The Impact of Computer Assisted Language Learning on Low Proficiency ESL Undergraduates' Development of the Present, Past and Future Tenses

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ABSTRACT

This study involved a quasi-experimental research to explore the potential of Computer Assisted Language Learning (CALL) on improving the grammar skills of a set of first year Arts undergraduates in a Sri Lankan state university. The 32 participants were selected using the convenience sampling method and a causative analysis was done using the qualitative approach to data tabulation. The students were exposed to a supplementary custom-designed online grammar course covering the present, past and future tenses used in the English language several weeks after they had been exposed to them in a traditional English as a Second Language (ESL) classroom setting. Descriptive statistics were used in order to tabulate the data and given the nature of this experiment, which used a single sample to measure the effect of the two variables: CALL and proficiency, the dependent samples t-test was chosen as it is appropriate for making independent observations within a particular group. This statistical testing method compared the two sets of scores in the pretest and posttest administered to the students just before the commencement of the online CALL course and upon the completion of it, respectively. The pretest average mean score showed that inspite the fact that students had been taught the basic tenses, they still had not been able to fully grasp it. Nevertheless, the additional input provided by the online intervention made a statistically significant difference in the posttest average mean score demonstrating the potential of well-designed CALL activities in enhancing L2 proficiency levels- in this case the knowledge of the basic English tenses- further than what was expected through mere teacher-fronted instruction.

Keywords: Computer-Assisted Language Learning, English as a Second Language, Grammar Based Instruction, Information Communication Technology.

1. Introduction

Information and communication technologies (ICT) have indubitably contributed in augmenting our living standards as a result of its ubiquitous presence in 21st century living. ICT , as an umbrella term, is defined as a "diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information" (Blurton, 1999) and they include the internet, broadcasting technologies (radio and television), wireless

networks, telecommunication and related communication mediums. Out of these technologies, in recent times, much attention have been paid on incorporating the use of computers and the internet for educational purposes. In fact, according to Haddad and Draxler (2002), there are at least five levels of technology use in education; these include the use of ICTs for presentations, demonstrations, drill and practice activities, human interactions and collaborations.

Although in developing countries such as Sri Lanka the use of ICT is comparatively minimal, there is no denying the fact that they have infiltrated the higher education system at a rapid pace. Taking the Sri Lankan higher education system, for example, all universities have computer laboratories which can be accessed by students who also have the option of following computer literacy courses offered by these institutions. Even before entering the tertiary education system, exposure to ICT among the younger generation of Sri Lankans is obvious. In fact, considering the Computer Literacy survey conducted by the Department of Census and Statistics in Sri Lanka for the year 2016, out of the 28% of computer literate Sri Lankans, the majority came under the age category of between 15 to 19 years with a percentage of 63 computer users. De silva (2013) who studied computer literacy among Sri Lankans noted that the highest level of computer literacy was evident amongst the age group of individuals between 18 to 24 years. He stated that this particular set comprised of approximately four thirds of the total population of computer literate people in Sri Lanka. The researcher continued to state that "since the percentage of youth who have never used a computer is as low as 6 %, it can be acknowledged that almost 94% of youth use computers regularly for their daily work." (p.38). These types of ICT surveys conducted in the country can be regarded as eye-openers in the sense that they exemplify the rapid infiltration of ICT in the Sri Lankan community -especially among the youth.

Given that most Sri Lankan millennials and postmillennials are proficient in using computer and related technologies, the higher education sector should consider the possibility of integrating them into the system so as to enhance and broaden students' educational experience.

1.2. Background

Since the focus of this study is on Arts undergraduates who are struggling to acquire the second language -i.e., English (which is used as the official language, language of business, language for higher education (for the most part) apart from its function as the lingua franca adopted as the medium of mutual communication among the different communities speaking either Sinhala or Tamil as their first language) a cursory glance at Sri Lankan tertiary level university education is required.

Considering the 15 state universities in the island, there is – invariably - a notable penetration of the use of ICTs for teaching and learning especially with regard to the subject streams that use the English medium for purposes of delivery. By virtue of the constant exposure to the target language throughout the academic process, graduates mostly

belonging to the fields of Medicine, Engineering, and Science tend to be proficient users of the English language. Nevertheless, at the universities which have Arts Faculties there is a marked lack of competent English language users. This is mainly due to the fact that a majority of the Arts undergraduates follow their degree programmes in their mother tongue; i.e. either Sinhala or Tamil. As a result, the focus on acquiring the English language is considerably lessened. The problem with this context is that by the time they graduate, these individuals often face the challenge of procuring employment due to their poor English levels and end up becoming a burden to the government who is wrested with the responsibility of granting them state employment, notably in government schools as teachers.

In order to come up with a solution to the overarching problem of unemployed/underemployed undergraduates, the Arts faculties have made an effort to teach the second language to the Arts undergraduates through the establishment of English Language Teaching Units/Departments. However, limited contact hours for English, inadequate resources, poor administrative support and low motivation levels of the learners have continued to stand in the way of producing Arts graduates who are well versed in the L2

For example, the "Grandaunt Employment Census- 2012" (Ramayakake, Porage, Jayamanne & Muttetuge, 2012) which revealed insights into the employability of graduands using the target population of graduands in all Sri Lankan government universities demonstrates this issue well. In the survey employing 16,967 degree holders with an overall response rate of 91%, it was found that the percentage of Arts graduands who had been employed within a year of completing their degree programme was as low as 32% with the highest employment rates obtained by Engineering graduands (95%) (p.6), followed by IT (93 %), Medicine (91 %), and Science (71 %) graduands respectively. Furthermore, from out of the extremely low percentage of Arts graduands who had procured employment, 13% fell into the category of the underemployed meaning that, technically speaking, only about one fourth of Arts degree holders had procured suitable employment (p.7) several months after passing out. Ultimately, the research findings of the above study culminated in the overarching conclusion that "There seems to be a positive relationship between the percentage employed and the English proficiency" (p. 9)

Nevertheless, during the past few year, as an academic entrusted with the task of teaching English as a Second Language (ESL) to Sinhala medium Arts undergraduates, it has become apparent that these learners, who are invariably drawn towards ICT in general, can be motivated to use it for academic purposes (Embogama 2013). Given the fact that a large number of studies have been conducted in order to demonstrate the benefits of adopting Computer Assisted Language Learning (CALL) practices for language development (ref. Kulik & Kulik who surveyed 500 studying the impact of technology on language development), it was considered as a possible solution to rectify the issue of incompetent speakers and users of English among Arts graduates. Hence, the researcher was driven to conduct this experimental study on the effect of CALL among students in the Sri Lankan

Arts faculties where there is the least presence and the least motivation to develop the target language (TL).

1.3 Computer-Assisted Language Learning (CALL)

Since the focal point of this research is to study the impact of CALL on English as a Second Language (ESL) learners with special emphasis on pedagogy, an awareness of the concept of CALL is required. The acronym CALL (Computer Assisted Language Learning) seems to have originated in the early 1980s and researchers in this field have located its initial use in a conference paper presented by Davies & Steel (1981). From this point onwards, CALL has become a field worthy of being studied autonomously and have been recognized as the formal acronym used for studies related to technology use and language learning. With time, several other acronyms such as CALT (Computer Assisted Language Teaching), TELL (Technology Enhanced Language Learning), MALL (Mobile Assisted Language Learning) , CELL (Computer Enhanced Language Learning) , CMC (Computer mediated Communication) emerged as offshoots of this term.

An often quoted definition for Computer Assisted Language Learning (CALL) was presented by Levy (1997) who states that it is "the search for and study of applications of the computer in language teaching and learning". Yet another succinct definition rendered for CALL is given by Beatty (2003) whereby CALL is said to involve "any process in which a learner uses a computer and, as a result, improves his or her language" (p. 7). Although Beatty uses the word "computers" in her definition of CALL, this field has now come to encapsulate the use of associated computer technologies of all types such as laptops, mobile phones, tablet PCs, interactive white boards, iPods and MP3/ MP4 players for the purposes of developing L2 skills.

Even though Second Language Acquisition (SLA) theories consist of a large amount of theoretical frameworks, perspectives and applications, the ones related to technology enhanced learning/teaching are still quite ambiguous and volatile. However, it can be ascertained that CALL studies can never be described in isolation from Second Language Acquisition (SLA) theories and approaches since they are the backbone of all CALL related ones. Another noteworthy aspect of CALL is that it is an interdisciplinary subject, as a result, apart from being enriched with various theories and concepts from the field of Applied Linguistics, it also draws on fields such as Information Communication Technology (ICT), Instructional Design, Psychology, and Artificial Intelligence.

Although in many developed countries, the use of technology enhanced learning practices have contributed to the successful teaching and learning of the English language either as a second or as a foreign language, up-to-date, the purposeful and effective integration of Computer Assisted Language Learning into the English programmes remains at the very infantile stages.

1.4 Purpose of the study

This quasi-experimental research was conducted in order to discover empirical support for the claim that CALL can be used to develop a language more effectively instead of merely restricting language learning to the traditional classroom setup. To support this premise, an online English course was developed and delivered to a set of volunteer Performing Arts Sinhala medium undergraduates in order to evaluate their receptiveness to CALL and to find out how effective the systematic integration of a custom designed CALL programme can be in enhancing their English language skills: in this case, their usage of some basic English tenses.

Ultimately, the main research objective here was to assess the impact of CALL on the levels of improvement in L2 development among Sri Lankan arts undergraduates in order to justify the claim that CALL is indeed a powerful variable that can impact the acquisition of the target language (TL) in a context where there is minimal exposure or requirement for the development of the second language (L2) as a result of the study programmes being offered in the learners' first language (L1).

2. Method

In this study, the following research question was addressed:

1. Is there a statistically notable difference in the acquisition of some basic English tenses by a group of Performing Arts undergraduates after following a supplementary online CALL course as opposed to before its commencement?

To answer the above question, the causal research design was selected in order to conduct a small scale experiment on a volunteer group of Performing Arts undergraduates to study the actual impact of CALL usage and its outcomes. The administration of a short online English course and the use of pre/post testing contributed to understating the extent and nature of the cause-and-effect relationship of the use of technology and the development of L2 proficiency among these types of learners. Under this overarching research design, the quasi-experimental design was used as it is a prevalent method adopted in the Social Sciences and Humanities for studies in which laboratory controlled types of experiments are not practicable, feasible and/or ethical. According to DiNardo (2008), a quasi-experiment is an empirical study used to estimate the causal impact of an intervention on its target population without random assignment.

2.1 Sampling

Students were informed about the study and provided the required information regarding it before volunteers were requested to enroll in the short term CALL course on the present, past and future tenses. Although 56 students expressed their willingness to try out the course offered to them as a supplementary one, only 32 of them were shortlisted for data

collection since the inclusion criteria required that the necessary exposure to the CALL course was required in order to obtain proper data from them. Hence, the record of online participation in the course should have indicated a minimum of 30 hours spent on accessing the online course inorder for him/her to be included as a participant of the experimental group.

The sampling criteria for the study were:

- The participants had to be first year students following the Bachelor of Performing Arts (Honours) degree programme.

- They needed to belong to the group of students who had obtained between 24% to 35% marks at the English Placement Test which was administered just before the commencement of the academic year 2013/14.

- All participants who volunteered to be part of the group should have followed the regular English lectures along with the rest of the members of the class with the only difference being that they were exposed to an online CALL programme on the same grammar topics that they had learnt in the form of a supplementary course.

- They ought to have spent at least 30 hours of contact with the CALL course.

The students in the group belonged to the ages of 20 or 21. There was difficulty in maintaining a gender balance within the group since the majority of Performing Arts undergraduates at the University where the study took place were females. Hence, a 6:1 girl: boy ratio was present for the registered members. This difference, however, was not a very significant one according to the study requirements.

2.2 Study Setting

The setting for the study was at the University of the Visual & Performing Arts (UVPA) in Colombo 7, Sri Lanka. The University was formally considered as a Sri Lankan state university in 2005. This public university offers more than 112 academic undergraduate programmes (in addition to several graduate programmes) in its 45 departments of study. It provides academic service to approximately 3800 students at the undergraduate level and is acknowledged as the only university in Sri Lanka to be exclusively dedicated to offering honours degrees in selected fields of study in the Visual and Performing Arts.

All students at the UVPA have the opportunity of following a Computer Literacy Course and an English Proficiency Course during their four-year academic period. Given the significant amount of time that is devoted to the teaching of the basic English tenses using a grammar-based teaching (GBT) approach during the first year of the English programme, a decision was made to select the most commonly used English tenses covering the past, present and future times as topics that would be used for the online course that was hosted on the university's Learner Management System (LMS).

By the time the course was introduced, participants had already learnt the present, past and future tenses by attending traditional English classes that were held throughout the academic year for once a week during a period of two hours. This was in addition to their exposure to the L2, during the Intensive English course which was held for a period of two weeks with a total of 10 contact hours per week. All lectures were conducted by the staff of the English Language Teaching Unit of the UVPA.

2.3 Instruments used

2.3.1. The online course - Introduction to the Basic English Tenses (iBET)

A custom-designed short online course on the basic English tenses called " iBET" (Introduction to the Basic English Tenses) was created by the researcher and introduced to the volunteer participants. This course was supplementary to the general English programme that they were following at the time and was introduced to them towards the middle of the second semester.
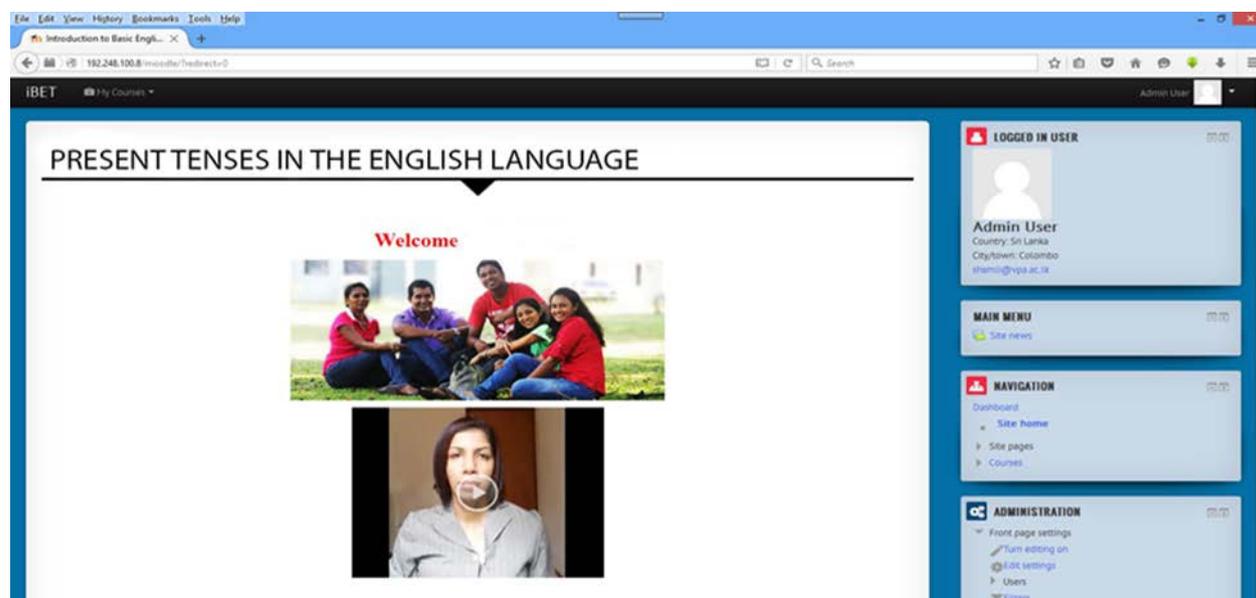

Fig. 1 Screenshot of one of the Present tenses module which includes an introductory video by the course instructor

2.3.2 Grammar Test design for the pre/post testing

In order to collect quantitive data, the pretest-posttest design was adapted for this quasi-experimental study using the sample population. Firstly, the pretest was conducted at the beginning of the CALL course for the students who had registered for the online English programme. The posttest was conducted soon after they completed the course which was kept open to them for a period of eight weeks. As this was an empirical research, causal

relationships were identified by observing the result of introducing an additional variable which should technically be under controlled conditions. In real life situations, this cannot be guaranteed fully even though the researcher can certify that the access to the online CALL course was only granted to the cohort by denoting user names and passwords for each registered individual.

The selection of the three main English tenses: Present, past and future, as the content to be tested was done because the undergraduates had already been exposed to these grammar topics during the ongoing English lecture sessions using the traditional method of face-to-face teacher-fronted and student-fronted interactions. This paper-and-pencil assessment consisted of a gap fill exercise which required learners' to select the most appropriate verb tense for each blank given and to conjugate the verb presented next to it correctly. Each blank that was correctly filled received one mark; thus, the paper carried a total of 30 marks. The students were tested for the application of "knowledge," "comprehension," and "application" as classified in Bloom's Taxonomy (1956) when completing these blanks. A structural as well as contextual knowledge of the tenses studied were required for them to obtain high marks. In fact, a full range of cognitive operations were called into play for the test as they required students to distinguish between the simple present tense, present continuous tense, past simple tense, past continuous tense, future simple tense and future continuous tense. They had to decide on the time of the utterance based on contextual clues, consider the nature of the verb to be used, think of the subject verb agreement, select either the simple or continuous form and write the correct conjugation of each verb based on all of the above considerations.

2.4 Procedure

The quasi-experiment was conducted by using an online platform which means that it took place in an intangible environment since students logged into the course from their own personal computers, smart phones or by accessing it from any one of the computers that were situated in the university's computer laboratories or the language learning laboratory during a time which was convenient for them. In order to engage in a correlation study of the level of English language development that took place prior to and after the completion of the CALL course, a test was developed to assess what was taught during the online course. This assessment was used as the pre-test which evaluated the level of knowledge of the tenses that were taught during the English course prior to the implementation of the online course. Subsequently, the same test was readministered once the online intervention was complete. After a period of eight weeks, it was possible to establish the effectiveness of the online programme by determining if there was a statistically significant increase in the group's English skills with regard to the topics they had learnt.

The statistical analysis was conducted using the Statistical Package for Social Sciences (SPSS). Even though there are several statistical methods recommended for analyzing pretest and posttest data such as Analysis of Variance (ANOVA), Analysis of Covariance

(ANCOVA) and Repeated Measures ANOVA, for the statistical analysis of this particular pre/posttest data set the Paired Samples *t*-test was chosen. This was mainly due to the reason that the other types of analysis mentioned above involves more than one sample in the study with several variables, whereas, this particular experiment involved a single sample which required the use of the Paired Samples *t*-test, otherwise known as the Dependent Samples *t*-test. In addition, this type of statistical analysis is most appropriate for making before-and-after observations on the same subjects as was done in this particular instance where the undergraduates were tested prior to and subsequent to following the CALL grammar course. Given that the analysis of the two variables concerned looked at the variations in scores that were generated by the same instrument, i.e. the test, with regard to the achievement measures of the assessment, this type of statistical analysis facilitated the measurement of the improvement of proficiency levels with regard to the learners' use of the present, past and future tenses by studying the difference in the overall mean scores. Obviously, higher scores in the posttest indicated higher levels of knowledge acquisition.

According to statisticians, before conducting a Paired Samples *t*-test, four assumptions have to be met. The following details the manner in which the data used in the study were tested in order to discover if the required assumptions were met:

1. The dependent variables used for the study must be on a continuous scale.

Since the variables were measured using interval scales by selecting the test scores (measured from 0 to 30) to measure exam performance, this criteria was met. Moreover, the scores were produced from the same instrument; therefore, it does provide continuous data.

2. The test should facilitate dependent observations.

By virtue of the fact that the same participants attempted the pretest and posttest and each one's scores were paired/matched by virtue of the fact that s/he was measured on the same dependent variable on two consecutive occasions, this assumption was met.

3. There should be normal distribution of the differences in the dependent variable, i.e., the test scores.

Using the SPSS software, the test for normalcy was conducted for this particular data set in order to check for compatibility with this particular assumption. Considering that the skewness was .41 and the Kurtosis was –.35, these statistics were less than the maximum allowable values for the *t*-test (i.e., skew < *2.0* and kurtosis < *19.0*; Poston, 1984). Therefore, we can confirm that the difference between the pretest and posttest scores were normally distributed.

Moreover, the test for normalcy using the Sheprio-wilk gave the P value of .27 which meant that it was not a statistically significant value given that the alpha was set at .05. As a result, this figure also suggested that the data were normally distributed.

Finally, the normal Q-Q plot of Difference presented below also justified the above claims of normalcy as the dots appeared fairly close to the linear line indicating that the data were normally distributed.
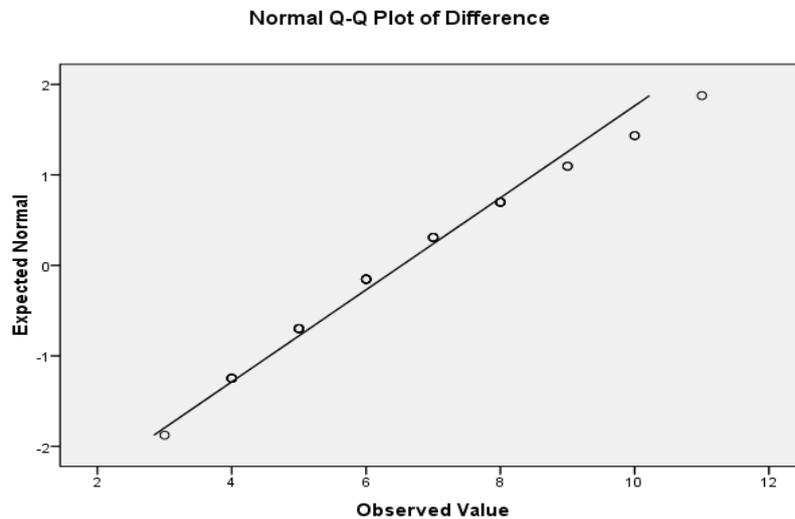

Fig.2 Q-Q plot of difference

Given the above validations, it is possible to state that the assumption of normalcy was satisfied and that the quasi-experiment was performed with normally distributed differences.

4. The final assumption for conducting a paired samples t-test is that there should be no significant outliers in the differences between the two related variables. To detect outliers, the following Box Plot was generated on SPSS.
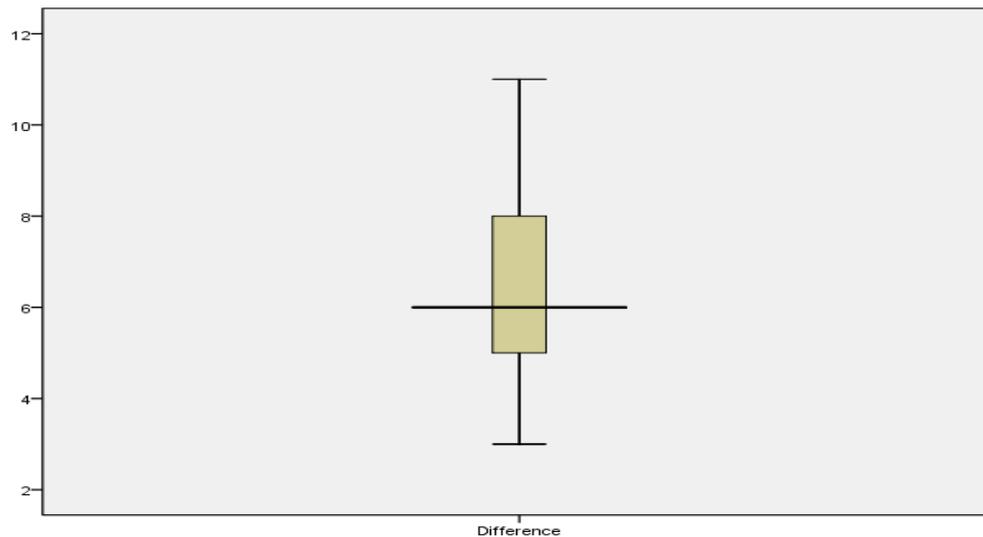
Fig.3 Box plot to detect outliers in the difference

As can be seen, there were no points plotted above the top whisker or any such points visible below the bottom whisker. Consequently, it is possible to claim that there were no outliers in the dependent variable used for this study.

Having tested the data to decide if the dependent samples t-test was appropriate for this particular tabulation by checking to see if all required assumptions were met, it was concluded that this type of statistical analysis was indeed suitable to be used in order to generate valid data which could be used to test the hypothesis.

Similar to many statistical procedures, the paired sample *t*-test requires the formation of two competing hypotheses, the null hypothesis and the alternative hypothesis. Here, the null hypothesis assumed that the true mean difference between the paired samples is zero. Under this model, all observable differences have been explained by random variation. Contrariwise, the alternative hypothesis presumed that the true mean difference between the paired samples was not equal to zero. The dependent variable - in this case the test marks - were measured on two different occasions with the intension of deciphering whether there was statistical evidence to prove that the mean difference between the paired observations on the final marks was significantly different from zero. Here, what the researcher expected was to find out if the introduction of technologically enhanced learning practices would lead to a notable improvement in the students' knowledge of the particular topics that were covered during the online lessons by comparing the two means obtained for the pretest and posttest marks.

3. Data Analysis

In the study, the two different English proficiency levels were between-subjects variables, and the time of observation was regarded as the within-subjects variable. There was one

performance measurement in the form of a fill-in-the-blanks exercise testing the students' skills on the selected English tenses. Ultimately, the dependent samples *t*-test looked at the changes in study participants' performance over time to measure the impact that CALL would generate in developing a particular aspect of the target langauge.

The research question in this study interrogates about the existence of statistically significant differences ($\alpha < .05$) between the students' achievement mean scores in the grammar test attributed to the intervention done in the form of introducing a computerized instructional method of teaching ESL. The table below presents the means and standard deviations of the experimental groups' performance in the posttest and the pretest.

Table 1.

Descriptive Statistics of the Average Mean Scores from the pre/post tests

	Mean	N	Std. Deviation	Std. Error Mean
Posttest	22.56	32	2.906	.514
Pretest	16.91	32	2.570	.454

As indicated in Table 2, the difference between the two mean scores in the achievement test of the target group when comparing the overall mean scores for the pretest which stood at 16.91 (out of 30) with that of the total mean scores for the posttest which was 22.56 was 5.66.

A graphical representation of the means and adjusted 95% confidence intervals (Loftus & Masson, 1994) is displayed in Figure 4.
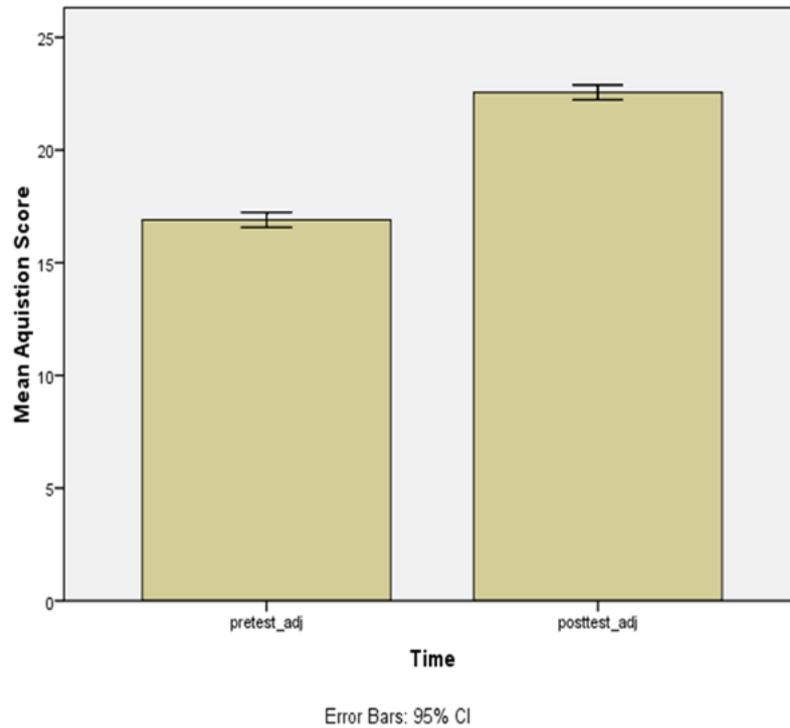
Fig 4. Resilience means and 95% confidence intervals (CIs) associated with pre and post testing conditions

Given these findings which demonstrate a higher average mean score of achievement at the posttest, it is possible to reject the null hypothesis in place of the alternative hypothesis, which was the desired expected result of the experiment.

Table 2. Descriptive Statistics and Dependent t-test for Difference Means in Students' Achievement in the tests

| | Paired Differences | | | | | | | |
| | | | | 95% Confidence Interval of the Difference | | | | |
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Posttest – Pretest	5.656	1.825	.323	4.998	6.314	17.535	31	.000

There was a significant difference in the mean scores for pretest and posttest conditions resulting in the rejection of the null hypothesis of equal resilience means; t(31)=-17.54, p <.005. It should also be noted that the correlation between the two conditions was estimated at r = .77, p <.005, suggesting that the dependent samples *t*-test is appropriate in this case. Thus, the post-intervention average mean score was statistically significantly higher than the pre-training average mean.

The significance of the 2-tailed test column above is that it demonstrates the probability of sampling error according to the results (p<.005) where by the p value indicates the probability outcome. This column stipulates the extent of the probability that sampling error could account for the results (assuming that the null hypothesis is true). Given that the value generated was zero, we can state that the results did not occur due to error in sampling. As the p value was lower than .005, it was possible to reject the null hypothesis in place of the alternative hypothesis which was in fact the expected outcome of this quasi-experiment. Moreover, as was expected, the t- value took on a positive value (17.54) which in this case was the expected outcome as higher marks were expected of the posttest than at the pretest.

In order to calculate the effect size of the CALL intervention, Cohen's *d* was calculated and estimated at 2.06. This is a large effect based on Cohen's (1992) guidelines (when the effect size value is less than .20 it is a small effect, when it is around .50 it is a medium effect and when it is .80 or more it is a large effect). Therefore, it can be concluded that the magnitude of the difference between the pretest and posttest scores was a large effect further substantiating the claim that the CALL intervention had a significant impact on the learner's English development.

4. Discussion

The above findings suggest that CALL really does have a significant effect on L2 proficiency development. Specifically, these findings suggest that when students are exposed to technology enhanced learning practices, their ability to use the present, past and future English tenses improve in a statistically significant manner.

When comparing the results of this study with the results of the previous related literature, we find that this study is consistent with other studies that have been conducted in order to demonstrate the potential of using ICT for teaching ESL. For example, it is consistent with Gillespie & Mackee (1999), Kulik & Kulik (1991), Nutta (1998), Liou, Wang & Hung-Yeh (1992), Torlakonic & Deugo (2004), Garcia & Aries (2000), Al Rarf (2005) and Hegelheimer & Fisher (2006) who provids empirical support to validate the claim that computer-based instruction can improve learning the grammar of a second language. Just as with this study, the studies mentioned above conclude that technology enhanced methods of learning ESL are beneficial for students. However, the results of the present study are different from the results reported by Kilickaya (2005) who found no significant differences between the users of CALL and the students who followed traditional classes with regard to their success at the TOEFL examination.

One possible explanation for this large effect of using computers for teaching English - in this case, three main English tenses- is that they enable each individual to work according to his/her own pace. In addition, another reason for this noticeable effect could be attributed to the exposure that CALL can offer in terms of providing additional input to the traditional methods of acquiring an L2. The fact that the course was tailor-made to suit the requirements of the students and included simple grammatical explanations given in both the first language (L1) and the target language (TL) would have defiantly contributed to its success. Additionally, the users might have been drawn towards the attraction of the online course which offered them multiple modes of learning such as through audio explanations, video content, presentation modes, asynchronous discussions, supplementary material, online exercises and links to other language learning websites.

In fact, using the computer gives the student the chance to an enhanced sensory experience during the learning process since the computer screen is accompanied by auditory and visual stimulation in the form of animations, pictures, colors, music and sounds which manage to keep the learners interested in the educational activities. Additionally, these students were not restrained by temporal and spatial elements which are regarded as one of the obvious benefits of CALL. If the required resources such as a computer/smartphone with access to the internet is available, as in this case, there is no restriction to engage in developing language skills using any of the unlimited array of ESL materials available in an intangible format.

The notion that students generally feel empowered to express learner autonomy in the learning experience could also have caused such a positive outcome. During the CALL exposure they not only had the freedom of engaging in ubiquitous learning but also had the choice of selecting what topics they prefer to follow and what components they wish not engage in. The ability to empower the students by granting them learner autonomy is a crucial factor in technology-enhanced learning practices.

Another possible explanation for the considerable differences in the overall mean scores is that the computerized instructional method, unlike the contemporary method, enables the students to get feedback easily thereby resulting in the development of self-efficacy of the learners. The concept of self-efficacy is prevalent with regard to the motivational aspect of L2 learning. According to motivational theorists, increased self-efficacy invariably leads to improved motivation to acquire a second language.

Also, since some of the activities introduced in the course were interactive, learners would have not experienced the isolating effects of technology usage as they were able to engage with other participants and the teacher through the synchronous and asynchronous communicative platforms which can be added to online activities. Also, students have the added benefit of communicating with the teacher through the discussion forum and chatting facilities included in the course in order to clarify any ambiguities. At the same time, peer learning also occurred through these modes of interaction. Even shy students who are reluctant to communicate in class had the opportunity of interacting with the teachers and their peers since the computer acts as a nonjudgmental mediator in the process.

Most online exercises are corrected through automated mechanisms so immediate correction and feedback are present. Apart for this, exercises can also be done repeatedly for reinforcement and various types of exercises on the same topic are freely available as well. These benefits of CALL may have had a impact on the development of the skills that were taught online as well.

In sum, all the above mentioned factors could have contributed to the enhancement of proficiency levels of the L2 students following the intervention whereby they underwent a CALL course online as a means of developing their second language skills by resorting to the added exposure provided through technology-enhanced learning practices.

5. Conclusions and Recommendations

By virtue of the above findings, it can be fathomed that adult ESL learners with very limited exposure to the language can acquire it more efficiently and effectively through the adaptation of technology for L2 learning purposes. Therefore, the findings of this study could be helpful to prove the positive outcomes of adapting CALL in learning English by Sri Lankan ESL Arts undergraduates. Nevertheless, since only a particular aspect of the English Language was studies via computer during the experiment, generalizations should be made with caution. In fact, more longitudinal research is needed in order to determine the effectiveness of CALL in English language acquisition.

Inspite of this, as the findings of this study reveal, the computer as a tool can indeed be helpful to scholars who wish to increase their L2 proficiency. Such a premise can be reached as the statistical analysis of the data indicate that acquiring language skills, in this case certain English tenses, through CALL can be productive in improving learners' proficiency in the target language.

Finally, while recognizing that there are multiple variable factors for the successful acquisition of a second language -for instance, individual, social, cultural and economic conditions- the researcher is highly optimistic that the incorporation of Computer-Assisted Language Learning practices into ESL programmes can vastly benefit the development of English language skills of low proficiency ESL students who have limited exposure to acquire the target language effectively.

REFERENCES

Al, Jarf. 2005. The effects of online grammar instruction on low proficiency EFL college students' achievement. *Asian EFL Journal* 7(4), 166-190.

Ayres, R. 2002. *Learner attitudes toward the use of CALL, Computer Assisted language learning*, 15(3): 2, 1-249.

Beatty, K. 2003. *Teaching and researching computer assisted language learning*. New York: Longman.

Bloom, B. S. 1956. *Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain*. New York: David McKay Co Inc.

Blurton, C. 1999. "New Directions of ICT-Use in Education". Retrieved from: http://www.unesco.org/education/educprog/lwf/dl/edict.pdf [accessed August 13, 2015]

Cohen, J. 1992. A power primer. *Psychological Bulletin*, 112(1), 155–159

Computer Literacy Statistics. 2016. Department of Census and Statistics, Sri Lanka. January - December – 2016. Retrieved from: http://www.statistics.gov.lk/education/ComputerLiteracy/Annual%20BuletinComputerLiteracy-2016.pdf [accessed July 08 2017]

De Silva, W. I. 2011. ICT exposure of Sri Lankan youth: a key for development. Retrieved from: http://archive.cmb.ac.lk/research/bitstream/70130/430/1/Abstracts%20%28dragged%29%206 [accessed April 21 2015]

Embogama, R.M.S.N. 2013. *Conceptualization of an Undergraduate Course for Teaching English to Performing Arts Students*, Master of Arts in Linguistics, University of Kelaniya, Sri Lanka.

Gillespie, J., & McKee, J. 1999. Resistance to CALL: Degrees of student reluctance to use CALL and ICT. *ReCALL, 11*(1), 38-46.

Graham and Steel. 1981. First steps in Computer-Assisted Language Learning at Ealing College of Higher Education. Paper presented at the CAL 81 Symposium, University of Leeds, 8–10 April 1981 Published as part of an article, "Micros in Modern Languages", *Educational Computing*, October 1982: 30-31.

Haddad, WAD. and Draxier, A. 2002. The Dynamics of Technologies for Education. In W.D. Haddad & A. Drexier (Ms.).*Technologies for Education: Potentials, Parameters, and Prospects.* Washington DC: Academy for Educational Development and Paris: UNESCO.

Hegelheimer, V. & Fisher, D. 2006. Grammar, writing, and technology: A sample technology-supported approach to teaching grammar and improving writing for ESL learners. CALICO Journal 23(2), 257-279. *CALL and teaching grammar*. Retrieved from: https://www.researchgate.net/publication/285592993_23_CALL_and_teaching_grammar [accessed May 24 2018].

Kulik, C. L., & Kulik, J. A. 1991. Effectiveness of computer-assisted instruction: An updated analysis. ***Computers in Human Behavior***, 7, 75-94.

Levy, M. 1997. *CALL:* Context and Conceptualisation*.* Oxford: Oxford University Press.

Liou, H.-S., Wang, S. H., & Hung-Yeh. 1992. Can grammatical CALL help EFL writing instruction? ***CALICO Journal*** 10(1), 23-43.

Loftus, G. R., & Masson, M. E. J. 1994. Using confidence intervals in within-subject designs. ***Psychonomic Bulletin & Review***, 1, 476-490.

Nutta, J. 1998. Is computer-based grammar instruction as effective as teacher-directed grammar instruction for teaching L2 structures? ***CALICO Journal*** 16(1), 49-62. *CALL and teaching grammar (PDF Download Available)*. Retrieved from: https://www.researchgate.net/publication/285592993_23_CALL_and_teaching_gr ammar [accessed May 24 2016].

Posten, H. O. 1984. Robustness of the two-sample t-test. In D. Rasch & M. L. Tiku (eds.), ***Robustness of statistical methods and nonparametric statistics***. Dordrecht: D. Reidel Publishing Company, 92-95.

Torlakovic, E. & Deugo, D. 2004. Application of a CALL system in the acquisition of adverbs in English. Computer-Assisted Language Learning, 17(2), 203–235. *CALL and teaching grammar)*. Retrieved from: https://www.researchgate.net/publication/285592993_23_CALL_and_teaching_gr ammar [accessed May 24 2016].