7-1-2001

Infusing Computer Technology: A Novice Teacher User Meets the Challenge with High School ESL Students

Shelia Baldwin
digitalpublishing@library.wisc.edu

Infusing Computer Technology: A Novice Teacher User Meets the Challenge with High School ESL Students

By Shelia Baldwin

Shelia Baldwin teaches in the Department of Curriculum and Instruction at Monmouth University, West Long Branch, NJ, U.S.A.

Introduction

In a cultural awareness elective course one semester, I had fourteen students, nine of whom were English language learners that I had taught in ESL classes. In my classroom, all of the students, as co-constructors of knowledge, share the power and learn to negotiate meaning, thus, validating each other's contributions (Boswood, 1997; Brooks & Brooks, 1993; Driscoll, 1994; Meskill, 1999). Therefore, I engaged this diverse group of students in activities that would foster a level of comfort and trust. In spite of these efforts, the ESL students remained silent in class. Because of the increasing availability of computer technology in our high school and my developing understanding of how its use as a mindtool supports a constructivist learning environment (Jonassen, 1996), I began to think about how I could better utilize it to benefit the developing language skills of my ESL students. Initially, I was interested in exploring how authoring and presentation software and the Internet might enhance their learning. However, as the study progressed, the following questions emerged: How can authoring and presentation software serve as a tool to demonstrate knowledge construction and conceptual understanding? How does the infusion of computer technology affect classroom practice?

My pedagogical approach to teaching ESL students is based on my belief that the best way to learn a language is to use it in purposeful, participatory activities that relate to the students' real worlds (Farnan, Flood, & Lapp, 1994; Freeman & Freeman, 1992; Urzua, 1989). Consequently, throughout the years, my students have engaged in reading and writing about what has interested them. Our first experience with computers was for word processing. Writing was challenging for ESL students because of their inexperience with English written discourse, weak penmanship and language skills. However, with the word processor, they could focus on the content while revising, checking spelling and grammar with the click of a button. This software allowed them to clearly "see" what they wrote and to manipulate blocks of written text to improve coherence. Having the knowledge of the features of the word processing programs enabled them to independently complete assignments with a level of success and feeling of power.

This account is a continuing exploration of my integration of computer technology that expanded to include specifically the use of Hyperstudio, Power Point, and the Internet with ESL students in an American Culture Studies class, an ESL I Reading class, and a Reading remediation class.

Contextual Background of the Study

At the time of this study, computer technology was becoming a reality in our school district. Campuses were being outfitted with the necessary hardware and software in individual classrooms and computer labs and a technical support person supplied by the district central technology learning center. I had a MacIntosh computer in my classroom loaded with Hyperstudio and Power Point software and access by reservation to an ESL Mac computer lab that had Hyperstudio software. Both setups had access to the Internet. Also available by reservation was the library PC computer lab that was on-line.

The district offered ongoing staff development in the area of computer technology to accommodate the multiple levels of user experience among its personnel. At that time I was a novice teacher user of computer technology with a willingness to learn. I was comfortable with word processing from my own personal use and utilization with students. My initial experience with Hyperstudio was in an elective course with five students of varying grade levels and differing language and academic abilities. This presentation software was new to all of us so we learned how to use it together. It allowed the students to construct their own representation of their knowledge in a way that suited their abilities, through the use of the rich, multimedia features the program offered i.e. clip art, sound, imported photos, and backgrounds.

My knowledge of Power Point as a presentation tool was limited to a forty-five minute workshop. It was available only on my classroom computer, so I did not offer it to my students as a presentation option initially. The availability of and support for using the Internet for research in our district encouraged me to become familiar with the on-line search process and to provide basic instruction to my students.

American Culture Studies: Culture Studies Projects

American Culture Studies was an elective course open to 10th, 11th, and 12th graders. Fourteen students, nine of whom were learning English as another language and had been in the country two to three years (on whom I focused this study), were enrolled in this class. In keeping with my constructivist theoretical perspective, I invited them to determine what they would like to study in relation to culture. They agreed to studying a culture of their choice (except their own) with partners or independently. One requirement of the project was to search the Internet for information about contemporary life issues in the culture of their choice such as women's roles, the welfare of the physically/mentally challenged, and the importance of social class, that would supplement the more traditional information such as holidays and festivals and economy found in books and magazine articles. I reserved the library computer lab for three consecutive ninety-minute class periods in order for the students to conduct their searches.

The other requirement of this project was to create a presentation using Hyperstudio. Having observed a reluctance among the ESL students to participate in whole class discussions, I asked some of them about this privately. They indicated an embarrassment because of their lack of oral fluency in English. Thus, I wanted to offer them an alternative method for sharing their projects that was not solely dependent on linguistic expertise and oral communication skills. I reserved the ESL computer lab for five ninety-minute class periods, thinking that to be adequate time to

produce a finished product. Because it had been two years since I had had access to this software, I asked a technology aide to guide us through the basics of adding text, pictures, buttons and sound features to a stack of hypertext cards. After one class period of instruction, we were on our own. By surveying the students, I learned that eight of the nine students had had some experience with Hyperstudio in sheltered instruction Physical Science classes (instruction adapted to adjust academic language demands on ESL students) the previous year.

As a grand finale to this project all of the students presented their culture studies on the big screen television. Their peers' attentiveness was demonstrated by their eagerness to ask the presenters pertinent questions.

ESL I Reading Class: My Life in My New Community

Another experience using Hyperstudio involved seven ESL I students, new arrivals to this country, whose projects were to depict their lives in our community, their new home. The students determined through a brainstorming activity what they considered significant experiences to their everyday lives. The assignment required them to take pictures that represented these experiences. Each student checked out the Quick Take camera for two days to take pictures. We had an array of photos depicting family members, family pets, boyfriends, girlfriends, family dwellings, the grocery store they frequented, shopping malls, favorite places, their churches, and even family cars. As each student returned the camera, I saved his/her photos on the hard drive of the classroom computer for later importation into a Hyperstudio stack that each would construct during our reserved time in the ESL computer lab.

Reading Remediation Class: Individual Inquiry Projects

In an effort to involve these struggling high school readers in a relevant, engaging activity, the students were invited to research topics of their choice that they would present to the class. They were required to provide a visual aid with their presentation. I offered Hyperstudio and Power Point as presentation options. The two ESL students, both of whom had had Hyperstudio experience the previous year in a sheltered English instruction science class, chose to create Power Point presentations. Both were taking a micro-computer applications class where they had learned how to use this software. They took turns using my classroom computer, on which it was loaded.

Data Analysis/Findings

The analysis of the data sources- my observations and field notes, student interviews, and student products- revealed that the use of computer technology affects learners and the learning environment in the following ways. It has contributed to the building of a learning environment where everyone is a teacher/learner and has enhanced the learning of the ESL students in the areas of computer literacy, academic language proficiency, and cognitive skills. Moreover, it revealed that time allowance is an overarching issue that impacts the learning.

Building a Constructive Learning Environment and Computer Literacy

In each of the classes described, everyone was a teacher/learner. We shared what we knew about computer technology. Those students who brought presentation software knowledge with them helped those of us who were not as experienced. For example, one student was able to demonstrate the answer to our question, "How do you add a button?"

The new users of Hyperstudio in the ESL I class helped each other with problems, questions, and decisions. Students who were working with partners shared their expertise with each other. For example, two girls working together on their project identified each other's strengths, thus, placing one as the Hyperstudio technical adviser and the other, who had a better command of English, as the writer of the text.

The two students in the Reading class, having created several Hyperstudio stacks in another class, wanted more experience using Power Point and shared the use of my classroom computer. One took advantage of the features that allowed him to fade and swing text in his presentation about Brazil. The other student indicated that she preferred Power Point to Hyperstudio because it was easier for her to use. Her presentation concerning the requirements for a career as a flight attendant consisted of bulleted components that she had compiled from her first time search on the Internet.

I did not allow my own lack of knowledge about Hyperstudio to hinder us. I felt confident in knowing that students learn to manipulate the computer quickly and we would help each other to learn. I told the students, "If we had waited until I had learned enough to teach it, we would not have done it. I wanted to learn with you." I liked being able to show them that I am a learner like they are and that we could teach each other. Throughout this project, their questions challenged me continually to broaden my knowledge base about computer technology.

One day some students expressed dismay with the selection of pictures in the clipart. I told them that there is a way to import pictures from other sources, like a CD, or by scanning pictures from other sources. I didn't know how to do that; so I learned. I spent my next two conference periods learning how to maneuver through Grolier's CD-Rom where I located and copied pictures, flags, and maps. By the time our class met again, I was able to show them how to import from other sources of which they readily took advantage.

Another student's question about scanning and importing pictures required that I learn how to do so. "Mrs. Baldwin, the pictures I'm scanning are not saving. I don't know what I am doing wrong." I told her I would try to find out by the next class period. She left the book with the pictures identified that she wanted to incorporate in her presentation. I enlisted the aid of her science teacher from last year who showed me. Then, I imported the pictures (to be sure I could do it), saving them on the desktop for her later use. She was as delighted as I was with what I had accomplished. I went through the steps with her so she could see what step she was leaving out. Then, she was able to continue independently.

Developing English Proficiency

Computer use was affecting not only the students' technological literacy but also was contributing to their developing English proficiency. First, the cooperative environment existing in the computer lab encouraged students to interact with each other, requiring the ESL students to use their oral English skills in a teaching/learning situation. Second, the projects in the American Culture Studies and the Reading class required the ESL students to be able to read for information and present what they learned. Specifically, they had to identify key data in informational text, to synthesize it, to condense it, and to present it in a meaningful, concise way. This requirement took them beyond the more common practice of copying blocks of text from hard sources into their written reports.

In the case of the ESL I students, the presentation software offered them a means through which to present their individual depictions of their lives in their new community. Their learning together about the software required them to share previous knowledge and to acquire new knowledge about the use of the computer with Hyperstudio. The added technical vocabulary they gained was a natural byproduct of their engagement in a purposeful activity using technology as a learning tool.

Technological literacy enabled these English language learners to display their understanding of information at their knowledge level. It provided them with a tool, another "voice", through which to display what they knew. The presentation programs offered other sign systems as a means for conveying what they knew. When I inquired about the use of Hyperstudio as a method for presenting information, students remarked, "It's a good method. The visual aids make it easy to understand."

Metacognition and Critical Thinking

The data analysis also revealed that the integration of computer technology as a learning tool affected both metacognitive and critical thinking skills. Computer technology offers students immediate feedback, supporting the metacognitive process. As students viewed their works in progress, they reflected on their creations asking themselves if they represented their understanding. For example, some students requested other sources for pictures because the clipart did not offer either a plethora of choices nor accurate depictions. "Is there anywhere else we can get pictures? I can't find any in here that have anything to do with my country." One student explained that the clipart "didn't tell it so I only included a little bit." Another student mentioned how the visuals incorporated into the text helped understanding. The reliance on graphic cues to aid her reading of English pointed out the importance of appropriate visual aids. The ongoing interaction between learners and their knowledge constructions engaged these students for most of a ninety-minute class period as they clarified the visual products to represent the meaning mentally constructed. They worked independently or together, confident in their knowledge of the software, importing accurate images from additional resources to represent information they were presenting.

As the students represented knowledge in multiple ways, they made new connections. Their depictions represented their interpretation and application of the new knowledge they acquired

from their research. In order to include the information they learned, the students had to synthesize from their notes and put it in their own words. Several students commented on how this process helped them to remember more about their countries. They had to make decisions continually about how best to present their information on their cards and to evaluate them for accurate representation of the information to their audience. One student's presentation on Switzerland was most informative. She was content to use clip art, integrating it with concisely written text on each card. When I asked her why she selected the clip art she did, she replied, "It is what I think Switzerland would be like if I go there."

Those students who were working with partners on their projects had to negotiate what they would include in their presentation and how they would represent it. They had to synthesize the information each brought, thus collaboratively constructing new meaning. Two students working together seemed to be intrigued by the myriad of bright colors and backgrounds they could use to depict their image of Puerto Rico. They created an array of different-patterned, multi-colored backgrounds along with pertinent text about Puerto Rico.

In the ESL I Reading classroom, one young man created an introduction card using a mosaic of clipart images, self-drawn images, and various thumbnail background images to construct a scene used as the background for his project, "My Life in My New Community". He pieced together seemingly unrelated images, creating a clearly defined landscape.

Time as a Critical Factor

This analysis of the effect of integrating computer technology into my classroom practice illuminated the aspect of time as a critical factor. I needed to allow for technical learning time- time to learn how to use the hardware, the software, the Internet- in addition to time to construct and process knowledge. When it came to amounts of time spent on Internet searches, one student commented: "We didn't have enough time." The Internet is a virtual constructivist classroom in which students, engaged in a recursive inquiry process, pose questions, search and gather information, analyze, synthesize, and discard the irrelevant. For example, the students engaged in the culture studies needed to know more about how to search on the Internet; specifically, how to focus a search and about the different search engines. Searching by the name of the country brought the students to, oftentimes, an overwhelming number of links that required careful scrutiny and time to determine those that held applicable information, a formidable task for students with limited English proficiency. One student described Internet searching as confusing, "You look for a specific topic and go on and on. You get confused, lost, forget what you doing." Another student, after her first experience with the Internet as a research tool, commented positively about the source being all encompassing but "had trouble finding what I was looking for." This requires time; connected time; more time than we had. To accommodate my entire class, I was able to reserve the library computer lab but only for the initial first week (three 90- minute blocks). The next available date was three weeks later. Our first day's search on the Internet met with technical difficulties as the server was down until about thirty minutes before the end of the period. The last two meetings of that week we experienced problems with the server again that resulted in a loss of forty-five minutes of search time.

As was the case with the Internet search, time was a factor with the Hyperstudio software. Hyperstudio offered the ESL students useful alternatives to the written text, through which they were able to display and communicate what they had learned. Some students mentioned not having enough time to complete their projects the way that they wanted. For example, a student explained, when asked about Hyperstudio as a means for presenting her report, "It's good. You can put many things into it. Be more creative. I didn't like that you could only work on it at the computer. You forget where you were, have to spend time reviewing. That affected the time you had to work." I did not anticipate how much time might be needed for difficulties with the hardware such as scanning or with the use of the software program.

The ESL I students, inexperienced users of computer technology and strangers to Hyperstudio, needed time to familiarize themselves with the software and its capabilities. The students' introduction consisted of one class period of my basic instruction, perusal of sample stacks, and the determination of how they wanted to construct their stack. After that, we spent three or four class periods getting familiar with the program's capabilities such as color choices, text choices, and button placements. This orientation time allowed them to become more confident and comfortable with the technology and the software; however, it did cut into the time they had to complete their projects. Unfortunately, the year came to an end, and most students felt that their projects were incomplete, lacking all the photos and captions they had planned for depicting their lives in their new community. However, they had acquired knowledge of the computer, an authoring program, and a sense of ownership and accomplishment.

Conclusion/Implications for Practice

As indicated in this study, computer technology offers myriad opportunities for enhancing language and communication skills development and learning (Boswood, 1997). As the students performed different tasks, employing metacognitive, cognitive, and affective learning strategies, the authoring programs offered them alternatives for displaying their knowledge of the information they researched, compiled, and integrated into their presentations (Butler-Pascoe, 1997; Driscoll, 1994; Meskill, 1999).

However, I realized that I need to rethink how I integrate computer technology in a constructivist learning environment when the institutional arrangement of computer laboratories suggests a teacher-centered approach, assuming that every learner will be at the same place at the same time (Meskill, 1999). In the future, I would do away with whole class deadlines and incorporate "status of the class" (Graves, 1983; Atwell, 1987) progress checks, arranging for individual use of computer lab time as needed in addition to whole class use. Rather than arbitrarily imposing my timeline on their projects, we would collaboratively negotiate a timeline that would allow all of the students to complete their projects to their satisfaction (Smith, 2001). This method would allow for the individualization of instruction and for students to process information at their own pace.

Computer technology utilized as a learning tool is a value-added ingredient in the process of teaching and learning, specifically in language learning classrooms. Students benefit socially, linguistically, and cognitively. They become the owners of their creations, thus, encouraging

intrinsic motivation, independent learning, reflective thinking, and empowerment (Butler-Pascoe, 1997; Jerald & Orlofsky, 1999; Warschauer, Shetzer, &Meloni, 2000).

References

1. Atwell, N. (1987). *In the middle: Writing, reading, and learning with adolescents.* Portsmouth, NH: Heinemann. Brooks, J.G. & Brooks, M.G. (1993). *The case for constructivist classrooms.* Alexandria, VA: Association for Supervision and Curriculum Development.
2. Boswood, T. (1997). Introduction. In T. Boswood (Ed.), *New ways of using computers in language teaching* (pp. v-viii). Alexandria, VA: Teachers of English to Speakers of Other Languages, Inc.
3. Butler-Pascoe, M.E. (1997).Technology and second language learners: The promise and the challenge ahead. *American Language Review, 1,* 20-22.
4. Driscoll, M. (1994). *Psychology of learning for instruction: Learning & instructional technology.* Boston: Allyn and Bacon. Farnan, N., Flood, J., & Lapp, D. (1994). Comprehending through reading and writing: Six research-based instructional strategies. In K. Spangenberg-Urbschat and R. Pritchard (Eds.), *Kids come in all languages: Reading instruction for ESL students* (pp. 135-157). Newark, DE: International Reading Association.
5. Freeman, Y.S. & Freeman, D.E. (1992). *Whole language for second language learners.* Portsmouth, NH: Heinemann.
6. Graves, D. (1983). *Writing: Teachers and children at work.* Portsmouth, NH: Heinemann.
7. Jerald, C. & Orlofsky, G. (1999). Raising the bar on school technology. *Education Week, XIX* (4), 58-62.
8. Jonassen, D. (1996). *Computers in the classroom: Mindtools for critical thinking.* Upper Saddle River, NJ: Prentice-Hall, Inc.
9. Meskill, C. (1999). Conclusion: 20 minutes into the future. In J. Egbert & E. Hanson-Smith (Eds.), *CALL environments: Research, practice, and critical issues.* Alexandria, VA: Teachers of English to Speakers of Other Languages, Inc.
10. Smith, F. (2001). Just a matter of time. *Phi Delta Kappan, 82* (8), 572-576 .
11. Urzua, C. (1989). I grow for a living. In P. Rigg and V. Allen (Eds.), *When they don't all speak English: Integrating the ESL student into the regular classroom* (pp. 15-38). Urbana, IL: National Council of Teachers of English.
12. Warschauer, M., Shetzer, H., & Meloni, C. (2000). *Internet for English teaching.* Alexandria, VA: Teachers of English to Speakers of Other Languages, Inc.