

# Effects of Computer Assisted Language Learning for Improving English Language of Undergraduate Students

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## Summary

The study purposes at examining the effects of Computer Assisted Language Learning (CALL) for improving English language of the undergraduate university students. CALL is an emerging trend that has highly impacted on traditional theories of learning and teaching foreign languages. This new trend has introduced innovative techniques and latest pedagogies for teachers and students of all levels. This is an attempt to look at teaching and learning practices through CALL tactics. The study is conducted in mixed method in which sequential exploratory design is employed. A random sampling technique is used to select population for this research. Data is collected from both teachers and students. 10 English language teachers are requested for semi-structured interviews in order to explore the CALL teaching practices. Furthermore, a questionnaire is adapted for 146 undergraduate students of Shaheed Benazir Bhutto University (SBBU) Shaheed Benazirabad. Qualitative data is thematically analyzed and Statistical Package for Social Sciences software (SPSS) 20<sup>th</sup> version is used to analyzed quantitative data. The findings indicate that there is a positive effect of CALL among university students and teachers. Among four skills of language, students effectively improve their listening skill by using CALL. This new trend increases students motivation and eases them to learn English without pen and paper. Students prefer to use CALL applications but most of the participants are unaware of using CALL because of lack of facilities. Teachers are of the view that effective English language teaching demands CALL knowledge. Last but not least limitations and delimitations are identified and areas for further studies are recommended.

## Keywords:

*Computer Assisted Language Learning, Teaching English, Learning English, Undergraduates.*

## 1. Introduction

CALL is an emerging trend that has highly impacted on traditional theories of learning foreign languages. This new trend has introduced innovative techniques and latest pedagogies for teachers and students of all levels. However, the researcher has decided to research on university teachers and students because they are much capable to operate new electric technology (E-technology) while teaching and learning. According to Bush (2008) the use of computers facilitate the process of learning targeted language because teachers and students can use such technology whenever and wherever they want and they will not be bound to only classroom learning. The use of new technologies such as multimedia, computers and internet are promoting and introducing new

techniques of learning and teaching. Technologies provide students not only related material but also increase their understanding by easing the process of learning with the help of audio, video facilities. Learning through CALL technology change from teacher centered learning to self-centered learning. Students can increase their interest in learning second language with the help of visual and animated programs.

### 1.1 Background of the Study

With the development and spread of English language in the globe, English language is used as a second language in most of the countries. Technology is one of the most efficient tools of linguistic and social change. According to Graddol, (1999) technology exists in the heart of the globalization process which affects the work, language and culture of people.

After 1960, the use of English language has evolved rapidly. At present scenario the status and role of English is the language of politics, business, industries, education, and media, communication across borders and socio cultural context as well as necessary subject in curriculum.

The main reason to conduct research in Shaheed Benazir Bhutto University, Shaheed Benazirabad (SBBU, SBA) is the massive use of technology and computers in the university. The main focus of this research is to know the effects of computer assisted language learning (CALL) for improving English language of university students specifically in main campus. The university intends to provide students the latest and up to date education system based on modern technology. The classes are equipped with multimedia, internet and computers for this purpose. Students are being taught through multimedia and other forms of technological equipment. As a result, the need arises to study the effects of using technology or computer on student's learning English as a second language.

### 1.2 Objectives of the study

To understand the effects of using CALL technology for improving university students' learning English as a second language. To explore the teaching practices of using CALL technology for improving university students' learning English as a second language by university teachers.

### 1.3 Questions of the study

To what extent does the use of CALL technology effect university students' learning English as a second language? **(Quantitative)**

How do teachers use CALL technology for improving university students' learning English as a second language? **(Qualitative)**

### 1.4 Hypothesis

H1. CALL improves university students' learning English as a second language.

Ho. CALL does not improve university students' learning English as a second language.

### 1.5 Significance of the Study

The significance of current study can be determined by many factors: one of the reasons to conduct study on the effects of computer assisted language learning (CALL) is the need of today's technological era. Moreover, the study is significant in its method of collecting data because the literature review has come into knowledge that there are fewer studies on Computer Assisted Language Learning (CALL) which had been conducted on mixed method. The study takes into consideration both stakeholders i.e. students and teachers because it is crucial for students to understand the effects of technology on their performance of learning second language and teachers should get know about teaching practices through CALL technology and help students to improve their learning performance as teachers play a founding role in students' academic and professional life.

## 2. Literature Review

Recent years have shown the detonation of interest in the use of computers for learning language and teaching. In the past years, using computers in language classrooms were only concerned with few specialists. With the advent of internet and multimedia computer, however, the use of computers in learning language has now become an important challenge faced by various language teachers around the world. Since the functions of computer are not only to solve mathematical problems but also to assist human activities, the demand of using computers increasing in language learning. According to Hagen, (1993 p.21) computers have significant contribution in language learning which leads to better learning. Moreover, since 1950 computers tend to become popular for learning language because of the need of scientific and effective methods in learning language. Among other technological tools, computers are well known devices that can collaborate with the requirement of curriculum and to reach at certain learning goals (Beatty, 2003).

A decade ago, (CALL) computer assisted language learning has increasingly become essential part of the learning language process. In early 1970s computers become leading edge of learning language and teaching process. After being linked with worldwide web and local networks in 1990s, computers became the forefront for emerging numbers of multimedia particularly designed for the use of foreign language learning processes. In late 1990s, the efficiency of using computer for increasing learning language process constituted the phenomenon of great importance (Garrett, 2009). Now days, internet and computers permit the combination of various online resources through numerous features, online searches and hyperlinks. Technology based environment and CALL are appropriate methods for modern foreign language process. According to Hanson-Smith, (1997) CALL also helps students to enhance language skills, helps them to study anytime anywhere, get immediate feedback, and solve numerical problems and even error analysis. As suggested by Rivera-Castillo, Feyten & Nutta, (1998); Oxford (1993) technology will only be useful and helpful when certain conditions are met,

1. If it increase student's motivation and interest and fulfill their needs.
2. If it provide purpose focused learning environment, relevant themes, meaningful tasks and authentic output.
3. If it deals with all aspects of learning second\ foreign language processes and effective in terms of curriculum and educational goals.
4. If it is helpful to solve the difficulties that students face.

### 2.1 Definition of CALL

Term CALL is used to refer to computer applications used in acquisition of foreign or second language. According to Levy, (1997) CALL is the study or search for applications of the computer in language learning and teaching. CALL provides various advantages for language learning process (Chapelle, 2001). Using hypermedia system which permits access to video and audio media under the control of computer program has permits CALL to become highly interactive (Coughlin, 1990). With the use of CALL students can specify their studies and study at the place they desire (Raschio, 1990). CALL allows teachers to monitor the progress of their students with its advanced tracing and recording capability (Bland et al. 1990).

## 2.2 Computer as a Stimulus and Second Language Acquisition Theory

Long (1985) claims that active negotiation of meaning and communicative activities that involved students' interaction are universally accepted as a significant teaching values. From this statement it can be assumed that computers have usually assigned the role of stimulus for communication. Mohan (1992) points out in the theory of Kreshan's second language acquisition that background communication in computers provides students actual language tasks. Thus, offering comprehensive result and negotiated communication is crucial for language development.

According to Underwood (1984) the biggest benefit of using CALL applications is the side effect that happens when the dialogues shows on the screen rather than on the individual. With the same line of thought, Mohan (1992) claimed that stimulus communication over the computers is a natural interaction process that occurs as a part of communication and it is worthwhile due to its aim despite than classroom tasks that are forced to perform. He further stated that computers offer actual support of context of the communication between its user and dialogues. In communication between computer and its user, the user perform tasks that have some specific purpose and the users discuss and admit that actions.

## 2.3 Using Computers in Language Learning

According to Smith and Hunson (1999) computers play a great role in education for many years. Now days, internet and computers permit the combination of various online resources through numerous features, online searches and hyperlinks. Technology based environment and CALL are appropriate methods for modern foreign language process. It is widely accepted that computers have the following main roles in language learning in the classrooms:

- a. Tool- the computer plays the role of tool as it is used to help students to perform certain tasks.
- b. Teacher – the computer plays the role of teachers as it is used to teach students of all level. It is also used to teach new languages to students.
- c. Communication facilitator- the computer plays the role of communication facilitator as it creates interaction between user and computer in the shape of exchange of dialogues. Computers also allow students to communicate with other all across the world.
- d. Tester- the computer plays the role of tester as it check the performance of students and point out their mistakes. It also tests students' performance in learning new language and the language that is already learned by the students.

- e. Data source- the computer plays the role of data source because it provides information to students when they need to do specific task. It also helps students to store their data and get desired results.

## 2.4 Multimedia CALL

With the advent of multimedia CALL, the language centers on multimedia began to use this approach in educational institutions. Similarly, multimedia accessibilities provide various opportunities for learning language with the assimilation of images, videos, texts and sounds, these facilities usually did not completely utilized. According to Davies (2010), one of the major function of computer assisted language learning (CALL) is the capability to particularize the individual learning but in from 1960s and 1970s with the arrival of language learning labs that were established into educational institutions, the use of multimedia facilities has been evolved into queue of students that all performing the same drills. Therefore, there is a danger that is going on the same way that multimedia and language labs creating. In 1970s, the arrival of boom period declined the language labs. Davies (1997) says that the major cause of the failure of language learning lab is the lack of teachers' training to use language learning labs both in terms of developing new teaching methods and operations. Meanwhile some other factors are also responsible such as lack of material, lack of good ideas and poor reliability.

## 2.5 CALL and Traditional Language Learning

Teaching language and learning language are the two ways process of communication. Traditional learning and teaching second language require large amount of time and proper places. Traditional learning and teaching second language is teacher centered, students do not have their own autonomy and flexibility. In traditional learning and teaching large number of students are overloaded in a classroom and black and white boards make teachers and students busy, although overhead projector or multimedia makes learning and teaching more interesting and better. Audio-lingual method is the better option for learning and teaching speaking and listening skills. But for writing and reading cognitive language and communicative codes are crucial. It is obvious when developing CALL system is more efficient. CALL is not a simple traditional approach neither an open ended approach but it should be flexible to students. CALL approach should be mixture of both open and close approaches because CALL has no boundary classroom and the students are different. CALL currently involves highly communicative and interactive support for reading, speaking, writing, and listening, it also involving great use of Internet and multimedia.

## 2.6 Previous studies

AlaaEldin Ali Elmahdi (2011) conducted study on the effects of using computer on increasing writing skills in EFL classroom. The questionnaire was selected for the study based on two parts: the first part consisted of general attitude towards using computer which carried twelve items and the second part included attitudes towards using computer in writing process which carried twelve items. The findings showed that most of the students get benefited from the use of computer as a source to improve their writing in EFL classrooms. The findings of the study clearly showed improvement in grammar, paragraphing, punctuation and spelling of student's computer based writing.

Elmontasir Billah (2014) researched on EFL teacher's attitude towards using computer assisted language learning (CALL) in classrooms. He (2014) used quantitative paradigm and questionnaire was used as a tool to collect data further the data was analyzed through SPSS software. The results of the research indicated that the teachers have positive attitude towards using computer in teaching English language. EFL classrooms should be equipped with computers because having technological knowledge is essential for language teachers.

ChanNim (2009) aimed to find out the factors affecting teacher's using computer in their English as a foreign language (EFL) classrooms and to investigate the teacher's perceptions of computer assisted language learning (CALL) in EFL classrooms. For that the questionnaire was used and in depth- interviews were conducted to collect data. The findings of his study explored that the teachers have favorable and positive attitude towards using computers. Teachers consider the technology of computer as an effective tool for teaching that can improve the methods of teaching by providing pupils various language inputs and enhancing pupils learning experiences in authentic and efficient manner.

## 3. Research Methodology

The current research was conducted in mixed method because the nature of topic demands both qualitative and quantitative method. To conduct research on mixed method has many benefits because it can allow the researcher to study in depth qualitatively as well as generalize the data quantitatively (Creswell, 2007). Moreover, the literature review has come into knowledge that there are fewer studies on Computer Assisted Language Learning (CALL) which had been conducted on mixed method.

Data collection is a systematic way to get responses on the matter. A range of instruments can be used to get samplings for exploring the phenomenon. The questionnaire (close ended) and interviews (open-ended) were adapted to collect data for the research. The nature of topic demands mixed method. Among the number of different kinds of interview, the study used semi-structured interview because it gives freedom to participants to explain the phenomena in their own way. Interviews were guided accordingly and participants were honored respectively in this study.

A random sampling technique was used to select population for this research. A questionnaire was adapted for 146 students of Shaheed Benazir Bhutto University, Shaheed Benazirabad. Furthermore, 10 English as a Second Language (ESL) teachers were requested for semi-structured interviews in order to explore the teaching practices of using CALL technology for improving university students' learning English as a second language by university teachers. Data analysis is one of the most important elements of the research (Pallant, 2005). It demands keen attention as well as perfection. The questionnaire was descriptively analyzed by 20<sup>th</sup> version of SPSS Software and conducted interviews from 10 teachers were transcribed and analyzed thematically.

Q1. To what extent the use of CALL technology does effect university students' learning English as a second language?

**Table: 1. Descriptive Statistics**

|                                                                                             | N   | Mini | Maxi  | Mean   |
|---------------------------------------------------------------------------------------------|-----|------|-------|--------|
| I prefer learning through computer.                                                         | 146 | 1.00 | 52.00 | 4.3750 |
| Students using computer perform better than student's not using computer.                   | 146 | 1.00 | 43.00 | 4.2812 |
| Technology facilitate the process of learning                                               | 146 | 1.00 | 5.00  | 4.2187 |
| The use of CALL applications increases student's language proficiency.                      | 146 | 2.00 | 5.00  | 4.1719 |
| Using CALL technology for learning English takes less time and energy of students.          | 146 | 1.00 | 44.00 | 4.1250 |
| Using CALL technology you can enhance your listening, speaking, reading and writing skills. | 146 | 1.00 | 5.00  | 3.9844 |
| CALL technology provides more practical work to students.                                   | 146 | 2.00 | 5.00  | 3.8594 |
| CALL provides students with ease and understandable language.                               | 146 | 1.00 | 5.00  | 3.7656 |
| Using CALL is very effective to improve student's performance.                              | 146 | 1.00 | 5.00  | 3.7188 |
| Students have positive attitude about learning through computer.                            | 146 | 1.00 | 5.00  | 3.6094 |
| Valid N (list wise)                                                                         | 146 |      |       |        |

#### 4.1 Summary of Question No.1

The above descriptive statistic table has been done to know the mean score from top to bottom which clearly explain the effects of computer assisted language learning (CALL) for improving university students learning English as a second language. The descriptive analysis is further summarized below.

Participants of the study strongly agreed that the students prefer learning through computer. The participants gave it highest mean i.e. 4.3750. However, 13 out of 146 participants were not agreed. Secondly participants believe that students perform better than students not using computer (M=4.2812). Moreover, they (M=4.2187) believe that technology facilitate the process of learning. The current study determine that the use of CALL applications increase students' listening skill. The participants gave it 4.1719 mean. They also accept that use of CALL technology for learning English takes less time and energy of students. This statement has got 4.1250 mean score. English as a second requires competence over its skills and the respondents is of the view that Using CALL technology they can enhance their listening, speaking, reading and writing skills. It has got 3.9844 mean. CALL technology provides students more practical work (M=3.8594), it helps students to understand language effectively (3.7656), and lastly students have positive attitude about learning English through Computer.

#### 4.2 Summary of the Major Findings of Q2

Q2. How do teachers use CALL technology for improving university students' learning English as a second language? After conducting semi-structured interviews from teachers, thematic analysis was done to explore the teaching practices of using CALL technology for improving

university students' learning English as a second language by university teachers.

The following results were formed thematically:

##### 4.2.1 CALL technology has changed pedagogy.

Teachers were of the views that CALL technology has changed the pedagogy. Some teachers gave their opinion during interviews that technology is increasing day by day and the need to use technology in learning and teaching is also increasing. Teachers believed that CALL technology has altered the traditional ways of learning and teaching. In traditional teaching students do not take more interest because of same teaching methods but CALL technology increase students' interest with its audio, visual and animated functions. Teachers believed that it is the demand of universities that teachers should teach with the help of multimedia and computers so that they can compete with the race of modern technological education. Some of the teachers were of the believed that CALL technology has replaced the old tradition of teaching through chalk and board. Now teachers are teaching without pen and chalk but with the help of internet, computers and multimedia.

##### 4.2.2 Teaching English through CALL is more effective than not using such technology.

The findings of teacher's interview shows that teachers were in the favor of CALL technology. They were of the views that teaching English through CALL is more effective than not using such technology. They believed that students learning performance increase when teachers taught them through technological equipment.

Teachers were satisfied with the use of technology because they can observe the impact of technology in students' performance. Teachers believed that teaching through CALL technology save their time and energy and they can prepare lectures with the help of internet without reading books and making notes. Some of the teachers were of the perceptions that they can easily catch the attention of students by showing them videos and pictures of the lectures and can easily clarify their concepts.

#### **4.2.3 Teachers are unaware of CALL applications**

The findings of semi-structured interviews from university teachers revealed that some of the teachers are unaware of CALL applications. Teachers were of the opinions that the teachers from rural background do not understand the basic use of CALL technology in teaching practices. Teachers believed that the application of such technology is changing according to the demand of the students and curriculum and they cannot get full awareness about their use. Some of the teachers shows negative attitude about the use of CALL technology because of lack of awareness of CALL applications and their use in teaching English language.

#### **4.2.4 Students take more interest while learning through CALL**

The results of the thematic analysis of interview shows that teachers were happy while using CALL technology. They were of the views that teachers want to teach effectively and they wish to get desired results from students. Thus, the teachers observed that students take more interest while learning through CALL. Students enjoy learning through CALL because of its various applications. Teachers gave their views that CALL help students in learning English and they can improve their language competency. Teachers can assign students different tasks that they can do easily at home with the help of computers, internet and different software. Teachers believed that students take more interest in learning English because CALL technology facilitates their learning process and reduce stress and anxiety.

#### **4.2.5 To use CALL effectively, trainings and basic Computer knowledge is required which is need of hour.**

The finding shows that CALL is effective for teaching and learning but there is a need to give basic knowledge to teachers as well as students in order to get more benefit from CALL. Teachers were satisfied with the use of CALL technology but the teachers who are unaware of CALL applications they shows the desired to get basic knowledge of the computers. Some of the teachers gave

the suggestions that there should be awareness programs in universities and institutions about the use of CALL technology in learning and teaching practices. Teachers were also suggested that training sessions should be organized for teachers in order to train them and give them basic knowledge of the CALL applications which is a need of the hour.

#### **4.5.6 Teacher's opinion before and after using CALL for teaching practices**

Teachers were of the opinions before and after using CALL applications for teaching English as a second language were varied. Some teachers were in the favor of CALL applications for teaching practices because they believed that CALL applications facilitate their process of teaching and provide facilities to students as well. Some teachers had negative perception about the use CALL applications because of the lack of awareness and basic knowledge of CALL applications. They suggested that universities should provide teachers with basic knowledge and train their teachers for teaching through CALL technology. The teachers who were in the favor of CALL technology were of the views that CALL applications saves their time and energy and help them to clarify the concepts to students by using different audio and video applications of CALL.

## **5. Discussion**

Computer Assisted Language Learning (CALL) research has been going on for many decades to investigate the use of CALL in various contexts and different languages all across the world. The use of CALL applications in learning and its potential in the field of learning and teaching English as a second language has been documented and discussed by number of researchers. Some of them are: Robert (2000), Ayres (2002), Schwenhorst (2002), and Cushion & Dominique (2002), (Jung 2002), Fenfang (2003). For many years second language teachers had used the computers to offer supplemental exercises but currently because of the development in technology teachers began to acquire the use of computers as an important part of second language learning and teaching on daily basis. The findings of the studies conducted by above mentioned researchers had shown that computer based instruction/teaching often produce positive impact on second language teaching and learning practices. Their studies covered the students of all level from primary to university level students. The findings of current study resembled with their findings and revealed the following discussed results:

After the analysis of collected data from teachers and students of university level, the researcher come to the

results that CALL technology has positive effect on students learning English as a second language. The finding of first research question shows that students positively improve students' learning English as a second language. Students prefer to use computers for improving their language proficiency. They believed that computer and other technological equipment facilitate the process of their learning and save time and energy. Students were of the views that technology provides them learning with entertainment because of its different functions and applications. Students take more interest while learning through CALL applications because of its audio-video and animated functions. By using different applications of CALL such as listening applications, students can enhance their listening and speaking skills.

After the analysis of second research question the researcher came to the results that teachers are in the favor of CALL technology for teaching and learning practices. Teachers said that CALL technology has changed the pedagogy. They were satisfied with the results of students who are using such technology. Teachers were of the views that CALL has altered the traditional teaching and provide up to date and latest ways of teaching which need of the hour is. Teachers believed that teaching through CALL is effective if the basic training and awareness of CALL applications are given to teachers as well as students. They gave the suggestions that teachers should be given basic knowledge of CALL applications so that they can get more benefits in improving students' performance in learning English as a second language.

## 6. SUMMARY, CONCLUSION AND RECOMMENDATIONS

### 6.1 Summary

The present study aims at exploring the effects of Computer Assisted Language Learning (CALL) by university students and teachers for improving English as a second language in Nawabshah. This study explains its purpose, importance, aim and objectives, research questions, and hypothesis. Initially, the researcher has reviewed more than fifteen literatures on CALL. This research describes the process of conducting research and within it has stated the tools to data collecting and technique to analyze data.

### 6.2 Conclusion

Technology is one of the most efficient tools of linguistic and social change. It has earned much significant in teaching and learning English as a second language. The researcher explains the core aim of the research i.e. to explore the effects of using technology or computer for

improving university students' learning English as a second language. The mixed method paradigm in which semi-structured interviews were conducted by fifteen English language teachers and a questionnaire was divided among 146 University students. After collecting and analyzing data the findings of the studies showed that students have positive attitude towards the use of computers and technology. The results also revealed that the more students using computers, the more they are increasing their language proficiency. Thus, to get more benefits from the use of CALL, students should be encouraged to increase their competency and teachers should be trained on how to use CALL technology for improving students' learning performance. Computers play an important role in developing academic skills of students. Teachers were of the perceptions that effective English language teaching demands CALL knowledge. The results of this study opened the paths for new researchers and are beneficial for policy makers to know the demand of current century and bring reformations in learning and teaching practices. Last but not least, it can be said that computers are worthwhile instrument and CALL is a motivating method to be used in learning and improving foreign or second language learning.

### 6.3 Recommendations

In the present era of modern world the field of computer assisted language learning (CALL) is in its permanent evolution that will reach the limits of intelligence and technology with recent innovations (Decloque, 2000). Therefore, the Pakistani government should take necessary measures to utilize the potential of the computer to enhance ESL education. The ministry of Education and higher education commission (HEC) Pakistan should continue the efforts to promote computer literacy for and teachers and students of English as a second language (ESL). Students should be provided with computer facilities and their knowledge. There should be awareness workshops and trainings for teachers to give them basic knowledge of technology in teaching practices.

### 6.4 Suggestions for further studies

The researcher suggested that there are number of institutions and universities in Pakistan that are using CALL technology for increasing student's performance but are unaware of its basic knowledge. Therefore, there is a need to have further studies on the basic knowledge of using CALL technology. More researches are required to elaborate which approach is suitable for using CALL technology in literacy development.

Future research is needed to study the impact of using CALL by taking gender into consideration. This sort of studies will shed light on the difference of male and

female's learning performance and understanding of their attitudes towards the use of CALL technology.

Further studies could be conducted on the use of CALL by comparing individual use versus classroom use. This type of studies will be helpful to understand the impact of CALL technology from specific to general. The researcher recommended for upcoming researchers that there is a need to study the field of CALL in its other aspects such as the impact of CALL technology on the learning performance of rural students in order to get benefit from the emerging field of CALL in the development of literacy rate in Pakistan.

The researcher further suggested that future researches should be done involving three main objects, teachers, students and curriculum. This sort of studies will be helpful for students to improve their learning performance, teachers can improve their teaching strategies by using CALL technology and curriculum designers can better understand the requirements of students in order to design effective curriculum.

## References

- [1] AlaaEldin, A. (2011) The impact of using computers on enhancing EFL writing skills. M.A thesis Sudan University of Science and technology
- [2] Baltova, I. (1999) Multisensory language teaching in a multidimensional curriculum: the use of authentic bimodal video in core French. *Canadian Modern Language Review*, 56, 31-48.
- [3] Beatty, K. (2003) *Teaching and Researching Computer-Assisted Language Learning*. London: Pearson Education Limited.
- [4] Bland, S. K., J. S. Noblitt, S. Armington and G. Gay. (1990) The naive lexical hypothesis: Evidence from computer-assisted language learning. *Modern Language Journal*. 74.440-450.
- [5] Brett, P. (1997) A comparative study on the effects of the use of multimedia on listening comprehension. *System*, 25, 39-53.
- [6] Brown, D. (2000) *Principles of Language Learning and Teaching* (4th ed.). San Francisco State University: Longman.
- [7] Bush, M.D., R.M. Terry (1996) *Technology Enhanced Language Learning*.
- [8] Chapelle, C. A. (2001) *Computer Applications in Second Language Acquisition: Foundations for Teaching, Testing, and Research*, Cambridge: Cambridge University
- [9] Chapelle, A. Carol. (2001) *Computer Applications in Second language Acquisition: Foundations for teaching, testing and research*. Cambridge: Cambridge University Press.
- [10] Chapelle, A. Carol. (2007) *Technology and Second Language Acquisition*. *Annual Review of Applied Linguistics: Language and Technology*, An Official Journal of the American Association for Applied Linguistics, (27), 98-114. Cambridge: Cambridge University Press.
- [11] Chung, U.K. (1994) The effect of audio, a single picture, multiple pictures, or video on second-language listening comprehension (Unpublished doctoral dissertation). University of Illinois at Urbana-Champaign, Illinois.
- [12] Creswell, J.W., & Clark, V.L. (2007) *Designing and Conducting Mixed Methods Research*. London: Sage Publications.
- [13] Davies, G., Walker, R., Rendall, H. & Hewer, S. (2009) *Introduction to Computer Assisted Language Learning (CALL): Module 1.4*. Davies G. (Ed.) *Information and Communications Technology for Language Teachers (ICT4LT)*, Slough, Thames Valley University [Online]. Retrieved from: [http://www.ict4lt.org/en/en\\_mod1-4.htm](http://www.ict4lt.org/en/en_mod1-4.htm)
- [14] Frank, V., Golonka, E., Bowles, A., Becker, E., Freynick, S., & Richardson, D. (2008) *Optimal foreign language learning: The role of technology*. College Park, MD: Center for Advanced Study of Language at the University of Maryland.
- [15] Garrett, N. (2009) Computer-assisted language learning trends and issues revisited: Integrating innovation. *The Modern Language Journal*.
- [16] Graddol D. (1997) *English History, Diversity and Change English Language: Past, Present and Future*
- [17] Hagen, S. ed. (1993) *Using Technology in Language Learning*. London: City Technology College Trust Limited.
- [18] Hanson-Smith, E. (1997) *Technology in the classroom: Practice and promise in the 21st century*. TESOL Professional Papers, 2 Alexandria, VA: Teachers of English to Speakers of the Other Languages.
- [19] Hewer S. & Davies G. (2000) *CALL Methodology: Integrating CALL into Study Programmes*. Module 2.1 in Davies G. (ed.) *Information and Communications Technology for Language Teachers (ICT4LT)*, Slough, Thames Valley University [Online]. Retrieved from: [http://www.ict4lt.org/en/en\\_mod2-1.htm](http://www.ict4lt.org/en/en_mod2-1.htm)
- [20] Higher Education Commission Pakistan. (2007) *Computer Assisted Language Learning (CALL)*. Retrieved from: <http://www.beta.hec.gov.pk/QALI/call.htm>
- [21] Hegelheimer, V., & Tower, D. (2004) Using CALL in the classroom: Analyzing student interactions in an authentic classroom. *System*, 32, 185-205. doi: 10.1016/j.system.2003.11.007
- [22] Hughes, J., Thomas, R., & Scharber, C. (2006) Assessing technology integration: The RAT -replacement, amplification, and transformation - framework. *Technology and Teacher Education Annual*, 3, 1616-1620.
- [23] Hulstijn, J. (2003) Connectionist models of language processing and the training of listening skill with the aid of multimedia software. *Computer Assisted Language Learning*, 16, 413-425.
- [24] Joshi, C. (2009) A paradigmatic shift of traditional language learning to computer assisted language learning (CALL). *International Research Journal*, 1, 73-76.
- [25] Levy, M. (2009) Technologies in use for second language Learning. *The Modern Language Journal*, 93(s1), 769-782
- [26] Mayer, R.E. (1997) Multimedia learning: are we asking the right questions?. *Educational Psychologist*, 32, 1-19.
- [27] Mayer, R.E. (2001) *Multimedia learning*. Cambridge, UK: Cambridge University Press.
- [28] O'Bryan, A., & Hegelheimer, V. (2007) Integrating CALL into the classroom: the role of podcasting in an ESL

- listening strategies course. ReCALL, 19, 162-180. doi: 10.1017/s0958344007000523
- [29] Oxford, R. L., Rivera-Castillo, Y., Feyten, C., & Nutta, J. (1998) Computers and more: Creative uses of technology for learning a second or foreign language. Paper presented at the Conference Educational Technology in Language Learning, Theoretical Considerations and Practical Applications, Lyon, France.
- [30] Oxford, R.L. (2001) Language learning styles and strategies. In M. Celce-Murcia (Ed.), *Teaching English as a Second or Foreign Language* (pp. 359-383). Boston, MA: Heinle, Cengage Learning.
- [31] Pallant, J. (2005) *SPSS Survival Manual: A step by step guide to data analysis using SPSS version 12*, Maidenhead: Open University Press.
- [32] Raschio, R. (1990) The role of cognitive style in improving computer-assisted language learning. *Hispania*, 73 (2), 535-541.
- [33] Richards, J. (1990) *The language teaching matrix*. Cambridge, UK: Cambridge University Press.
- [34] Salaberry, R. (2001) The use of technology for second language learning and teaching: a retrospective. *The Modern Language Journal*, 85, 39-56.
- [35] Stockwell, G. (2007) A review of technology choice for teaching language skills and areas in the CALL literature. *ReCALL*, 19, 105-120. doi: 10.1017/s0958344007000225
- [36] Tabassum, R. (2004) *Effect of Computer Assisted Instruction (CAI) on the Secondary School Students' Achievement in Science* (Doctoral dissertation). University of Arid Agriculture, Rawalpindi. Retrieved from: <http://pr.hec.gov.pk/thesis/1397.pdf>
- [37] Talat, M. (2002) *The Form and Function of English in Pakistan* (Doctoral dissertation). Bahauddin Zakariya University, Multan. Retrieved from: <http://pr.hec.gov.pk/thesis/1191.pdf>.
- [38] Warschauer, M. (1996) *Computer Assisted Language Learning: An Introduction*. Retrieved from: <http://www.ict4lt.org/en/warschauer.htm>
- [39] Zheng, H., Han, L., & Guo, J. (2009) Evaluation of factors affecting the efficacy of English listening comprehension based on CALL. *Computational Intelligence and Software Engineering*, 1-4. doi:10.1109/cise.2009.5364806