

Facilitating Second Language Acquisition Through Computer Assisted Language Learning

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Abstract: This paper discusses an action research project that explores the experiences of both, teachers and students, who used computer assisted language learning (CALL) to facilitate second language acquisition with ESOL students. Nine students enrolled in an ESOL 10th grade English class participated in this study. Module scores, field notes on dialog/conversation, and teachers' reports showed that the ESOL students made progress in their acquisition of the English language after approximately five weeks of instruction and favorable reports were given regarding the role of CALL in that instruction. It was concluded that computer assisted language learning can enhance students' motivation and confidence in using the English language and can assist with language acquisition in ESOL students.

Overview

Computer technology and computer assisted language learning (CALL) provide many benefits for the acquisition and application of English language skills. Researchers agree that educational technology can help ESOL students develop speaking, reading, and writing skills (Al-Ansari, 2000; Eckman, Highland, Lee, Milcham, & Weber, 1997; ESOL Standards, 2000; Krashen, 1981; Northup & Tracy, 1998; Stinson & Claus, 2000). Computer interactions also enhance communication skills and strengthen language through computer support group interactions (Bourdon, 1999). One of the most important reasons for using the computer is its unique ability to deliver materials that meet the needs of the individual learner (Garrett, 1988).

Rationale

After completing a Linguistics course that both satisfied my undergraduate requirements and moved me toward receiving an ESOL endorsement, I gained a profound interest in second language acquisition. I continue to be utterly amazed to encounter people who have control of two or more languages and can easily switch tongues, or language codes, fluently. After extensive observation of students, who indicated that they acquired their language abilities "by ear," I developed a desire to learn more about how people learn a second language and what factors could contribute to the improvement of this language learning process. I was also anxious to identify techniques that could improve the process for those who had been uncontrollably placed in a foreign environment where they were forced to adapt and survive. Conducting this action research not only enabled me to assist a few who were tackling the difficult process of learning English as a second language, but also gave me the opportunity to discover information related to their experiences that may assist others in designing instruction for similar students in the future. The students' experiences in their ESOL classes can be crucial to their ability to function successfully in our society and in their ability to master English as a second language.

The challenge of contemporary education in the United States is to prepare *all* students for life in this world, including those learners who enter school speaking a language other than English. Each year more and more students who speak languages other than English populate the nation's classrooms. Many of these students cannot successfully participate in an English-language instructional environment due to their limits with or lack of exposure to the language. Even if these students were able to communicate socially in English, academic success in the educational environment could not be guaranteed (ESOL Resource Guide, 1998).

Language acquisition has become a central topic in cognitive science. Possessing a language is a natural human trait (Krashen, 1981). Yet, acquisition of a second language does not come so easily. In order for non-native students to function academically in the American culture, it is often necessary for their successful immersion into an English-speaking environment to be accompanied with assistance from an English to Speakers of Other

Languages (*ESOL*) course. *ESOL* is a state-funded program that provides accommodations, with the assistance of an *ESOL* teacher, to students whose ethnic language is one other than English.

In addition to these students' mastery of high school academic courses, all high school students in the state of Georgia are also required to pass each section of the Georgia High School Graduation Test (GHS GT) in order to graduate. However, since the official test and all academic instruction in preparation for these tests are given in English, *ESOL* students annually face the likely possibility of failing this state-mandated test. Therefore, although students may be able to master their high school course requirements with *ESOL* assistance, no additional assistance or exceptions are granted to these students when taking the GHS GT. Success on this test is highly unlikely for these students who have such a profound language barrier, and this leads to frustration for the students as well as the teachers, especially when all other requirements for receiving a high school diploma have been met.

Current research indicates that the amount of exposure learners have to the target language is not enough. Students also need structured support to acquire proficiency in academic English. Therefore, the amount of exposure to a second language is less significant than the amount and mode of formal instruction they receive (Al-Ansari, 2000; Eckman et al., 1997; *ESOL* Standards, 2000; Northup & Tracy, 1998; Stinson & Claus, 2000). Exposure to the target language through insufficient means may fail to trigger a student's language acquisition (Al-Ansari, 2000).

Being allowed to have and manipulate language data in multiple media may provide learners with the interaction that they need to acquire a second language. Recent years have shown an increase in the interest of using computers for language teaching and learning. With the advent of multimedia computing and the Internet, the role of computers in language instruction has become an important issue confronting a large number of instructors around the world (Warschauer & Healey, 1998).

After reviewing the literature, I found many indications that computer technology and computer assisted language learning may provide many benefits for the acquisition and application of English language skills. Computer interactions also enhance communication skills and strengthen language through computer support group interactions (Bourdon, 1999). Therefore, I began looking at a specific CALL program and the experiences that *ESOL* learners had using the program to improve their language acquisition in order to see how the computer-based learning guide might meet the needs of those learners.

Research Questions

English language acquisition is a complex topic. Many immeasurable and uncontrollable variables influence language acquisition and consequently complicate research on the topic. The action research that I conducted was exploratory and grounded in qualitative methods yet, I did identify four questions that guided my observations, interviews, field notes, and findings.

1. Do students perceive *NovaNET* as a useful tool for learning English?
2. Do teachers perceive *NovaNET* as a useful tool for learning English?
3. What experiences did the students have using *NovaNET*?
4. What can interviews and researcher observations discover about ways a computer assisted language learning program adds to and/or detracts from language learning in a 10th grade *ESOL* class?

Due to the complexity of communicating with students whose primary language was something other than English. The information reported in this article came mostly from field notes, observations, and author interpretations. Direct quotes were not often included so as not to distract from the intended message.

Setting

The setting in which I conducted my action research was a high school located in a small, rural town in southwest Georgia. The school contained about 1400 students from grades 10-12. Approximately 5% of the school's population was made up of ethnic groups that qualify for English to Speakers of Other Languages (*ESOL*) programs. Only 2% of the students in this category actually tested into the *ESOL* program for the semester in which the research was conducted.

Participants

There were nine students enrolled in the ESOL class at the time of this action research project. The ESOL course was the 10th grade World Literature course, and students received their English credit by successful completion of this course. The class was heterogeneously mixed and the English language proficiencies were varied. The class consisted of two Indian students whose native tongue was Gujarati, four Hispanic students whose native tongue was Spanish (two were English non-speakers), and three Chinese students whose native tongue was Mandarin, although two spoke both Mandarin and Cantonese.

All of the students were in the tenth grade and between the ages of 15-16. Each participant tested below the 25th percentile on the *Language Assessment Battery* that was administered to non-native students; therefore, they qualified for eligibility for the ESOL program for the academic semester in which the study was conducted. As a result, each of the qualifying ESOL students was selected to participate in the action research study. Students agreed to participate in the research by providing both, verbal and written consent. Their parents also gave written consent for the student to participate.

Intervention

Prior to my research, the high school implemented an interactive software program that was used with students in all subject areas who failed some portion of the GHSGT. The program was called *NovaNET*. The program had an ESOL component that focused on language acquisition through use of the language in context as students interacted with the English content of the program. The year prior to the research, ESOL teachers began training on the use of *NovaNet*, and they continued to receive training throughout the course of the research. *NovaNet* provides prescribed diagnostic pretests and posttests that determine the student's rate and path of progression through the program's modules.

There are, however, other programs that have been published that effectively target reading, speaking, and writing weaknesses in all students, including ESOL learners. *NovaNET* appeared to be one of these and was thereby considered to be an appropriate CALL program for this study. Consequently, in my action research, I used the ESOL component of this program with students and recorded multiple aspects of the experience.

I spent five weeks in the field with the students - watching, listening, and recording their actions, attitudes, and approaches as I saw them. Before utilizing the program with the students and to develop an awareness of their perceptions, I conducted both formal and informal interviews in the field using interpreters occasionally to provide the participants with every opportunity to communicate their thoughts. The students were asked about their general attitudes toward language learning, previous experiences using the computers and/or software in language learning, and their confidence level in the possible impact that a CALL program could have on their learning. This was my first step in trying to identify what was actually going on with the students' language learning experiences.

The students used the program in the Language Arts Lab at the high school. There are 29 computers in the class, and each has a *NovaNET* port. Within their 90-minute-block class period, the students completed at least 30 minutes of solitary work and at most 15 minutes of collaborative work on the CALL program. The remaining time was spent on other classroom activities.

They followed this schedule, working on the program at least three days per week, for five weeks. There were some drill programs that were assigned to the students that they were allowed to complete as supplemental work; mainly the drill programs consisted of grammar practice.

The students reported that working with a partner or group would lessen the tension of the new experience. During my review of the literature of the field, I found that grouping of students in relation to computer-based activities could be important to the integration of software in instruction. Software that supports different groupings was considered desirable, as it was unlikely in many situations that there would be enough computers in a classroom so that each student could have one (Hubbard, 1996).

Although the *NovaNET* program was primarily used for individual and self-study work, its use was maximized by having students do collaborative work occasionally. I found that pairing students up or grouping them to use the computers was necessary and helped to ease the students into the computer experience. To do this, I designated certain students to be responsible for training other students to use the program. When students worked in groups with the software, roles were designated for each student in each group. For example, one learner may have been the person who typed; another might have been the person who handled the paper that described the group's experiences with the activity; and a third might have been the discussion starter, the person who helped

students talk about the activity in English. This pairing/grouping seemed to encourage teamwork, problem solving, and collaboration among the students. The students commented that these communication experiences also enhanced their language learning, which is needed for their successful immersion into a total English-speaking environment. One student said that she felt that the program allowed her to apply the skills that she had been learning through group discussions with her partner(s). Therefore, she was able to be more than a “listener” in a conversation, but she could actually contribute in her own words.

As a follow-up activity, that was intended to help students incorporate the newly acquired language or skills learned into their everyday life, classroom discussions were held during which the students were able to use the language or vocabulary from the CALL program. I routinely recorded students’ exact words during these discussions. I did not correct the grammar or vocabulary. I focused my attention on the content of what they said, instead of focusing on their use of Standard English, because I wanted to determine whether there was an increase in the number of words used in their responses. By responding to each other with more than simple sentences, the students were imitating some of the conversational language drills that they completed in the program. Their imitation of some of the drills that they practiced using the CALL program showed that they perceived the program to be useful in facilitating their conversational language.

Students were also asked to evaluate the CALL activities by writing a summary of their experiences, or, if a module objective was to practice a certain grammar point, a small quiz or written exercise was developed so students could demonstrate understanding of the concepts. Another way I followed up with software material was to use the concepts presented in the software as a basis for a group project or as the theme of an individual writing project in which students could write a summary of what they learned. Then the class worked together to develop a written text. Extension activities that encouraged further writing were developed and assigned to accommodate learners at different proficiency levels.

Analysis and Findings

After reviewing my initial, informal interview notes, I found that three of the nine students (33%) had very little prior experience working with computers and/or computer software before using the *NovaNET* program. Only one of the nine students actually had access to a computer at home, but he used the computer primarily for Internet surfing or to play games. They all reported they did not seem to have a fear of computers; however, one student reported that her skepticism in using the computer was due to her inability to understand basic computer functions. They all seemed to have a desire to work more with computers.

The students made comments before they used the *NovaNET* program that reflected their confidence that utilizing the CALL program could improve their language learning. One student replied that he had not used the computer much in his classes, but he had always heard that technology helps students learn; therefore, he was excited about the opportunity to be able to simply use a computer. Another said that in his native country, the use of technology was more prevalent than teacher-led instruction, so he felt that the lack of technology use that he had experienced in this country seemed “backwards” to him. Students realized the importance and value of the use of technology in the learning process in general, and disappointment that technology was not used more often in more or all of their classes was apparent.

As I observed the students during their interaction with the program, I made many other notations. Students needed to know very little about computers to use the *NovaNET* program. Students who used the program for the first time completed a *NovaKEYS* module that familiarized the students with its basic operational functions. As far as the keyboard was concerned, it was important that students learned to use the enter (return) key, the shift key, the space bar, and the tab key. Knowing these few keystrokes enabled the students to use software efficiently. Most of the students commented that their manipulation with this module helped them to feel more comfortable using computers for other purposes.

All of the students began the modules at the early intermediate level of the ESOL component of the *NovaNET* program. Five of the nine students showed at least a 20% increase in their pre and posttest scores. Although three of the students scored below passing (below 75% according the program’s grading standards) on both the pre and posttests, two of those improved their posttest score by 30%. The following tables shows the ranges of scores the students made in the early intermediate ESOL modules:

Student	Pretest Score	Posttest Score
Student 1	55%	75%
Student 2	35%	65%
Student 3	75%	95%
Student 4	75%	100%
Student 5	50%	80%
Student 6	40%	40%
Student 7	65%	70%
Student 8	85%	90%
Student 9	100%	95%
Average Score	64.44%	78.89%
Total Points Increase		14.45

Overall, and in only five weeks, the students made an increase of 14.45 points in their posttest grades.

In the follow-up class discussions, the two non-speakers even volunteered to answer questions without the interpreter! The questions to which they responded only required brief responses, but their voluntary class contributions reflected the confidence that they had gained in their ability to function at least conversationally using the language. When interviewed after their interaction with the CALL program, only one student retained his original preference of one-to-one teacher instruction to individualized computer instruction. Other students felt that more time using the program might have helped them to increase their posttest scores.

By the third week using the program, slowly I was able to reduce the amount of group time using the CALL program, and I increased the amount of individual CALL interaction. When I analyzed my observation records of the students using the program, I noticed that five of the nine students, who almost always asked either their peers or teacher for assistance, had reduced the amount of times that they needed additional instruction. The longer they used the program, the more comfortable they became with it and the more confidence they gained in their ability to perform the tasks independently and correctly.

Analyzing the students' writing for evidence of language acquisition was effective since writing is a process of discovering how to find the most effective language for communicating one's thoughts and attitudes. By integrating writing with the CALL content after completion of the modules, I noted an improvement in their ability to communicate effectively in different contexts and with different audiences.

When asked about the correlation of the CALL program to the 10th grade English objectives, the ESOL teacher stated that the program's language and content does reinforce the curriculum. The students' other teachers noticed that their speaking and writing showed some improvements. "I was grading one of the student's essay questions using the recommended S or U grades for ESOL students," said one of the teachers,

"but then, the student took the initiative to ask me what she would have made using the numerical scale that was used with the other students. She said she wanted to know specific mistakes she was making so that when she had time to complete the supplemental grammar activities that she was assigned on the program, she would know which areas she could focus on."

Some even noticed an increase in the students' amount of class participation that the teachers believed may have resulted from an increase in the students' confidence level in using the English language. In complimenting the students' efforts in class participation, one teacher stated that usually when a student volunteers to answer a question in class, a student who has fluent command of the English language is focusing on the accuracy of the answer he/she is about to give. Yet, when an ESOL student volunteers to answer, he must not only focus on the accuracy of the answer, but he must also focus on the accuracy in the way he presents the answer. Therefore, many teachers perceive voluntary class participation not only as a demonstration of confidence that students have in themselves but also as an improvement of their acquired language skills.

Most of the ESOL students' other academic teachers stated that using computers along with teacher-directed instruction could be a critical component for assisting the students to function better in an English language context. One of their foreign language teachers stated that helping ESOL students develop their speaking and writing skills would be a logical instructional starting point, especially when learners have low literacy levels in English or even their native language. Other teachers expressed their intent to include more practice using *NovaNET* to assist all students with other skills that are related to speaking skills such as reporting, negotiating, clarifying, and problem solving.

Other teachers began to reevaluate their instructional strategies; some said that they intend to include communicative and whole language instructional approaches that may involve the use of *NovaNET*. An evaluation of other components of the program by teachers revealed that some of the modules in other content areas promoted the integration of speaking, listening, reading, and writing in ways that reflected natural language use in writing and conversation.

Incidental Findings

Recently, researchers (McKay & Wong, 1996; Peirce, 1995) questioned the way in which second language acquisition theorists understood the language learner's relationship to the social world. In class discussions, I noticed that most learners communicated successfully in some situations, while in others they faltered or remained silent. Initially, I explained this finding by a difference in personality traits such as introversion and extroversion or by a lack of motivation, then I began to consider the possibility that each learner's ability to speak was also affected by relations of power between speakers.

The two Indian students in the classroom, who were also brother and sister, displayed behaviors that were direct opposites to each other. Although individual records and assessment scores reflected the girl's academic superiority to her brother, observations of her performance in class showed otherwise. When I interviewed each student following the class discussions, the Indian girl told me that she found it extremely difficult to speak aloud in her brother's presence. Since he was the elder and only male child, he deserved the utmost respect from his younger siblings. At home, she knew that her efforts and opinions were always secondary to his, and there were times when she was scolded by her brother and parents for her disrespect to him in class, posing "as a showoff in front of the other students." If I had been more aware of the cultural differences regarding sexism, I would have created an in class alternative to address the problem.

Structural inequalities such as racism and sexism or even home language restrictions could affect a learner's exposure to English as well as their opportunities to practice it. Therefore, the extent of student participation expected should allow a range of alternatives, including the option to simply observe activities or, where possible, respond in writing rather than speaking up.

I also noticed that the status of economic and family responsibilities that often accompany immigration are likely to affect learners' very presence in class, as well as their attitudes and behaviors. For example, I began to notice a pattern to the attendance records of two Hispanic students, one a boy and the other a girl. They rarely seemed to be in attendance together; often the girl would miss more days than the boy. I found this puzzling, since I was informed that they were cousins and lived in the same home. When I asked the students about their attendance pattern, I was told that there were certain days when the women would join their husbands at work in the fields, especially when harvest times were nearing an end. This contributed effort by the women was understood since time was crucial to the family's income for that week or month. It was always the girls' responsibility to baby-sit their younger siblings at home. On the other hand, when the men of the household were unable to go to work, often the boys would go in their places. Obviously, their family responsibilities and their economic status had a direct influence on their attendance in school.

The families' priorities placement reflects the concept of instrumental and integrative motivation that has been especially influential in the field of second-language acquisition (Ullman, 1997). Sometimes, educational restraints may be placed upon women due to economic and/or family responsibilities, since men from more traditional cultural backgrounds may discourage or resist the efforts of daughters and/or sisters to pursue literacy skills if it interferes with household responsibilities (Gillespie, in press). As a result of these findings, I have also developed a keen interest in ways to address the cultural differences that may affect a students' language learning.

In encouraging women students to speak up and take an active role in class, instructors may encounter reluctance from both men and women from cultures in which women have historically been constrained by social roles that do not promote active participation in mixed-sex settings (Massin, 1992). Teachers can also make special efforts to structure activities so that all learners, not just those who volunteer, have equal opportunities for practice and discussion. Teachers need to find out whether different classroom activities might affect learners differently because of their native cultural constraints. Clearly, instructor discretion is essential in these areas.

Future Action Planning

Language learning is an area of study in which the variables are so numerous and unpredictable that it is difficult to isolate any particular method or intervention and accurately determine an effect. Nonetheless my long-

term professional research goal is to continue to find ways to help students improve their second language acquisition skills. Since the recent literature shows some indication that computer assisted language learning (CALL) may be a viable and valuable tool to improve second language acquisition, I intend to continue to conduct research in this area.

There is also the concept of instrumental and integrative motivation that have been especially influential in the field of second-language acquisition (Ullman, 1997). I have also developed a keen interest in ways to address the cultural differences that may affect a students' language learning. Perhaps the inclusion of innovative CALL software should be accompanied with ways to address the individual learner, while recognizing and addressing the cultural differences in each learner. Therefore, my future action research in this area of second language acquisition will certainly address these issues.

Conclusions

Even though much remains to be learned about second language acquisition, this action research study shows that use of CALL software can at least facilitate language acquisition. It seems that students and teachers both perceived the software to make a positive difference in the students' language acquisition and their confidence in their improved language skills. Second language acquisition has potentially great practical importance for educators since reading and writing are influenced by language development. Research findings should be of interest to second language materials writers, second language curriculum developers, and classroom teachers in identifying complementary relationships between second language acquisition and CALL practice.

While this study has focused on the second language acquisition process from the perspective of the language, the learner, and an aid to the learning process, it is important to point out that larger social and cultural contexts of second language development have a tremendous impact on second language learning. This is especially true for immigrant students. The status of students' ethnic groups in relation to the larger culture can help or hinder the acquisition of the language of mainstream society. Therefore, as Mark Warschauer (1998) has pointed out, ". . . those who expect to get magnificent results simply from the purchase of expensive and elaborate software systems will likely be disappointed. But those who put computer software to use in the service of good pedagogy will undoubtedly find ways to enrich their educational program and the learning opportunities of their students" (p. 11). Therefore, many other issues regarding students' language learning need to be researched and addressed when finding alternative and beneficial influences on second language acquisition in ESOL students .

References

- Al-Ansari, S. (2000). Sheltered curricular exposure and unsheltered extra-curricular exposure as factors influencing the development of academic proficiency in ESL. *International Review of Applied Linguistics in Language Teaching (IRAL)*, 38, 175-194.
- Bourdon, C. (1999). Easing into ESL. *American Libraries*, 30, 2-94.
- Eckman, F, Highland, D. Peter, W.L. Milcham, J, & Weber, R.R. (1997). *Second Language Acquisition Theory and Pedagogy*. Mahwah: Erlbaum Associates.
- ESOL Resource Guide. (1998). Georgia Department of Education.
- ESOL Standards Introduction: Promising Futures. (2000). *TESOL Quarterly*, 23 3-13.
- Garrett, N. (1988). Computers in foreign language education: teaching, learning, and language-acquisition research. *Association of Departments of Foreign Language Journal*, 19, 6-12.
- Gillespie, M. (in press). Revealing the multiple faces of literacy: Profiles of adult learners. *TESOL Quarterly*.
- Hubbard, C. (1996). Multimedia instructional software for visual reasoning: *Visual Reasoning Tutor (VRT)*. 261-268.

- Krashen, S.D., (1981). Formal and informal linguistics environments in language acquisition. *English Language Teaching Journal*, 32, 257-261.
- Massin, T. (1992). "Unlearning to not speak": Adult educators and the female learner. *Adult Learning*, 4(1), 30-31.
- McKay, S. L., & Wong, S.L.C. (1996). Multiple discourses, multiple identities: Investment and agency in second-language learning among Chinese adolescent immigrant students. *Harvard Educational Review*, 66 (3), pp. 577-608.
- Northup, B. & Tracy, C. (1998). Using technology in foreign language & ESL programs. *Media & Methods*, 34, 12-14.
- Peirce, B.N. (1995). Social identity, investment, and language learning. *TESOL Quarterly*, 29 (1), pp. 9-31.
- Stinson, B. M. & Claus, K. (2000). The effects of electronic classrooms on learning English composition: a middle ground between traditional.
- Warschauer, M. & Healey, D. (1998). Computers and language learning: An overview. *Language Teaching*, 31, 57-71.
- Ullman, C. (1997) Social Identity and the Adult ESL Classroom
ERIC Digest. [Online] Available: EDO-LE-98-01.