

**Non-Linear Editing With “imovie”
as a Tool for Constructivist Learning of
Language Comprehension and Other Skills Involving Temporal
Organization.**

Introduction & Rationale

When Philo Farnsworth developed the first viable television technology in the 1930's he envisioned it primarily as an educational tool and a democratizing medium that could promote international understanding and global political awareness. Later on in life he is reported to have said to his grandchildren: "There's nothing on it worthwhile, and we're not going to watch it in this household, and I don't want it in your intellectual diet." In the 1960's and 70's, many educators thought that "telecourses" would become extremely important in all areas of education. Government organizations were set up to research and develop television and video-based technologies, but these gradually began to concentrate on distance learning in higher education and eventually evolved into a number of well-known distance learning universities. For a brief history of this evolution, visit the PBS distance learning web site at

<http://www.pbs.org/als/dlweek/history/1960.htm>

Unfortunately, the use of video technologies in K-12 classrooms never seems to have quite realized the lofty goals envisioned by Farnsworth and others. William Winn (1987) seems to voice a majority opinion when he says that instructional television has frankly "failed to live up to its expectations". Criticism of instructional television and video has been especially harsh by advocates of constructivism. Their main complaint is that most classroom videotapes are often no more than linear "chalk and talk" presentations transposed onto a TV set.

Although analog video cameras have appeared in many schools over the last twenty years, the absence of any easy, cost effective way for students (or teachers) to create, trim, edit, copy, and freely distribute their own videos has stubbornly obstructed the use of this medium in any truly constructivist way. The extreme expense and complexity of analog editing equipment has tended to limit the role of school video equipment to nothing more than a tool for either recording and archiving completed projects or re-broadcasting the same old linear presentations. Unleashing the full creative and interactive potential of the video medium seemed unlikely for anyone outside of a multi-million dollar video-production studio, and almost impossibly inaccessible to young children because the equipment necessary to effectively edit analog video is spectacularly complicated, extremely fragile and not at all user-friendly.

Finally, in the late 1990's, the advent of powerful desktop computers and user-friendly software began to make quick, easy, non-linear video editing available to all. In order to exploit the rapid growth of the digital video market, Apple Computer Inc. has adopted a marketing strategy that uses two different video editing programs to satisfy the needs of both serious video professionals and individuals with no prior experience. The simple version of their editing software is called "imovie" and is included as part of the bundle of free software that ships with every new Macintosh. Its ease of use and free status, along with the robust, child-friendly characteristics of apple computers such as the imac make this platform an ideal tool for educational applications. Because digital video can be easily copied and distributed onto multiple machines, an entire class of children can work on the same project even if they do not have access to a video camera. This is essential when working with very young children because although the imac is robust and childproof, most miniDV camcorders are not. Apple computer has a web site dedicated to the use of imovie in education at:

<http://www.apple.com/education/dv/gallery/>

(The box says: "Requires windows 95 or better".... so get a mac. Think different ;-)

Other constructivist educational specialists (Jonassen, 2003) have described the usefulness of student video projects mainly in terms of the way that they promote involvement, collaboration, motivation, ownership and pride in student-created video projects. In this lesson plan, we have attempted to explore a way that video might be used not just as a way to record images, but as a truly interactive tool, capable of challenging and stimulating higher cognitive processes in new and original ways. By offering students the ability to manipulate the temporal organization of videotaped phrases (or other pieces of information), we hope that they will be able to explore phenomena such as the structure of language, the contextual nature of meaning, and the conventions that enable us to appropriately recognize and indicate to others the passage of time. We believe that although the editing project we outline here seems at first glance to lend itself best to teaching language comprehension skills, we posit that it could be adapted to teach a variety of other concepts.

In this example, we have concentrated on describing a single lesson in detail. Our example is designed to teach language organization, paragraph structure, plot-development and (optionally) text-to-speech matching. Our target audience is non-native English as a foreign language (EFL) students at about the middle or high school level (12-15 years old). It is our intention that this lesson might serve as a model for other, potentially very different lessons that could follow the same general format and use the same tool (imovie for the Macintosh) but stress quite different content and cognitive skills.

We will describe the theoretical basis for our approach and the practicalities of the lesson preparation and execution. We will also suggest some examples of ways that this lesson might be modified for use in other types of class, with special reference to modifications that would be appropriate for K-12 science classes. Finally, we will attempt to connect this approach to recent national standards documents, hopefully satisfying the reader that this type of lesson should help students to develop a wide variety of skills that modern educators believe to be important.

Theoretical Background

In the global age, communicative competence in target language is one of the important ability, rather than traditional language learning in the past. Savignon defines communicative competence as “the ability to function in a truly communicative setting—that is, in a dynamic exchange in which linguistic competence must adjust itself to the total informational input, both linguistic and paralinguistic, of one or more interlocutors”. In addition to being dynamic, rather than static, and involving the negotiation of meaning, for Savignon, communicative competence is not restricted to spoken language, but involves writing as well.

Communicative competence includes: a) knowledge of the grammar and vocabulary of the language; b) knowledge of rules of speaking (e.g., knowing how to begin and end conversations, knowing what topics can be talked about in different types of speech events, knowing which address forms should be used with different persons one speaks to and in different situations; c) knowing how to use and respond to different types of speech acts such as requests, apologies, thanks, and invitations; d) knowing how to use language appropriately (Richards, Platt and Weber 1985).

Active interaction is one of the key elements to achieve advanced communicative competence. In Korea, EFL settings, it is quite rare that language learners are exposed to the target language out of class. Various technologies, however, have been developed to facilitate user-friendly learning. Among them, learning through video editing engage critical and creative thinking in order to plan and produce programs (Janassen et al., 2003), not just memorize expressions. When students have ownership of their team project they become more active, constructive, intentional, authentic and cooperative.

In this paper, the sample instruction unit targets 7th grade students in the EFL classroom, more specifically, Korea. The age of students range around 14. This unit aims to improve the students’ communicative competence through story-making team project using software, imovie. This unit is based on National Standard for Foreign Language Education in the United States.

This paper proposes a sample instruction unit for 7th language learners in EFL to improve their communicative competence. The unit includes various group activities. These activities are grounded in constructivism. Constructivism entered mainstream educational thought and research in the 1970s through the work of disciples of Piaget and in response to studies of artificial intelligence and cognitive science beginning with Newell and Simon's 1972 publication of *Human Problem Solving*. With the translation of Russian works on psychology, Vygotsky's social learning theory added depth to this work, particularly in the area of the contributions of language and linguistic processes to knowledge acquisition (Damarin, 1998)

Constructivism assumes that learners construct knowledge by interpreting their perceptual experiences in terms of prior knowledge, current mental structures and existing beliefs (Jonassen & McAleese, 1993). Constructivism specifies that learning involves the personal interpretation of the world within a rich context that is not prespecified but negotiated and constructed on a moment-by-moment basis. Wilson (1995) defines a constructivist-learning environment as a place where learners can work together and support each other on the use of different tools and sources of information during the pursuit of various learning goals and problem-solving activities. Within the present project, it was assumed that learning could be promoted from a physical perspective (e.g., video editing and story-making) and from a cultural perspective (e.g., via the exchange, discussion and generation of idea, knowledge and specific content for the assignments).

The computer-supported collaborative learning approach justifies the use of computers as cognitive "artifacts" able to promote active and collaborative knowledge building (Lehtinen et al., 1999). All students are required to actively and explicitly learn from each other by monitoring information coming from the others and "appropriate" such information for their own use when relevant. Every one is invited to formulate problems and search for solutions, share individual knowledge and tutor those with less knowledge or expertise; and be willing to admit their own limits, explore new fields,

learn about new topics and take a new perspective. Knowledge thus gets circulated among the participants and multiple zones of “proximal development” will interact with each other (Vygotsky 1978).

The interaction among participants with different interdependent competencies is guaranteed by having students from different knowledge ground, and with different interests. The students are required to actively think about personal and collective goals, plan educational tasks, exchange information, collaboratively build new knowledge, create new educational materials and, in the end, evaluate their own activities through self-, peer- and teacher-evaluation.

The Lesson; Preparation and Execution

Required Equipment:

- Apple Macintosh G3 processor or above (imac, emac, ibook, G3 or G4 tower).
One computer per two three students.
- External speakers will be required for most tower systems.
- Mac OS 9 or above.
- Latest version of imovie (comes bundled with all new macs. Also available for free download from www.apple.com).
- Firewire (IEEE 1394, “i.Link”) connection or other means of video import.
(examples include some USB devices, a dedicated analog video capture card or a collection of clips imported from a CD or from another networked computer) .
- Firewire cable.
- MiniDV format camcorder, preferably with external microphone socket and external microphone.
- MiniDV format tapes, charged spare batteries and power adapter for the camera.
- Basic tripod for camera and access to well-lit area with a neutral background.
Plain grey or off-white is ideal. Plain white background is OK.

Overview of Procedure Used in this Example Lesson:

Before Class:

- 1) Decided on approach.
- 2) Decided on story.
- 3) Authors created clips.
- 4) Imported selected clips to “imovie”.
- 5) Trimmed clips as necessary, added first line text for easier identification (optional).
- 6) Distributed project to multiple computers if necessary.

During Class:

- 7) Overview of imovie and lesson procedure for students
- 8) Students view clips and repeat phrases.
- 9) Students collaboratively decide on order of clips.
- 10) Students arrange clips in time line.
- 11) Students create and insert extra material if necessary (optional).
- 12) (Optional) Repeat 8 through 11 but inform students that they have to make a different story using the same clip set. Challenge them to see how different they can make the story from their original.
- 13) (Optional) Challenge students with other variations as appropriate (e.g. “How much can you change the plot by adding one small clip of your own creation?”, “How many of the clips can you use?” If the students are given one new clip, can they build an entirely new story around it? etc.).
- 14) Share finished projects as imovie projects or export them as quicktime for easier distribution and/or archiving.
- 15) Solicit each group’s response to their own and other group’s movies. Critique each other’s logic and language structure.

Lesson Details:

In this example we decided to use a set of clips loosely based on the folk tale “The Gingerbread Man” You can learn more about this folk tale from these web sites:

http://www.disal.com.br/nroutes/nr11/pgnr11_13.htm

<http://www.geocities.com/SouthBeach/Canal/3235/GINGERBREADMAN.HTML>

<http://www.folktale.net/GBman.html>

Since the authors did not have any school children to work with, we decided to assume that this class is intended for 14 year-old Korean students who have already been studying English for several years. We will also assume that the class has an adequate supply of computers and access to one or more miniDV video cameras. We anticipate that the lesson will take about 2 hours if pre-prepared video clips are used, perhaps twice that if students prepared all their own clips. The lesson would therefore most likely be spread across three 45-minute sessions. Using pre-prepared clips (as we have done here) might be less than ideal because it denies full ownership to the students and would be quite time consuming for the teacher. Nonetheless, this might be preferable when working with young children or novice English speakers who are still learning how to understand basic conversational English. It might also be preferable when actual classroom time is limited, or if there are not enough video cameras available to allow an entire class to make their own clips. In the case of 14 year-old students who have studied English for at least a year, it would perhaps be up to the teacher and the students to decide whether the students want to use their own clips, use clips provided by the teacher, or use a mixture of both. In this example we compromise by having each hypothetical student contribute just one clip, and 29 clips prepared by the authors.

In our example, we told the story of the gingerbread man using a sequence of about 20 short sentences and phrases. Each phrase became a single clip. We wrote a basic script for each clip, then spoke the scripted lines in front of the camera. If we forgot our lines or made a mistake we simply re-shot the clip. (See appendix 2: “Technical tips for

MiniDV camera use and clip import” for details of this process). Once we had told our story, we added about 10 more clips that we thought might help students to change or add to the plot. Retrospectively, this number should have been a little higher. We suggest about 20 slides for the story itself and about 20 more to help students change it. We found that it was hard to keep track of more than about 40 clips on the imovie shelf, so we recommend this as the maximum. Once we had imported the clips we saved the project as an imovie project and made copies of it. If we were teaching the lesson to a large group of students we would now distribute this project to several machines. Students will work in groups of two or three per computer.

Once the students are settled at their computers the instructor should distribute a short handout that summarizes the class instructions. The handout should include:

- 1) An explanation of the major goals and secondary objectives of the class.
- 2) The background of “The Gingerbread Man” folk tale.
- 3) A summary of the lesson procedure to be followed over the next three sessions.
- 4) A summary of the use of imovie to accomplish the lesson’s specific objectives.
- 5) A description of how their work will be evaluated.

The teacher would then describe the students’ task (referring to the handout as they go) and demonstrating the procedure, preferably using a projector to show exactly how to use the imovie user interface. The handout might look something like as shown on pages 10 - (except that it would be in Korean !):

Goals and Objectives of this lesson:

The goal of the class is to help students improve their conversational English. More specifically:

- 1) Students will listen to English phrases and practice saying them.
- 2) Speaking often involves arranging phrases to form a story. In this lesson, students will practice arranging English phrases so that they flow with a logical sequence that they makes sense to other listeners.
- 3) Students will also attempt to improve their ability to listen to and comprehend the stories of others.
- 4) Students will learn about a folk tale with a European origin that is widely known by native English speakers.
- 5) Students will learn how to use imovie to watch and edit video clips.

About the story:

In this example we decided to use a set of clips loosely based on the folk tale “The Gingerbread Man” You can learn more about this folk tale from these web sites:

http://www.disal.com.br/nroutes/nr11/pgnr11_13.htm

<http://www.geocities.com/SouthBeach/Canal/3235/GINGERBREADMAN.HTML>

<http://www.folktale.net/GBman.html>

(er.... I think these would have to be in Korean. If no such Korean site exists, then the teacher would have to include a Korean synopsis rather than URLs.)

Procedure:

Work in groups of two or three. Click on the imovie project to open it. You will see a list of clips in a storage area on the left. Click on any clip to select it (in imovie, selected items turn yellow). Now click the play button of the viewer. Can you see the video playing and hear the dialog? If not – tell your teacher. If you scroll down through the

clips in the shelf you will see that there are 29 of them. Your task is to arrange some or all of these 29 clips into a story that makes sense. You may use each clip once, more than once, or not at all. Your story can turn out any way you like, but it must make logical sense to other listeners. You can try to recreate the original story of the gingerbread man if you like, or you can try to create a completely different story.

Before you begin to create your story, play each clip at least once. Make sure you understand the language in each clip. Listen carefully and repeat each phrase to other members of your group. Ask them to check your English pronunciation.

Talk to your group members about story ideas. Use the following guidelines to help you:

- Try to make your story use as many of the 29 clips as possible.
- Make sure your story makes sense.
- Make sure your story is grammatically correct
- Try to make your story interesting

It's hard to use only these clips and still get your story to make sense. To help you, you may add up to THREE video clips of your own. Each one of the extra clips you make may be no longer than 15 seconds in length. Your teacher will show you how to use the camera to make extra clips and import them to imovie. You must use at least one of these extra clips in your story and every group member must speak the dialog for at least one clip. You should think carefully about the clips you need, write a short script for it in English, practice delivering your line(s) and use your group members to help you correct the pronunciation.

- Class 1 - look at the clips and start thinking about story ideas.
- Class 2 - Prepare two or three additional video clips. Arrange your clips into a story.
- Class 3- Finish up, save your work as an imovie project. Watch other groups' finished projects and offer feedback.

Working with imovie

Working with imovie is easy. Simply click on the icon of the project to open it. You should see the prepared clips in the shelf at the right of the screen. Click on a clip, then click the play button at the bottom of the viewer to watch it. You can move the clips around on the shelf to position them any way you like. Option-click-drag the clip you are interested in from the shelf to the location in the timeline you want it to have in your story. Holding down the option key as you drag puts a *copy* of the clip in your timeline so that the original is still available for use elsewhere.

ALWAYS HOLD DOWN THE OPTION KEY WHEN YOU MOVE A CLIP FROM THE SHELF TO THE TIMELINE, OTHERWISE YOU MIGHT ACCIDENTLY DELETE THE ORIGINAL WHEN YOU ARE EDITING YOUR STORY LATER.

If you do accidentally erase a clip from your project completely, ask your teacher for a replacement copy. There should be 29 clips!

The timeline window is at the bottom of the screen. You can see the timeline in one of two ways; click on the clock icon to see exactly how long each clip in the timeline is. We don't really need to know that information for this lesson, so click on the eye icon to view the clips as a simple sequence instead. Notice that you can add the clips to the timeline in any order you like and you can easily drag the clips around to change their order. When all the clips in the timeline are unchecked (none of them are yellow) you will see a representation of them in the viewer's blue progress bar. The clips are separated from each other by a thin line in this bar. The progress bar lets you see exactly how long your movie is and the play head (triangle) moves along the progress bar as the movie plays. Notice that a selected clip in the timeline shows a corresponding *red* progress bar. Now if you click on the "back to beginning button" on the viewer and then click "play" or "play full-screen" your clips will play in the order you set. That's it. See, easy isn't it? Imovie has lots of other tools and gadgets but we don't need them in this lesson. Please don't play with them because they will slow down your computer and make it hard for you to

do your work. Drag-n-drop is all you really need. Save your project frequently and name it something different each time you save so that you can explore different versions until you find one that you and your group are happiest with.

Your teacher will show you how to import new clips to imovie when you are ready.

Here is a quick review of the imovie interface:



Grading

This project is a low-stake performance-based assessment, meaning that each group will receive feedback and comments, but the assessment is for information purposes only.

When we watch each group's movie in lesson three, you will be asked to listen carefully, then say whether or not you understood their story, whether or not you think there were any grammatical or pronunciation errors and whether the story was clever, unexpected, or used English language in a way you had not thought of. Look at the evaluation guidelines published by the American Council for the Teaching of Foreign Languages. They are available at:

<http://www.sil.org/lingualinks/LANGUAGELEARNING/OtherResources/ACTFLProficiencyGuidelines/contents.htm>

Study the sections on "listening" and "speaking". Notice that there are several categories of ability ranging from "novice-low" to "distinguished".

How do you think each group's story fits into this assessment scheme? How do you think your own language ability fits into this scheme? Once the class has discussed each movie, the instructor will distribute assessment sheets for each student. Every student will fill in one form for each group. The form will have a space for your comments, a space for you to say how you think that group has performed relative to the ACTFL guidelines, and a space for you to provide an overall grade. You can assign whichever of the following you think is most appropriate:

- A - Your project showed that you understood the phrases and were able to create a good story with no or few technical errors.
- B - Your project showed that you understood the phrases and created a story that made sense.
- C - Parts of your story were clumsy or had grammatical errors that made it hard to follow.
- D - Your story was hard to understand or illogical. Try again!

(End of draft instructions for students)

EFL Standards

This instructional unit draws on the National Standards in Foreign Language Education. This standards are composed of five subcategories; communication, cultures, connections, comparisons and communities. The main purpose of a team project is to improve students' communicative competence. During the process of the team project, students engage in conversation with other team members in target language (Standard 1). They can compare their language versus target language through the problem solving (Standard 4). The video script from western folk tale "gingerbread man" helps students to understand target culture as well as language (Standard 2). Through peer-collaboration, students construct their knowledge (Standard3). This type of engaged language learning probably facilitates students to be lifelong learners (Standard 5). See the appendix 1 for the complete text of the appropriate standards.

Variations

Other variations for language classes:

This lesson could be adjusted in a number of ways to suit the age, developmental stage and area of content interest of the students. As a language lesson the number of clips could simply be made larger or smaller and the phrases could be replaced by words (for novice English speakers or younger children) or with whole paragraphs (for more advanced learners). On screen text (static or scrolling) can be added to the clip to help the students to match text with speech, and a requirement for a written or spoken analysis or summary of the project could be added. Sound and video tracks can be separated and treated as separate clips, so that students could be given the added complication of getting the sound and video in the correct order *and* matching the sound to the correct video clip.

Variations for science classes:

This learning exercise could also be modified more radically and used to teach material in almost any other field, however, since the authors of this paper are interested primarily in EFL and Science Education respectively, we decided to restrict our comments to those two fields alone. For science teaching, imovie's most interesting

property is its ability to manipulate the dimension of time. Young children often have a difficult time understanding the temporal arrangement of natural phenomena. Imovie is unique in that it provides a very simple interface that allows even young children to explore of the logical consequences of temporal re-arrangements. It might therefore be useful as an aid to the development of the ability of young children to make simple predictive hypotheses. For older students it might be useful as an aid to help them build logical arguments based on sequential deductions. Some abbreviated suggestions follow:

1. Import a single time-lapse film of a seed growing into a plant (fairly easy to find commercially). Cut the film into short clips and ask the children to arrange the clips in the correct order.
2. Import a selection of video clips showing a wide variety of plants and animals. Ask children to arrange some of these into a “video food chain” so that each clip represents a source of food for the organism in the next clip. Have them record a voice over that explains their logic. Once they have created their video food chain, ask them what observations and experiments they might use to find out whether their predictions are true.
3. Use any other video of a natural event with a definite temporal direction; the development of a frog, the changing seasons, the decomposition of a sandwich etc.
4. Have the children add their own instructional voice-over to this or some other movie after they have arranged the clips in the correct sequence.
5. Set the camera up in a busy classroom or mall and leave it running for 15 minutes. Cut up the video into 1 minute clips, mix them up on the imovie shelf and see if the children can use logic and the deductive reasoning to re-assemble the clips in the correct order. Make the exercise harder by having some clips “missing”. Get them to write out their reasoning and attempt to follow the scientific method by making predictive hypotheses about what they expect to see happen next after each clip.

6. Repeat the above exercise with natural phenomena such as the changing pattern of clouds in the sky or the dispersal of a handful of mealworms from the center of a large sheet of paper towards the periphery, or the diffusion of food dye through water.
7. Provide a set of clips that illustrates some characteristics of a set of related phenomena (e.g: steam rising, water flowing, washing with soap, drinking from a fountain, a river, a pond, a fish, other water-related clips.) Now ask the students to arrange these clips in some way that makes sense to them and ask them to add their own on-screen text and a narrative sound track in order to produce an “instant science documentary”.
8. Persuade the teacher to videotape their science lecture. Instead of delivering it as usual, give it to the students as a mixed up jumble of short clips. Ask the students to use online research, and the scientific method, to reassemble it into a coherent lecture.
9. Videotape a number of logical (and some illogical) statements. Ask students to arrange the statements in a sequence that illustrates a correct relationship between premise and conclusion. For example: “all mailboxes are blue” > “I am a mailbox” > “therefore, I am blue”. Other clips in the same set might include: “therefore, I am a mailbox”, “therefore, I am not a fire engine”, “I am red”, “I am not blue”. With a little thought, clip sets can be generated that have multiple solutions, solutions with several steps or only one solution. Have students critique each other’s logic and see if they can think of nullifying exceptions or logical errors. Challenge them to create similar logical puzzles for other students.

Science Standards

The American Association for the Advancement of Science Project 2061 Benchmarks is widely recognized as the best science standards document currently available. This 200 plus page tome lists everything that the AAAS believes children at each grade level should know about science content and the scientific method. Frankly, because I have listed a large number of ideas above, it would take me a sizable chunk of

the rest of my graduate career to list every possible way that these ideas might conform to the AAAS benchmarks for students at various ages. For the sake of brevity, I will select just one grade (grade 5, because this is the median age of children I (Day) have worked with at some local elementary schools) and one lesson idea (number 2 because I have been looking for new ways to teach 5th graders about food chains). The relevant benchmarks for this lesson at the fifth grade level are as listed on page 18. The remainder of the AAAS benchmarks document is too voluminous to be included here but it is available online at:

<http://www.project2061.org/tools/benchol/bolintro.htm>

The nature of science

Scientific Inquiry:

Scientific investigations may take many different forms, including observing what things are like or what is happening somewhere, collecting specimens for analysis, and doing experiments. Investigations can focus on physical, biological, and social questions.

Scientists' explanations about what happens in the world come partly from what they observe, partly from what they think.

Scientists do not pay much attention to claims about how something they know about works unless the claims are backed up with evidence that can be confirmed and with a logical argument.

Scientific enterprise:

Clear communication is an essential part of doing science. It enables scientists to inform others about their work, expose their ideas to criticism by other scientists, and stay informed about scientific discoveries around the world.

The living environment

Interdependence of life

Insects and various other organisms depend on dead plant and animal material for food.

The living environment (continued)

Flow of matter and energy

Almost all kinds of animals' food can be traced back to plants.

Conclusion and Limitations

It is hard to make any firm assertions about the effectiveness of this lesson plan because we have not yet had the opportunity to actually field test it with its intended audience. Our belief in its usefulness grows only from our own commitment to the constructivist approach and the fact that it is grounded in sound theoretical concepts. Although we are hopeful about the usefulness of the approach we suggest here, we also foresee certain practical limitations for this lesson plan even before we begin actual field tests. Firstly it depends on the presence of a certain minimum level of hardware including multiple computers and access to a minDV camcorder.

This type of camera is both expensive and fragile; a dangerous combination in a school environment. Secondly, it assumes a certain minimum level of technical training and competency for the teacher. Although there is nothing particularly complicated about the equipment and procedure used in this lesson it would only take a small problem to bring the lesson to a crashing halt. The teacher must be thoroughly familiar with every aspect of the camera, the computer the software and the ways that they can be connected together or the lesson will not work. Thirdly, the lesson as it is described here relies on Apple Inc. software and hardware, which apparently is something of a rarity in Korea, where its intended audience resides. Presumably there is some kind of comparable video editing package available for IBM compatible computers, so this should not pose an insurmountable problem. Finally, we have completely glossed over the technical issues that often plague computer based lessons. Although the Macintosh is a stable platform, glitches and crashes are a fact of life that can be frustrating for students and teachers alike, and the need for the teacher to solve these problems quickly is another reason why the teacher should be well trained and technically confident. Despite these possible pitfalls, we remain confident that simple video editing platforms like imovie are an under

utilized tool that can contribute much to constructivist learning in a wide variety of subjects.

References

- Damarin, Suzanne. (1998) "Constructivism and the search for equitable education".
This paper was presented at the Annual conference of the Society for the Social Study of Science. Halifax, Nova Scotia, October 28-November 1.
- Jonassen, David H., Howland, Jane, Moore, Joi & Marra, Rose M. (2003). *Learning to solve problems with technology; a constructivist perspective*. 2nd edition. Englewood Cliffs, NJ: Merrill Prentice Hall.
- Jonassen, David H., and McAleese, T. M. R. (1993). "A manifesto for a constructivist approach to technology in higher education". In T. Duffy, D. H. Jonassen, & J. Lowyck (Eds.), *Design environment for constructivist learning* (p 231-247), Berlin: Spriner Verlag.
- Lehtinen E., et al., (1999). *Computer supported collaborative learning: the J. H. G. I. Giesbers Reports on Education*. N. 10. Department of Education Sciences University of Nijmegen.
- Richards, J.C., J. Platt, and H. Weber. (1985). *Longman Dictionary of Applied Linguistics*. London: Longman.
- Savignon, S. (1972). *Communicative competence: An experiment in foreign language teaching*. Philadelphia: Center for curriculum Development.
- Vygotsky , L. S. (1978). *Mind in society*. In M. Cole (Ed.) the development of higher psychological process. Cambridge, MA: Harvard university Press.
- Wison, B. G. (1995). "Metaphors for instruction". *Educational technology*, 35, p 525-30.
- Winn, W. (1987). "Are Media Merely Vehicles For Instruction?" Paper presented at the annual convention of the Association for Educational Communications and Technology, Atlanta, GA. ERIC ID ED 285 523.

Appendix 1

Foreign Language Standards <http://cnets.iste.org/currstands/cstands-fl.html>

STATEMENT OF PHILOSOPHY

Language and communication are at the heart of the human experience. The United States must educate students who are linguistically and culturally equipped to communicate successfully in a pluralistic American society and abroad. This imperative envisions a future in which all students will develop and maintain proficiency in English and at least one other language, modern or classical. Children who come to school from non-English backgrounds should also have opportunities to develop further proficiencies in their first language.

STANDARDS FOR FOREIGN LANGUAGE LEARNING

Communication — Communicate in Languages Other than English

Standard 1.1: Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions.

Standard 1.2: Students understand and interpret written and spoken language on a variety of topics.

Standard 1.3: Students present information, concepts, and ideas to an audience of listeners or readers on a variety of topics.

Cultures — Gain Knowledge and Understanding of Other Cultures

Standard 2.1: Students demonstrate an understanding of the relationship between the practices and perspectives of the culture studied.

Standard 2.2: Students demonstrate an understanding of the relationship between the products and perspectives of the culture studied.

Connections — Connect with Other Disciplines and Acquire Information

Standard 3.1: Students reinforce and further their knowledge of other disciplines through the foreign language.

Standard 3.2: Students acquire information and recognize the distinctive viewpoints that are only available through the foreign language and its cultures.

Comparisons — Develop Insight into the Nature of Language and Culture

Standard 4.1: Students demonstrate understanding of the nature of language through comparisons of the language studied and their own.

Standard 4.2: Students demonstrate understanding of the concept of culture through comparisons of the cultures studied and their own.

Communities — Participate in Multilingual Communities at Home and Around the World

Standard 5.1: Students use the language both within and beyond the school setting.

Standard 5.2: Students show evidence of becoming lifelong learners by using the language for personal enjoyment and enrichment.

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Appendix 2: Technical tips for MiniDV camera use and clip import:

The main objective of this lesson is to experiment with temporal arrangements of spoken phrases, NOT to produce a Hollywood epic. We recommend that you leave fine film-making for another day. The teacher and an assistant (or the students) should create a set of basic narrative clips that can be used to tell a simple story. Keep costumes, sets, multi-person interaction and elaborate scripting to a minimum. For the purposes of this lesson, your clips can be most quickly and efficiently created by simply placing a camera on a tripod, pointing it at plain background at a distance of about 10 feet, and allowing the actors to speak their line(s) as clearly as possible. For simplicity, keep the camera static at all times. Mark the position of the camera and actor on the floor in case you need to recreate the conditions later. Pick an appropriate zoom setting on the camera then leave it. Constant zooming in and out will be distracting and confusing for the viewer. Don't worry about mistakes or line fluffs too much; each clip should be short enough that it can be quickly done over. Each clip should consist of just one or two lines of speech that can be easily memorized. If you work in a well-lit area, no special lighting should be necessary. Modern cameras can adjust automatically to a wide range of lighting conditions. The built-in microphones of camcorders are notoriously bad, so you may need to use an external microphone connected to the camera and placed near the speaker. Not all video cameras have this, so this is a good feature to look for when you buy.

We recommend that you initially film your first two or three clips, connect the camera to your Macintosh, import the clips to imovie and check that the picture and sound quality is acceptable. If it is, go back and film the remainder of the clips in a single session. Don't worry too much about "bad clips" because you can always choose NOT to import them. Allow AT LEAST two seconds between pressing the record button and beginning to speak and another two seconds after the actor has stopped speaking before you hit the record button again to stop the camera. This is very important because it makes editing the clips easier and prevents words from being "chopped". If your students are creating their own clips be sure to supervise them closely because the MiniDV camera is fragile and expensive. Try to use battery power whenever possible; dangling

wires are always your enemy when children are around since they tend to trip over them or pull on them. Speak slowly, clearly and loudly.

Keep your script simple. You can probably write it as you go. Remember to keep an element of ambiguity in the story by including statements like “he said.....” “she said.....” and by not always referring to the characters by name. This will allow some clips to have meaning that is defined by their context relative to other clips around them. Shoot more clips than you need and include a few that might help students add new elements or meanings to the simple plot. Giving the students the chance to make the story take some zany, humorous twists will help to make the exercise fun. In our lesson plan we created a total of 29 clips, but this number might have been a little low. We suggest a better figure might be about twenty clips dedicated to the traditional telling of the story and an equal amount that make ambiguous statements that might be used to change the story.

Once you have recorded the entire sequence of clips onto the camera’s internal digital tape, move to the computer, and connect the camera using the firewire cable. Rewind the tape and begin the import process. The import procedure is described in the documentation for the imovie application accessible from the “help” menu. Review each clip carefully as you import it. If you decide you don’t want to use a clip you can simply drag the icon that represents that clip to the trash. Once you have imported all your clips, trimmed the length of any clips that that needed it and modified them with text or other changes that you think might be useful to your lesson, choose “save”. You can now copy the project to other computers if you like. All the clips you imported will be present in each copy of the project.

A “clip” is the video recorded during the period of time between pressing the “record” button on the camera and pressing it again to stop recording and put the camera back in standby mode. Each time a user does this, the tape is marked with start and stop points. When the camcorder is connected to the computer and imovie is used to import the video, the software automatically recognizes the start and stop points of each clip and

imports them as separate entities. The computer considers each clip to be a single file. The clips appear individually in a holding area called the shelf and are represented by an icon that shows the last frame of the clip. The clips appear initially in the order they were imported, but you can change this by simply dragging and dropping the clips to a new location on the shelf. We mixed up the sequence of the clips a little so that students could not simply recreate the original story based on the sequence in which the clips appear on the storage shelf. Like all files, each clip is given its own unique name and has properties that can be manipulated independently of other files. Individual clips can be moved, deleted, copied, renamed, cut into smaller clips or merged into larger clips in the same way you might manipulate a text file.

In imovie, a collection of one or more clips arranged in any sequence is called a movie and the entire package of clips and the information about their sequence within the imovie timeline is called a project. Entire projects can be copied and moved but can only be seen by other mac users with imovie installed. Movies created in imovie can be exported to a format called a quicktime movie. Quicktime movies are self-contained entities than can be viewed with almost any modern computer, even non-macintosh computers without imovie. Unfortunately, converting a project to a quicktime movie can take the computer quite a long time. Since the firewire interface can carry information in BOTH directions, you can even connect the video camera to your computer and export the finished project back onto the camcorder, then use your camera like a VCR to watch your finished movie on a TV. Check the camera's manual to find the settings you need to send video data *to* your camera *from* a computer.

Cutting, copying and arranging clips in a particular order is quick and easy for the computer because it does not involve making any new video. Once the clips have been transferred from the camera to the computer, the computer has everything it needs. However, if you use imovie's built-in filters, clip-to-clip transitions or on-screen text generator to change anything about the way the video looks, the computer must build the new video footage from scratch. This process is called rendering and can take a little time (usually a few minutes), or sometimes a lot of time (maybe hours) if your computer is

slow or if your changes are significant. Remember, the computer has to build thirty new pictures for every second of video that you created. For this reason, we suggest that you tell the children NOT to use any of the transitions or special effects during this lesson. The effects are fun to play with and might be useful in another lesson, but they are unnecessary and will just slow things down here. The point of this lesson is to let the students take full advantage of how quickly and easily they can drag and drop different clips to different locations on the timeline and immediately see the results.

Finally, encourage your students to practice good file backup discipline. Make sure they save their project frequently using a sensible scheme of numbered file names so that they can trace versions if they have to. Bring a copy of the clip set on several CDs so that if students lose a clip they can re-acquire it quickly from the CD.