Computer Assisted Language Learning and Speaking Proficiency of Second Language Learners

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Abstract

This study determined the speaking proficiency of L2 learners undergoing a computer assisted language learning program in Southern Christian College in school year 2015-2016. It specifically aimed to find the weighted study score and speech recognition score of the students in the Job Enabling English Proficiency (JEEP) or DynEd class to identify their speaking proficiency and to determine whether their scores in JEEP Start are significantly related to their speaking proficiency. Fifty students were identified to participate through the lottery method. Their scores in the JEEP Start were summarized through descriptive statistical tools like percentage, frequency count, and mean; and their speaking proficiency was classified and encoded in a spreadsheet. The relationship between their scores and speaking proficiency was determined through regression analysis. Results revealed that the majority of the students had excellent WSS, and more than half of them had high speech recognition performance and were competent speakers of English. Further, the study found that speech recognition was a significant predictor of the students' speaking proficiency. Based on the results, the researcher concluded that CALL is an excellent approach for L2 learners to enhance their speaking proficiency.

Keywords: Computer assisted language learning, L2 learners, speaking proficiency, language proficiency, John Enabling English Proficiency

Introduction

The acquisition of a new language is affected by many factors. Although the teaching of language makes use of approaches based on learners' characteristics and needs, their preferences still change that consequently affect the efficacy of language teaching. In language learning, students are expected to master both written skills (reading and writing) and oral skills (listening and speaking). Teaching English as second language (TESL) by teachers around the world utilize many techniques to facilitate learning of English by non-native speakers. However,

despite the advent of new language teaching approaches, there remains the traditional teaching method that is book-based and teacher-centered. The written skills may be notably enhanced, but the oral skills get left behind because what most students learn is not put into constant oral practice (Renau, 2012).

Moreover, students tend to be strongly influenced by changes in the environment. The traditional dictation by the non-native teacher in oral communication, for example, does not become effective as students search for more interactive approaches. These traditional methods make acquisition and mastery of a new language slow and unremarkable; and when they leave school, these learners encounter difficulty in job placements, especially in the international market.

Two approaches that are considered effective are the English for specific purposes (ESP) and the computer-assisted language learning (CALL) (Arno-Macia, 2012). The former teaches students English according to the requirements of their field or job sector; the latter shifts the role of the teacher as being the only giver of knowledge to being a coach using computer software with native speakers as the model which makes language learning authentic and worthwhile. Koua (2012) in Hani Bani (2014) emphasizes that computer-assisted learning technology is deemed an ideal tool for language teaching and learning.

In some English as a foreign language (EFL) programs, computer programs may complement or completely supplant classroom instruction by providing instruction in a subject or skill not taught in the classroom. According to Nutta (n.d.) as cited in Soo and Ngeow (1996), students

at the University of Florida were satisfied with the computer-based instruction. They expressed a desire to spend more time every day using it. Students indicated that computer-based instruction (CBI) enables them to review the tutorial as many times as they wished, to proceed at their own learning pace, to record their voices and compare them against the model, and to get immediate feedback on the exercises.

Not only has CBI been found to facilitate student learning, but also to develop students' ability to learn independently, analyze information, think critically, and solve problems. Significant increases in students' reading speed and comprehension across studies of computer-assisted reading instruction have also been found (Bochniak, 2014). Further, computers have been found not only to promote visual, verbal, and kinesthetic learning, higher-level thinking, and problem-solving, but also to offer immediate feedback, hands-on learning, and collaborative instruction (Goldman, Cole & Syer, 1999; Smith, 2008; Al Abdel Halim, 2009; Turnbull & Lawrence, 2002 in Bani Hani, 2014).

Well-founded advantages may be stated, but the recent development of some speaking programs still offers limited functions. Warschauer (2004) in Lai and Kritsonis (2006) points out that a program should ideally be able to understand a user's "spoken" input and evaluate it not just for correctness but also for appropriateness. It diagnoses a student's problems with pronunciation, syntax, or usage and then intelligently decide among a range of options.

Over the years and with the observable limitations of CALL, innovations have been added like the intelligent tutor guide, which

gives immediate feedback on students' utterances. Further, Bani Hani (2014) reveals that teachers consider providing immediate feedback the most important advantage of the utilization of the computer in the English classroom. It has also been found that implementing CALL may initiate more interaction which will hopefully lead to the utilization of language as a means for communication.

In the Philippines, ESP and CALL are two approaches used by the Job Enabling English Proficiency (JEEP), a program under the Workforce Preparation of the Growth with Equity in Mindanao-3 (GEM), a project under the United States Agency for International Development (USAID).

Among the schools in the PALMA-PB municipalities (Pigcawayan, Aleosan, Libungan, Midsayap and Alamada, Pikit and Banisilan) in the province of Cotabato, Southern Christian College (SCC) was chosen by the USAID to offer the JEEP class since 2010. It is a program that teaches students to be proficient in English especially, in their listening, speaking, and reading skills, by providing resources and interventions. The proficiency that these interventions afford is just one way for the students to secure employment in the sectors requiring proficiency in the language use like nursing and allied health, hotel and restaurant management or travel and tourism (T&T), maritime, and business process outsourcing (BPO) or the call center industry.

JEEP features computer-assisted language instruction in the first phase and student-centered and job-directed language learning in the second phase. The first phase is the JEEP Start (JS) which is a computer-assisted instruction offered to second-year college students for two semesters. Their general language proficiency and communication skills – listening, speaking, and reading – are enhanced in this stage. The second phase is the JEEP Accelerate (JA) that is offered to all students who completed the first phase and also runs for two semesters. It is an ESP course that focuses on the skills needed to secure employment in their sectors. In SCC, the JA courses being offered are BPO, T&T, and English for international employment (EFIE).

Some of the JEEP students have manifested and expressed their appreciation for the program and its topics. However, other students point their difficulties in undergoing the programs. They admitted that they found them rigid and taxing to complete the required total time, reach a high weighted study score, get an excellent percentage in the mastery test and speech recognition lessons, and achieve a high level in the placement test. Nevertheless, teachers in other subject areas noticed an improvement of the students' command of the English language as well as confidence when they recited in class.

Since its implementation, SCC JEEP Start has become a subject of a few types of researches, but no ample research has been conducted yet as to the program being a tool for speaking proficiency of ESL learners in this part of the globe. This study investigated the speaking proficiency development of JEEP Start students through a standardized speaking test.

Framework of the Study

The study was anchored on Klein's interactionist theory on second language acquisition (SLA). It posits that acquisition

of language is organized around three dimensions: propensity, or necessity to acquire the language (related to factors such as motivation and education); linguistic faculty for learning that language (related to the learners' biological capacity and the knowledge at their disposal); and having access to that language (related to input and communication opportunities). These three dimensions are the conditions for learning to take place. Moreover, Klein's theory postulates that the process of learning also requires a sequence –time, a structure – order or path of learning, and a final state –which may not be coincident with the target language. The learners must also overcome four problems, which appear at the same time and have to be also solved at the same time with their knowledge of the world, the situation, and the contextual information. For analysis, the learner's segment acoustic signals are compared with the information they have from the context. For synthesis, the sounds and words the learners understood are combined to understand and produce/enunciate in the second language. Under embedding, those enunciates are identified in the situational and linguistic context. Lastly in matching, the learners compare their linguistic variety with the target language.

Further, Mackey and Gass (2006) in Chien (2011) indicate that interactionists claim, in addition to manipulation of input through interaction, learners need opportunities to receive corrective feedback for them to better regulate language production or output. There are several studies on the interactionist perspectives where SLA literature is anchored. Hsu (1994) in Chien (2011) interpreted learners' requests for help as a way for them to overcome the breakdowns in understanding what they experienceed when interacting with an aural passage.

Revisiting Ellis' (1999) work on interaction, Chapelle (2003) in Chien (2011) identified three types of basic interaction: interpersonal (between people), intrapersonal (within a person's mind), and that which occurs between a person and a computer (learner-computer). Drawing on interactionist SLA theory and CALL research, Chapelle (1999) suggested that interactions in CALL may be beneficial for language development if they focus the learners' attention on the input form, allow for modification so learners can focus on input form and meaning, and draw their attention to the form of their linguistic output in a way that leads to self-correction (Mills, 2000).

Although the study was anchored on interactionist theory, CALL could also be examined through the sociocultural theory. Cardenas-Claros and Gruba (2009) in Chien (2011) claimed that sociocultural theory is used as a frame for CALL through which the perspective of the novice-expert can be accounted. In this way, computer assisted language learning like DynEd could be seen as the experts who possess additional information a novice may need to understand the learning materials. As learners (novices) experience difficulties, they may request additional forms of enhanced input through CALL. Once learners are exposed to different forms of enhanced input, they would also perform better second language tasks.

Further, the current study was also anchored on DynEd's brain-based, blended approach to language learning built around a cognitive, neuroscientific learning theory called recursive hierarchical recognition (RHR). Conceiving that teaching English should be a brain-based approach, the

Independent Variable   **Dependent Variable**
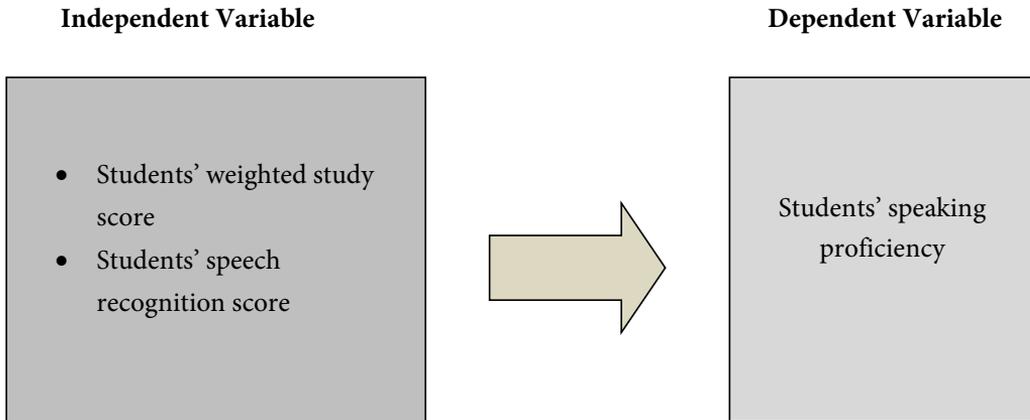
RHR is a learning theory that differentiates DynEd's blended approach from other computer-assisted language learning (CALL) approaches, which may or may not involve teachers and classroom support.

The above diagram served as a guide in the data analysis. It shows the relationship between the independent variable represented by students' weighted score and speech recognition score in JEEP Start and the dependent variable represented by their speaking proficiency. The arrow that is not directly attached indicates that the students' scores may or may not indicate their speaking proficiency.

Hypothesis

The following hypothesis was tested to find answers to the objectives of the study.

The students' speaking proficiency is not significantly influenced by their study scores and speech recognition performance.

Methodology

Participants

This study was conducted among the JEEP Start students of SCC for school year 2015-

2016. These are second-year college students taking up Bachelor of Secondary Education (BSEd), Bachelor of Elementary Education (BEEd), Bachelor of Science in Information Technology (BSIT), Bachelor of Science in Computer Science (BSCS), Bachelor of Science in Business Administration (BSBA), Bachelor of Science in Hotel and Restaurant Management (BSHRM), Bachelor of Science in Community Development (BSCD), and Bachelor of Science in Extension Education (BSExEd). Of the total 484 students under the JEEP Start program for two semesters in SY 2015-2016, 50 students were selected through lottery sampling.

Instrument

The study made use of the IELTS speaking test where each student underwent three parts: part 1, a four to five-minute discussion of (a) either their hometown, work, or study and (b and c) two more topics; part 2, a one to two-minute discussion of a topic given by the examiner/interrater; and part 3, a three to four-minute discussion of a follow-up question to part 2. Since DynEd courses have been designed to match with international testing standards like the International English Language Testing System (IELTS) and the Test of English as Foreign Language (TOEFL), the study used the IELTS speaking band descriptors as assessment criteria where one is the lowest and nine is the highest. Each band score has specific descriptions serving as an assessment

Table 1

A Weighed Study Score of Students in JEEP Start SY 2015-2016

Weighted Study Score	Frequency (n = 50)	Percent
Good Study	3	6.0
Excellent Study	47	94.0

guide for the interrater.

Procedure and Analysis

Permission was sought from the academic administrators of SCC and the JEEP coordinator. Two faculty members who have served as English teachers for more than ten years, have been facilitating JEEP Start classes for five years, and have taken and passed the IELTS were requested to serve as interraters for the speaking proficiency test of the students. The research instrument was administered at the JEEP laboratory during the prefinal examination week of SCC, second semester, SY 2015-2016. Results from the speaking test were classified and encoded in a spreadsheet. In summarizing the students' performance, descriptive statistical tools like percentage, frequency count, and mean were employed. The hypothesis was tested using regression analysis.

The Performance of Students in JEEP Start

Students' Weighted Study Score

The students' JEEP Start performance used as variables were their weighted study score (WSS) and speech recognition (SR) score.

The WSS of a DynEd student is analyzed by DynEd's Intelligent Tutor which is built in to the Records Manager of the program. This application evaluates and improves the quality of student practice. It tracks and evaluates all study activities, including study frequency, time on task, study path, and the use of important learning features such as voice record and speech recognition.

It is seen in Table 1 that most of the 50 student participants in the present study (94%) have excellent study scores of $^{+}5$ to $^{+}12$.

This result implies that since the students underwent DynEd lessons for more than one semester, they adjusted to the courseware well and could have improved their studying method and their oral fluency since the lessons require constant oral practice. Most of them may have understood that the JEEP class requires the right weekly frequency with the DynEd lessons and necessitates them to perform well especially in listening, recording, and comparing their voice with the model as often as they should, and getting high scores in quizzes, speech recognition exercises and mastery tests. This result could also indicate students' propensity for the course.

As the Intelligent Tutor would analyze and state, excellent study or WSS falling under the $^{+}5$ to $^{+}12$ range means that the student has good use of the repeat button, good use of voice record compared to the number of sentences heard, good mastery test score(s), success with speech recognition accuracy, good study frequency in the last two weeks, success with comprehension questions, and studied more than 50 days total.

However, a few of the participants (6%) were found to have WSS falling under good study with scores ranging from $^{+}2$ to $^{+}4$. Their intelligent tutor analyzed and stated that they had good use of voice record and success with comprehension questions. But they had not repeated sentences enough, and had not enough time in the last two weeks studying.

These data run parallel to the findings of Bringham and Larson (2006), which revealed that not only answering questions correctly would enable a student to move up to the next level, but it was also possible to gain "points" by accessing the six language buttons as well. This combination may have helped

Table 2
Speech Recognition of Students in JEEP Start SY 2015-2016

Speech Recognition	Frequency (n = 50)	Percent
60 - 79 (High)	27	54.0
80 - 100 (Excellent)	23	46.0

students achieve their targeted scores by not only focusing so much on getting the correct answer every time they took a skills test but also on the credit that would be given for trying their best. Nevertheless, it was concluded that effective use of the DynEd software necessitated either the students regulating themselves or the instructor carefully monitoring the data in the records management system (RMS) to look for irregularities in button points.

Students' Speech Recognition Score

In Table 2, it is reflected that the greater number of the students (46%) achieved excellent SR scores ranging from 80 to 100. The rest of them (54%) got high SR scores between 60 and 79.

DynEd's SR technology compares and scores speech input from a student with native speaker models. If the input is close enough to a target model sentence, then recognition occurs. DynEd has set a minimum confidence level of 0.2 so that learners are not frustrated by the system being too rigid; also, if the confidence level is 0.2 or above, the sentence will be recognized.

This activity also allows for accent variations. If a student reaches this confidence level, recognition occurs. The great strength of SR is that it encourages students to practice speaking and to improve both their fluency and their pronunciation through increased practice (DynEd, n.d.).

This result could mean that enough exposure to the courseware helps develop oral fluency. It also entails that the students had become more confident in imitating model speakers in the courseware resulting in remarkable recognition and scores.

This result conforms to the study of Ratnaningsih et al. (2019) that showed a significant difference in the use of CALL media in lecture method and discussion on English speaking skill of students.

This result also substantiates Mayaratri (2009) and Nachoua (2012) as cited by Ratnaningsih et al. (2019), who affirmed that CALL-based learning has several advantages, such as; 1) giving a sense of fun in learning, 2) providing students the chance to be responsible in mastering the materials by doing the tasks, 3) giving students' active role in every activity during the learning process, and 4) giving students imaginative things that could be presented through computer simulations. Such circumstances can facilitate and simplify the students' minds in understanding English. Many studies showed that students who are taught foreign languages through CALL programs gave better results than those taught using traditional programs.

The Speaking Proficiency of Students

Table 3 presents the speaking proficiency of the students based on the IELTS speaking test where each student underwent three parts: Part 1, a 4 to a 5-minute discussion of (a) either his/her hometown, work, or study and (b and c) two more topics; Part 2, a 1 to a 2-minute discussion of a topic given by the examiner/interrater; and Part 3, a 3 to a 4-minute discussion of a follow-up question to Part 2. It indicates that majority of them (52%) are competent speakers. Some of them (26%) are good, and a few are modest (16%) and limited (6%) speakers of the language.

Table 3
Speaking Proficiency of Students SY 2015-2016

Speaking Proficiency	Frequency (n = 50)	Percent
Good	13	26.0
Competent	26	52.0
Modest	8	16.0
Limited	3	6.0

Bands 1-4 are beginner levels, and only a few IELTS candidates are at this level. If one is at this level, they need to improve their general English first. Band 9 is very close to the native speaker level. Very few second-language speakers ever reach this level. Most candidates fall between bands 5.0 and 8.0, and 4 levels cover almost everyone who does IELTS (http://www.dcielts.com/ielts-preparation/understanding-ielts-band-scores/).

The result of the test may be attributed to the students' good standing in the JEEP Start or the DynEd class. It further implies that since they have constant oral practice in JEEP, they have become confident speakers of English and have improved their oral fluency. No very good or excellent speaker has been found, and this indicates that the JEEP or DynEd class could just be one of the training venues for students to have satisfactory scores in standardized tests. Still, a two-semester exposure to CALL may help one achieve adequate speaking proficiency.

The result may substantiate DynEd's (2003) data about teachers' observation on students who improved their confidence in managing computers well and who helped other students use them to practice English. They were able to improve their communication skills in English especially in the way they interacted with others.

Meanwhile, 43.8% of the teachers in the study of Yigit (2013) remained neutral towards their perception on DynEd's role in the improvement of the students with improved speaking skills, but 40.5% of the teachers agreed that computer use with the DynEd made it easy for the students to learn English.

Overall, Bingham and Larson (2006) also found the usage of CALL as a major tool to improve generally the English abilities of the students in a controlled classroom setting. Based on literature review and this research context, it is observed that CALL software is used as a supplemental learning tool.

Relationship between Students' JEEP Start Performance and Speaking Proficiency

As shown in Table 4, the students' SR is a significant predictor of their speaking proficiency (t-value=3.319, p=0.002). The result implies that the higher the student's SR, the higher is his or her speaking proficiency.

The results can be an evidence to DynEd's claim (2014) that its courses match with international testing standards. Lee (2000) in Lai and Kritsonis (2006) states that the reasons why computer technology should be applied in language instruction include learning motivation, and enhanced student achievement. Through various communicative and interactive activities, computer technology can help L2 learners strengthen their linguistic skills, affect their learning attitude, and build their self-instruction strategies and self-confidence.

It was concluded in the study of Cobb (2002) that computer assisted language learning can

Table 4

Regression Analysis of the Influence of the Students' WSS and SR on Their Speaking Proficiency

Independent Variable	Dependent Variables		
	Coefficient β	t-value	p-value
Model 1	Speaking Proficiency		
Constant	2.300	1.988	0.053
Weighted study Score	0.056	1.054	0.297
Speech Recognition	0.052	3.319*	0.002
Model Statistics	(R-Square = 0.190 , F-Value = 5.518*, p-Value =0 .007)		

* = significant at 5% level

enhance students' motivation and confidence in using the English language, and it can assist with language acquisition in ESOL students.

Conclusion

This study found that the JEEP Start students of Southern Christian College had excellent weighted study scores (94%) and had high speech recognition performance (54%). As to their speaking proficiency, the majority of them (52%) were competent speakers of English. Their JEEP performance, particularly their SR score, was found to be a significant predictor of their speaking proficiency which implies that the higher the SR score, the higher is their speaking proficiency. Based on study results, it can be said that constant oral practice as directed by frequent studying (WSS) and recording with evaluation (SR) can lead an L2 learner to satisfactory speaking proficiency. Further, DynEd's lessons were found to be matched with international testing standards. Finally, this study concludes that the JEEP program with the DynEd courseware is an ideal platform for L2 learners to enhance their speaking proficiency and prepare themselves for language tests in the future.

Recommendations

Based on the findings and conclusions of the study, the researchers recommend that the institution may continue and strengthen the implementation of the JEEP program; students'

scores or performance in other components of DynEd may be examined as factors affecting their speaking proficiency; students' strategies in achieving high performance in DynEd may be looked into; a study comparing the performance of experimental (exposed to DynEd) and control (traditional classroom teaching) groups in speaking tests may be conducted; pre-and post-speaking tests may be conducted before and after exposure to DynEd; teachers may also consider taking DynEd classes; teachers' perceptions of CALL or DynEd as a tool in language teaching and learning may be studied; and similar study may be conducted using other participants, variables and indicators.

Plan for Research Dissemination and Utilization

The results of this study will be beneficial to the following:

To the school administrators and institution, the study results may benefit SCC in that it will give baseline information about the JEEP Program and CALL as a teaching tool and may further give direction as to policies and programs in instruction.

To the students, the study results may guide them in their performance in JEEP major components and may provide information on the significance of the program.

To the teachers, the findings of the study

may give them insights into the usefulness of CALL as a tool in language teaching and learning, as well as data on students' speaking proficiency.

To the USAID, the study results may provide them with benchmark information on the impact of one of its programs under GEM, which may then influence their existing programs, especially those affecting the youth.

To the Dynamic Education personnel, the findings of the study may afford substantial information on the efficacy of the software as a tool in language teaching and learning.

To the other JEEP beneficiaries, since SCC also offers CALL or JEEP Start as a special course to outsiders, the findings of the study may serve as a basis for important information about the tool.

To the future researchers, the study may serve as their reference for studies related to CALL.

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