustment, and negotiation of meaning (Blake, 2000; Payne and Whitney, 2002; Pellettieri, 2000; Road, 2003; Schwienhorst, 2008; Smith, 2003). Tasks such as problem-solving and exchange of information can promote comprehensible output among language learners and in turn increase their chances of language acquisition (Holliday, 1999; Plass and Jones, 2005).

As mentioned earlier, language learning software that is based on grammar and vocabulary and presented through drill and practice exercises do not facilitate learners' use of the target language for real communication (Levy and Stockwell, 2006). Language learners would, therefore, benefit more from tasks that require them to take part in discussions, which center on how they run the program or how they operate the machine in the best way that helps them solve a problem (Heift, 2002). The results of the research that was based on text-based programs (Abraham and Liou, 1991; Piper, 1986) reported little group cooperation and more individualistic behavior among learners. Moreover, studies that focused on simulation programs reported a great deal of group interaction among learners (Abraham and Liou, 1991; Dudley, 1995) Bibliographical notes at the end of the sentence tend to break less the continuity of thought. When these learners engage in real interactive tasks, in pairs or groups rather than single student, a wealth of language practice will take place and an environment conducive to language acquisition will be created (Chapelle, 2001; Colpaert, 2004).

In summary, the value of a computer-assisted language learning environment is determined by a number of factors that go beyond the hardware and software possession. Well-designed language activities supported with innovative software and trained teachers can form combined environments that, without a doubt, support successful language learning.

The present study describes eight groups of L2 learners' oral interaction in the context of a multimedia CALL classroom where they were required to complete a task as part of a semester long EFL course. The specific aim of the research was to determine the impact of using off-the-shelf multimedia software in the target language on learner's quality and quantity interaction in the target language. The following research

questions guided the exploration:

1) What is the quantity and quality of learners' talk when exposed to authentic multimedia software?
2) Compared with similar studies reported in the literature, does off-the-shelf multimedia software generate different types of oral interaction among EFL students?

METHODLOGY

Setting and Participants

The participants in this study were 24 monolingual speakers of Arabic enrolled in a second year ESP English course and their teacher in an Intensive English Program in a technical college in Saudi Arabia. Their level of English ranges from intermediate to Pre-Intermediate. They have studied three English courses in the previous 3 semesters, two general English courses and one ESP course. The main objective of the course was to develop oral communication skills in English. The CALL component of the course was arranged with the teacher who allocated one session per week for the tasks to be taught using off-the-shelf multimedia software to supplement the regular classroom sessions. Students meet four times a week, for 50 minutes each session. The students formed eight groups of three and worked on activities that require them to watch the multimedia software and discuss decisions among themselves. The specific tasks designed by the researcher in coordination with the classroom teacher,

The software used in this study is multimedia simulation software that was not designed specifically for language learning. "The Oregon Trail" is an adventure, problem-solving, simulation game (The learning company, 1997). The Oregon Trail is described in Wikipedia as, "..... a computer game originally developed by Don Rawitsch, Bill Heinemann, and Paul Dillenberger in 1971 and produced by the Minnesota

Educational Computing Consortium (MECC) in 1974. The original game was designed to teach school children about the realities of 19th century pioneer life on the Oregon Trail. The player assumes the role of a wagon leader guiding his party of settlers from Independence, Missouri, to Oregon's Willamette Valley over the Oregon Trail via a Conestoga wagon in 1848. The game has been released in many editions since the original release by various developers and publishers who have acquired rights to it."

The Oregon Trail has excellent graphics and provides considerable information on screen during the course of the simulation and includes high quality digitized speech. This type of software can be used efficiently in cooperative language learning tasks where each student in a group is responsible to perform a certain task or monitor different information that is displayed in the course of the trail.

Procedures

The data were collected over a one-semester period from February to June, 2011. The students met for 50 minutes in the computerized language lab and worked consistently in the same groups completing the trail. Data sources included audio recording of the class talk, interviews, questionnaires as well as participant observation. Outcomes of the students' activities were also collected for analysis.

Each group was recorded in each class via the reordering facilities available in the computers the groups are using. In addition to the audio recordings, students were interviewed individually during the semester following the concept of "qualitative interviewing" (Dörnyei, 2007). The interviews were designed to obtain in-depth information about the students' learning process and were semi-structured and conversational in style. Prior to the interviews, participants were asked to fill out a questionnaire. This was used to obtain

general background information about the participants. In addition, the researcher was a participant observer in the classroom, acting as the teacher's assistant. He helped to resolve technical problems, and help students on working on the software to complete the activities. Being part of the learning process with a specific role allowed the establishment of a relationship between the researcher and the students.

DATA ANALYSIS

The language activities students completed on the computer generated about 112 hours of talk from each group. Because the whole activity was recorded, it resulted in a massive data when transcribed; I confined myself to the transcription of the third ten minutes segment from each session for the eight groups' recordings. The selection of this interval was motivated by the fact that the more learners are used to the software, including the operation procedures, the more spontaneous their speeches are likely to be. At the same time, the participants' attention at this interval is likely to be higher than by the end of the task. The transcribed segments are, therefore, expected to be more representative of informants' performance. Once the data is transcribed, the analysis focused on the examination of students' quantity and quality of talk. The outcome of the analysis was then compared to similar computer-based studies reported in the literature (Abraham and Liou, 1991; Dudley, 1995; Piper, 1986).

RESULTS AND DISCUSSION

The focus of our analysis is on the interaction of the eight groups of learners engaged in a game like multimedia activity in English. Several themes related to the impact of collaborative work on off-the-shelf multimedia software on learners' quality and quantity of interaction in L2.

Quantity of students' interaction

The average number of words per minutes learners produced was the indicator used to measure the quantity of interaction initiated while students were working on the computer. The difference in the quantity of learners' talk between the eight groups of participants was not significant. Students generated between 107 words per minute in group one and about 118.7 words per minute in group six. The average number of words students in this study produced is 112 words per minute. The analysis of their conversation shows that they have spoken more words than others in similar studies. The difference in quantity of students' talk between this study and the other studies was probably because of the type of software used and the language tasks students were asked to complete (Hanson-Smith, 1999). Both the software and the activity were conducive to cooperative learning environments which in turn supported students' extensive use of discussion and negotiation strategies in their interaction.

This activity involved students in an exchange of information using the multimedia software as a catalyst. In effect, it enhanced learners' use of English to make the correct decisions regarding the routes to take and the action to perform in the trail. When we look at the transcripts of learners' interaction, we can clearly see that learners were working as a group to formulate a joint decision and then make the software proceed accordingly. Comparing learners' quantity of talk in this study and previous ones, evidently show that this study was better in this respect. Table 2 below compares my findings concerning the quantity of students' talk with Abraham and Liou's (1991); Dudley's (1995); and Piper's (1986).

Study	Software	Software type	Average number of words per minute
Piper (1986)	Clozemaster Vocabulary Copywrite	Text-based Text-based Text-based	112 99 72
Abraham and Liou (1991)	Article Eliza Lemonade Stand	Text-based Simulation Simulation	48.7 52.4 39
Dudley (1995)	Who Killed Sam Rupert	Simulation	59.5
This study	The Oregon Trail	Simulation	112

Table 2. Average number of words/minute compared to three previous studies.

The off-the-shelf multimedia software used in this study supported increased discussion and negotiation of meaning among learners. The theme of the software and the way it works by requiring students to make certain decisions at different levels of the progress of the software, made students actively involved throughout the journey. These findings support the claim that this type of computer-based software is very beneficial in CALL environments compared to the software used in other CALL studies (Abraham and Liou, 1991; Chappell, 2001; Grogurovic' and Hegelheimer, 2007; Piper, 1985). The authenticity of the program and the activities students' were required to work on, supported the successful use of the software in this context (Hanson-Smith, 1999; Pass and Jones, 2005).

Quality of students' interaction

In order to determine the quality of students' talk three measures were used: length of turn, type of language functions, and length of acts. First, length of turn was determined by the number of words per turn and number of turns per minute. The second measure concerns the type of language functions learners used in their interaction, and was determined by breaking students' talk up into a number of language functions taken from Abraham and Liou (1990). These functions include: (1) Repeating, (2) Managing mechanical aspects of tasks, (3) Managing mechanics of discussion, (4) Managing strategies for accomplishing tasks, (5) Inquiring about facts related to tasks, (6) Responding to inquiries or assertions about tasks, (7) Showing concern for language form, and (8) Showing emotion and feeling for others. Length of acts was the last indicator used to measure the quality of students' talk. The assessment of the quality of learners' interaction across these measures indicates that the present study slightly outperformed the previous ones (Abraham and Liou, 1991; Dudley, 1995; Piper, 1986).

Length of turns

The average number of words per turn and the average number of turns per minute are two indicators used to assess the length of turns in students' interaction. The findings of this study compared with Abraham and Liou's (1991); Dudley's (1995); and Piper's (1986) are presented in table 3 below.

Study	Software	Turns per minute	Words per turn
Piper (1986)	Clozemaster Vocabulary Copywrite	36 33 28	3.1 3.0 2.6
Abraham and Liou (1991)	Article Eliza Lemonade Stand	8.8 6.7 7.5	5.5 6.0 7.0
Dudley (1995)	Who Killed Sam Rupert	16.5	3.6
This study	The Oregon Trail	18.7	7.3

Table 3 Average number of turns/minute and word/turn in this and three other studies

Length of turns is believed to be an important indicator of the quality of interaction (Brown and Yule, 1983). The difference between the groups in this category was not significant. All groups produced good number of turns compared to Dudley (1995); and Piper (1986) respectively. Learners in Abraham and Liou (1991) study produced similar turns in terms of length, yet the number of turns per minute was reasonably smaller. In this study both indicators, the number of turns students generated per minute and the length of these turns were reasonably higher. The length of turns in this study ranged from 7.7 in group one to 6.2 in group two. This is an excellent indication of the effectiveness of this type of multimedia software. This is because it has motivated students to talk more and take longer turns to convey their meaning. These results can also be related to the students' level of English, which might have helped them to express their thoughts fully and freely. The nature of the task learners were involved in was another element that made them produce these long stretches of speech. The learners in this study had to

explain to their peers in L2 what should be done in the course of the trail.

Types of language functions

Learners' interaction in the two groups was analyzed using Abraham and Liou's coding system (1991). Generally, the acts were representative of all different types of language function expressed by the learners when working with computers in the multimedia environment. The findings of this study compared with Abraham and Liou's (1991) are shown in Table 4 below.

Category	Abraham and Liou study			This Study
	Article	Eliz a	Lemonade Stand	The Oregon Trail
Repeating	3.98	3.14	1.39	2.3
Mechanics of tasks	0.48	0.18	.074	0.8
Mechanics of discussion	0.53	0.95	0.89	1
Strategies for accomplishing tasks	2.76	2.08	3.28	4.3
Inquiring	1.63	1.50	1.76	3.9
Responding	2.81	1.44	3.05	3.8
Showing concern for language form	0.58	1.03	0.07	0.6
Showing emotion and feeling for others.	0.09	0.04	0.09	0.15

Table 4. Average number of acts per minute by category compared to Abraham and Liou study.

By looking at the numbers presented in Table 4 above we can clearly see that strategies for accomplishing tasks represent the most frequent act among the participants of this study. The second most frequent acts were inquiring and responding respectively. Learners generated approximately four acts per minute in each group. Showing emotion and feeling for other group members came next with more than two turns per minute. The least frequent act was showing concern

for language form, which suggests that students' were more concerned with communication than with the accuracy of their language. This is also supported by the fact that acts involving negotiation, decision making, and evaluation, which are considered to be more valuable to the development of communicative competence (Bax 2003; Piper, 1986), were the most recurrent. For example, group one produced 4.3 strategies for accomplishing task acts and 3.9 inquiring acts per minute.

Repeating act which is considered a low-level act occurred less frequently in this study than in the others (Abraham and Liou, 1991). Although it is considered a mere mechanical use of language, repeating in this study was obvious because of the nature of the software and the language-learning task. Learners were faced with a number of options on the computer screen and were asked to make decisions about them. Thus, they had to read what was displayed and then with the consent of others in the group, make a decision about it. As a result, more repeating was found in the corpus.

The showing of emotion and feeling for others is another act, which surfaced more repeatedly in this study corpus compared with previous studies. It occurred 0.15 times per minute on average. This suggests that students in this study got very involved in the trail and felt that they were actually traveling.

Length of act

It is believed that longer acts are more valuable than short ones (Brown and Yale, 1983). Act length was determined in this study by the number of words in each act. A turn may contain one or more acts. Table 5 below compares length of acts learners in this study produced with Abraham and Liou's (1991); and Piper's (1986).

Study	Software	Words per act
Piper (1986)	Clozemaster Vocabulary Copywrite	2.12 2.24 1.93
Abraham and Liou (1991)	Article Eliza Lemonade Stand	3.83 3.85 4.54
This study	The Oregon Trail	4.76

Table 5. Average length of acts in this study compared to two previous studies

The participants in this study produced an average of 4.76 words per act as shown in Table 5. These acts are slightly longer than previous studies, thus reflecting a better performance than those produced by Abraham and Liou's (1991); and Piper' s (1986) subjects. This might be related the nature of language task and the type of computer software used in this study (authentic, open ended). As discussed earlier, software that focuses on drill and practice are less favorable to communication among language learners (Mohan, 1992; Dudley, 1995) while simulation software as in the case of the present study tends to elicit greater amount of talk, and therefore longer acts (Abraham and Liou, 1991).

Use of native language

Although, the participants in this study spoke one common language, there were no significant indicators of learners using their native language in the transcripts of their talk. This might be related to the fact that they were expected to use only English throughout the task. They were also given instruction sheets explaining in English the steps of the activity

they were asked to complete on the computer. Another reason could be related to the fact that their level of English was sufficient to interact in English. To the best of my knowledge, only Pujol has looked at this aspect in his study (1995). Students in Pujol's study, who were also intermediate level learners of English, were noticed to have been using Spanish (L1) to discuss procedural and spelling concerns. Since students in this study were less concerned about the accuracy of their language neither were they required to type into the computer, it is not surprising that they used little or no Arabic in their interaction. Learners focused more on communication and conveying their meaning rather than on the accuracy of the message.

These findings indicate that the immediate environment affects learners' communicative competence. This can be seen in the extent of their use of L2 instead of L1 when they communicate with each other, negotiate, and make decisions that involved more than one student. When learners are put in a situation in which they feel they will be monitored for what they say and do, they may feel threatened and, as a result, their language processing faculty would halt. This can be explained by Krashen's (1982) affective filter hypothesis that language learners' anxiety can raise the filter to form a mental block, which prevents comprehensible input reaching the language acquisition ability.

IMPLICATIONS

Computers have a great potential to stimulate conversation among pairs or groups of learners provided that they are used in environments that are conducive to interaction. Generally, Multimedia computer environments support the creation of communicative activities, although it takes time and effort to design. These activities will most likely require substantial preparation from the teacher. Depending on the

instructor, some activities will generate more oral interaction than others, but none will provide communicative purpose. They can all influence and intensify the quality of language learners' oral interaction at the computer (Chapelle, 2001; Robin, 2007; Stockwell, and Harrington, 2003).

The analysis of the data gathered for this study has shown that language learners can get valuable language practice from CALL activities with off-the-shelf multimedia software. These results support the fact that in a CALL environment there is a need to create language learning activities that stimulate and encourage practice in everyday language. Multimedia software, such the Oregon Trail that encourages negotiation of meaning between learners and forces them to produce long stretches of discourse need to be integrated into CALL courses. As seen in this study, multimedia environments can be used to simulate real settings because speech, text, video, and other resources can be incorporated to become part of the learning experience. However, these environments cannot just present a model and leave users on their own to navigate the software; learners still need to be guided in order to take an active role in the language-learning task completed at the computer (Mohan, 1992; Pass and Jones, 2005).

Computer based activities, like other classroom activities, need to be skillfully planned and designed if we intend to create environments in which learners express themselves freely and interact with one another successfully (Levy, 2002). Allowing learners to play with simulation games, similar to the one used in this study, in small groups does not necessarily enhance meaningful communication among them. This is because of even if multimedia simulation software present life situations and language in context and keep learners motivated and interested in the software, they do not, by virtue of being computer-based simulations, stimulate language learners to

interact in the target language (Plass and Jones, 2005). We can also say that about software that present stories which require language learners to read or listen to but does not do much on its own to enhance oral interactivity among them around the computer. Activities in which teachers involve their students are the key element to successful integration of computers in language learning (Stockwell, and Harrington, 2003).

The results obtained from the analysis of this study data provide us with deeper insights into understanding the types of computer software which may encourage communicative language learning. Although focusing students' attention merely on reading text displayed in front of them on computer screens can be of some value, meaningful communication and language output is likely to be very limited. Instead, second and foreign language learners would benefit more from software that triggers the need for communication and meaningful conversation that directly enhance their language acquisition (Egbert and Hanson-Smith, 2007). Multimedia simulation programs have proven to be a good choice in this respect (Abraham and Liou, 1991; Dudley, 1995; Grgurovic' and Hegelheimer, 2007). This is because the language input students receive through digitized audio and video clips would most likely enhance students' acquisition of the target language through imitation and modeling.

The present study confirms what has been proven by Dudley (1995) that off-the-shelf multimedia software that was not specifically designed for ESL/EFL learners can be of great value for language learning and practice. Second and foreign language teachers need to design and plan sound language activities that help learners achieve their language learning needs and objectives and utilize the computer software. They also need to make sure that their students understand the operation of the software and have no language difficulty understanding the screen instructions that may hinder them

from doing the required tasks and activities smoothly.

Students' motivation to work with computers and interest in specific software are two important factors that are favorable to successful CALL use. Software that are based on simulation themes, compared with software which focus on grammar and text manipulation tasks, lend themselves more towards cooperative learning tasks through discussion and negotiation (Coniam, 2008; Plass and Jones, 2005; Underwood, 1984). Multimedia simulation software that was not made specifically for language learning, similar to the one used in this study, adds another value by indirectly enhancing students' understanding of the target culture.

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