

Materials Development and Teacher Training for the 21st Century

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Johanna E. Katchen
National Tsing Hua University, Taiwan
katchen@mx.nthu.edu.tw

As traditional equipment for language teaching, such as audio and video players and recorders, have become digital and acquired computer interfaces, teacher training must keep up and incorporate these new tools. Students in an MA in TEFL program took the course Audio-visual Materials and Methods and were given training in developing digital audio and digital video materials. Their progress was followed through pre- and post-questionnaires as well as through reactions and comments collected after students presented their materials to the class for each of the four major assignments. Results may point the way to the development of a syllabus and teaching materials that will be more useful for the training of future EFL teachers to teach and motivate their increasingly technologically-savvy students.

Introduction

How much do teachers need to know about technology? For decades now teachers of foreign languages have had to operate tape players/recorders and even some controls in a language lab (see B. Winston 1998 for a history of the development of these devices). By the 1990s, tape players gave way to CD players; meanwhile, teachers also learned to manipulate videotape players, all with the aim of providing authentic, native speaker input for the students. More ambitious teachers audio-recorded their students' speech for analysis; as early as 1985 M. Allan's book gave teachers tips on how to videotape their students' speeches, role plays, and other activities.

The twenty-first century, however, is witnessing the obsolescence of analog technology. It is becoming harder and harder to find a functioning audiocassette

player nowadays, and the tapes meant to be played on them may have already crumbled to dust. ELT materials distributors now make CDs and even CD-ROMs to accompany their textbooks but not audiocassettes. The videocassette player/recorder (VCR) is set to remain only as long as existing equipment in schools still functions and the tapes teachers play on them are still intact.

What may be worrying for some teachers and yet exciting for others is the speed at which digital technologies are converging. Hand-held video recorders, also known as camcorders, have been digital for several years, but now we can also make short videos on digital still cameras and even on cell phones. We have only to turn on the TV news to see real footage of accidents or natural disasters caught on someone's cell phone. We can listen to music, watch videos, and even access the internet on all sorts of large and small devices nearly everywhere we go. Our students seem to be very much at home with all these devices as they walk around listening to their MP3 players while texting their friends and uploading freshly-snapped photos to their blogs. Yet not all teachers are technology savvy, nor can they be CALL experts. How do the teacher and teacher trainer navigate this new world of ubiquitous digital technology?

The Study

This brief study was conducted with a group of seven students who were enrolled in an MA program in English Language Teaching at National Tsing Hua University in Taiwan. All were in their first year of study in the program and were in their mid to late twenties. Five were female and two were male. One of the males was working as a full-time teacher while studying toward the degree; he had already been teaching in a local high school for three years. The others were full-time students who had received the bachelor's degree within the past one to two years; two were teaching part-time.

To receive the MA degree, students complete 27 credits (9 courses) and write a thesis (two semesters of thesis credits required). The three required courses are ELT Methods, Research Methods, and Theories of Second Language Learning. Electives have so far included Teaching Writing, Teaching Listening and Speaking, Teaching Vocabulary, Pedagogical Grammar, Discourse Analysis in TEFL, Theories of Bilingualism, Language Testing, Introduction to CALL, Audiovisual Methods.

The students were enrolled in the course Audiovisual Methods when this study was conducted. Among other work, students were assigned to complete four short

projects; each project was worth 10% of the final grade. At the end of the course, the students were given an anonymous questionnaire to complete (see Appendix); some of the students nevertheless revealed their identity in their open-ended answers. The researcher aimed to answer two questions. (1) What do future teachers already know about digital technology? (2) Although future teachers have digital technology in their everyday lives and may use it, how much do they know about applying those technologies pedagogically?

The Projects

The purpose of assigning these four short projects was to give students hands-on opportunities to create teaching materials with new technologies. The teacher introduced each project during the course of the semester when lecture materials on the syllabus dealt with the topic. The first two projects (creating a website, creating an on-line quiz) were introduced early in the semester, when lecture materials concerned creating materials for websites. As we moved on to working with audio and then video, those projects were introduced. The teacher provided examples of materials she or others had produced. It was expected that students would encounter occasional difficulties, and by overcoming those difficulties or seeing how others overcame them, it was hoped they would gain skills in how to use these tools more effectively for pedagogical purposes and be less reluctant to use these technologies in their future employment as teachers.

Our youthful students can use the Internet, but can they make simple web pages to upload materials for student use? For their internet project, students had to make a webpage using FrontPage or some other software they were familiar with and upload some simple teaching material. Students answer surveys and take quizzes on the internet, but are they familiar with quiz-making software for making on-line quizzes for their students? For their short project, students had to download Hot Potatoes™ and make a short quiz for a selected teaching material and/or level of student. Hot Potatoes™ allows one to write matching, multiple choice, crossword, cloze, and mixed quizzes and to upload them to the internet as HTML files. The free version does not allow teachers to collect data on student use and answers; however, it is still useful for student practice.

Young people listen to music on their MP3 players and talk to their friends on Skype, but can they use their MP3 players and Skype microphones to make sound

files? Can they edit those files into teaching and testing materials? For their short project, students had a choice: 1. Take a fairy tale or traditional story, not too long, and tell it with sound effects; or 2. Make a series of sound sequences as input for students to make up a story.

Students use their digital cameras and cell phones to take photos of their friends, but can they use these tools to take photos and make videos for teaching? Can they edit these videos into an acceptable final product? For this project, students also had a choice: 1. Take an existing lesson and either use an existing dialogue or make one up, act it out, video it and edit it; or 2. Make a video incorporating some other sort of material you can use in a lesson.

Results and Discussion

As expected, student projects were quite interesting and even entertaining, and students reported learning from each other. Here each project is presented in turn, starting first with general comments and then questionnaire results for each project. The responses do not add up to seven in each table because some students had no comments on some questions, while others may have given more than one answer.

The Internet Project. It seemed that those students who had already designed some web pages produced the more creative pages and provided useful links. The less experienced worked with existing templates provided by various websites and just filled in some personal information. One student had compressed photos showing a process according to the template of the existing website she had chosen; however, the resulting photos were too small to show the process clearly and that particular website did not allow enlarging photos. This serious limitation of a website offering free web space provided a good lesson for future teachers.

Results show that, generally, Taiwan students in master's level programs for English teaching have some very basic knowledge about developing a website but they need further training. Those who had some training expanded their skills to embedding multimedia files or exploring other functions of the web-making software. Other than some minor technical problems, three of the students reported the most difficult part was not the technology but deciding on content—what to put on the pages. As one student stated, “Webpage for teaching is quite different from what I have done before. This class reminded me of the difference.” As to preferred software, most mentioned the simplicity of Microsoft FrontPage.

1. How much did you know about making web pages before this class?	
Very little	1
Had learned a little previously	3
Learned a little but forgot	2
Worked as a webmaster for two years	1
2. Did you learn anything from making a web page for this class? What?	
Learned to embed multimedia files	1
Got creative ideas from what others did	2
Explored other functions of FrontPage	1
Learned to use Dreamweaver	1
Learned that one could use Word files to create materials for the web	1
Learned that making pedagogical materials is different from making other materials for the web	1
3. Did you have any difficulties with doing this project? What were they?	
No problems	2
No problems because I solved them	1
Difficulty deciding what information to put on the pages	3
Difficulty uploading the pages	1
4. Which software did you use for your project (FrontPage, Dreamweaver, other)?	
Microsoft FrontPage	4
Microsoft FrontPage and Dreamweaver	1
Word	1
Namo Webeditor	1

Table 1 The Internet Questions

The Hot Potatoes™ Project. The biggest problem that occurred with this assignment resulted from my oversight in not telling students that they did not have to purchase a license to register with Hot Potatoes™; if one has not registered, the use of the functions is limited to, for example, three questions (the software is free if one works for a non-profit educational organization and posts any resulting materials cre-

ated with it publicly). As a result, some students may not have been able to experiment with the software as much as they would have wanted to.

While only two of the students had used the software before, all of them reported learning something, such as how to add sounds, colors, and pictures. All reported that the software opened up for them an alternate and more interesting way to present quizzes. However, in addition to the registration problem, two students thought the directions on the buttons were not clear: “The only thing I want to complain about is the interface of the software. I always got confused by those buttons.” “I spent most of time figuring out the items and the questions.” One student preferred a Chinese interface: “It’s fine but I want a Chinese version for some functions.” Five were not familiar with any other quiz-making software, but two mentioned the puzzle-making function of the Discovery Channel website.

1. How much did you know about quiz-making software like Hot Potatoes before this class?	
Never heard of it before	4
Heard of it but never used it	1
Used it before for undergraduate courses	2
2. Did you learn anything from using Hot Potatoes for this class? What?	
How to add colors	1
How to add sounds	1
How to add pictures	2
How to make quizzes more interesting	2
How to make non-traditional quizzes	3
How to make different kinds of quizzes	2
3. Did you have any difficulties with using Hot Potatoes this project? What were they?	
No difficulties	2
Directions buttons were not clear	2
Did not know I could register for free	2
There should be a Chinese interface	1
4. Are you familiar with other quiz-making software? If yes, what is the name of the software?	

Discover Channel website	2
No	5

Table 2 The Hot Potatoes™ Questions

The Audio Project. For this assignment, students had a choice: 1. Take a fairy tale or traditional story, not too long, and tell it with sound effects; or 2. Make a series of sound sequences as input for students to make up a story. Six of the students chose to put together sound sequences, which they found from various sources on the internet. One student told a story, but only with change in voice quality and without any sound effects.

Students' previous experience with creating audio files was mixed, though most had done some basic recording. With editing, only two said they had edited previously. After completing the assignment, three reported specifically learning to edit, while four mentioned the pedagogical aspect of learning to use sound sequences for teaching. The difficulties reported were somewhat different from student to student, perhaps because of the different nature of the material they were trying to create. For example, one reported difficulty finding appropriate background music, while another spent time adjusting the microphone and controls to eliminate background noise. Two of the students who, by their other answers, showed they were more experienced with regard to using technology, mentioned specifically the difficulty of editing two sound files together smoothly with the same volume. With regard to software, after completing the project, four students said they liked using Gold Wave, while the most experienced preferred the advanced features of Cool Edit Pro.

1. How much did you know about making digital audio files before this class?	
Nothing	1
Very little	1
Could record with digital sound recorder	2
Could make recordings of interviews on MP3 player	1
Could record with microphone into a computer	1
Could use Move Maker to make digital audio files	1
2. How much did you know about editing digital audio files before this	

class?	
No knowledge	2
Limited knowledge	3
Knew how to edit	2
3. Did you learn anything you did not know before from doing this project? What?	
Learned to edit	3
Learned to use sound sequences for teaching	4
Learned to search for and where to find sound effects on the internet	2
Learned a lot (did not specify)	1
4. Did you have any difficulties with doing this project? What were they?	
No difficulties	1
A little	1
Time consuming	1
Could not find proper background music	1
Could not make the transition between two files edited together smooth enough	2
Too much background noise when recording with good microphone—took time to adjust controls	1
5. What is your preferred software when working with digital audio?	
Movie Maker	1
Cool Edit	1
U-Lead (did not specify which software)	1
GoldWave	4

Table 3 The Audio Questions

The Video Project. This project in particular showed what not to do in the recording process. Some did the recording on their cell phones or still cameras and the results were not very good. Students learned that good quality is critical, and to produce a more professional-looking product, they should use a camera designed for recording video, such as a standard camcorder. They also saw how a tripod helps to hold the camera still.

Generally speaking, most students had recorded short videos on digital cameras or cell phones before, but their knowledge of editing was rather limited. In addition to learning firsthand about the quality issue, three reported learning to add captions, yet two reported having difficulty learning to use the subtitling function and one said it was time consuming. A number of students experimented with various visual effects. One commented: “I didn’t think about recording a video clip for real teaching materials before. It’s cool!”

Another difficulty occurred with cooperation among classmates. Two students reported having difficulty finding someone to record them (one of these was the full-time teacher who lived off campus). Three students worked together and acted in each other’s videos. Another had her boyfriend film her as she introduced some of the foods available at a night market. As to preferred editing software, five mentioned Windows MovieMaker, while those who reported having a little more experience with technology mentioned Power Director and ULead Video Studio.

1. How much did you know about making your own videos before this class?	
Did it a few times before	5
Very limited	2
2. How much did you know about editing digital video files before this class?	
Nothing	2
Did it a few times before	2
Knew how to do subtitles and simple effects	1
Simple editing	1
Knew we could use cell phones to make videos	1
3. Did you learn anything you did not know before from doing this project? What?	
How to use captions/subtitles	3
The device is important for ensuring good quality video	2
Never thought of recording a video for teaching before	1
Inserting special effects is fun	1
A webcam can be used to make teaching materials	1

4. Did you have any difficulties doing this project? What were they?	
Had trouble recording on a digital (still) camera	1
Could not work out how to add subtitles	1
No trouble but adding subtitles was laborious	1
The process was time consuming	1
For the filing process, needed to find someone to record me	2
The filming process (did not specify)	1
5. What is your preferred software for digital video editing?	
Windows Movie Maker	5
ULead Video Studio	2
Power Director	2

Table 4 The Video Questions

Conclusion

Students all liked doing the projects and even wanted more hands on work with different new technologies. All said they learned a lot from other students' activities. One mentioned wanting to learn how to create flash video, another how to integrate YouTube or blogs into ELT. Some students wanted more models before doing the projects; indeed, when I had given more examples, as for the Hot Potatoes and audio editing projects, students did very well. For the first project, creating a webpage, my directions were not clear and students were more confused.

Several students mentioned at some point that creating a project or editing it could be time consuming. Nevertheless, it is a natural part of the process of learning how to use new software that we have a learning curve at the beginning. Fortunately, the same students often said they wished they had more time to learn and to work with the various software. In their final teaching lesson (45-60 minutes) students had to create a lesson (any level) incorporating at least three media, and they incorporated audio and video files, on-line quizzes, games, and even more traditional paper activities.

For the teacher there may be two lessons here: You have to keep up with the technology and have used it and you have to make good example activities. And, finally, you have to love working with the technology to create teaching materials.

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Appendix: End of Semester Questionnaire for AV Methods

Making a web page

1. How much did you know about making web pages before this class?
2. Did you learn anything from making a web page for this class? What?
3. Did you have any difficulties with doing this project? What were they?
4. Which software did you use for your project (FrontPage, Dreamweaver, other)?

Hot Potatoes

1. How much did you know about quiz-making software like Hot Potatoes before this class?
2. Did you learn anything from using Hot Potatoes for this class? What?
3. Did you have any difficulties with using Hot Potatoes this project? What were they?
4. Are you familiar with other quiz-making software? If yes, what is the name of the software?

Making and editing audio files

1. How much did you know about **making** digital audio files before this class?
2. How much did you know about **editing** digital audio files before this class?
3. Did you learn anything you did not know before from doing this project? What?
4. Did you have any difficulties with doing this project? What were they?
5. What is your preferred software when working with digital audio?

Making and editing video files

1. How much did you know about **making** your own videos before this class?
2. How much did you know about **editing** digital video files before this class?
3. Did you learn anything you did not know before from doing this project? What?
4. Did you have any difficulties with doing this project? What were they?
5. What is your preferred software for digital video editing?

General Comments

Are there any other sorts of little projects that might be useful for future students? Or any we did that should be eliminated? Please add any other comments.