The Use of Multimedia in Tertiary Education in Greece: Teaching English for Engineering

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ΠΕΡΙΛΗΨΗ

Η χρήση των Νέων Τεχνολογιών στην Τριτοβάθμια εκπαίδευση είναι σήμερα επιβεβλημένη όχι μόνο εξαιτίας της ποιότητας σπουδών που παρέχονται αλλά και εξαιτίας της μεγάλης ανάγκης που έχει αυτή η βαθμίδα εκπαίδευσης για σωστή μεθοδολογική προσέγγιση της διδασκαλίας των Ξένων Γλωσσών. Η εργασία που ακολουθεί περιγράφει ένα μάθημα Αγγλικών βασισμένο στις Μηχανές Εσωτερικής Καύσης και το οποίο σχεδιάστηκε με βάση το λογισμικό Toolbook.. Η περιγραφή συνοδεύεται από τη σχετική λογοτεχνία και τις κύριες μεθοδολογικές προσεγγίσεις πάνω στις οποίες έχει στηριχθεί ο σχεδιασμός του μαθήματος αυτού. Με τη χρήση του προγράμματος οι φοιτητές έχουν τη δυνατότητα να εξασκηθούν και στις τρεις από τις τέσσερις επιδεξιότητες (skills) που είναι απαραίτητες για τη σωστή εκμάθηση μιας ξένης γλώσσας.

ΛΕΞΕΙΣ ΚΛΕΙΔΙΑ: *Toolbook,tertiary eduacation,teaching english,engineering,skills*

INTRODUCTION

The way multimedia can become useful in the language classroom was the initiative for the design of a program called Internal Combustion Engine. The aim of this paper is to focus on the educational dimensions of a simple program by giving some ideas to foreign language teachers who want to use New Technologies in Tertiary Education.

MY CLASSROOM DYNAMICS

This courseware is designed for a classroom of 25 students, 20 to 24 years old, who attend the second year of their studies at the Department of Mechanical Engineering in the Technological Educational Institution[1] of Serres, a large town in Northern Greece. They attend four 45' sessions per week and their level of English is upper intermediate. All of them know how to use the computers, which are also used in other courses.

There is 24-hour access to the computers of the Institution and this is one important parameter that has influenced the design of this specific program: the possibility to use it without any teacher or peer being present. There are many well-equipped laboratories with printing, copying and scanning facilities where the students can work in pairs, groups or alone.

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[1] Technological Educational Institutions (TEI) are Higher Education institutions in which students focus on practice rather than on theory.

Although English for Specific Purposes is obligatory, there is no specific course book and the teachers have to work quite hard in order to find the appropriate material to present in classroom. The use of the computers and the design of the particular programs, although it is neither easy nor quick, can provide some permanent basis and data for future development.

Existing constraints
The English courses are not mandatory and this means that the number of the students and the classroom dynamics change very often, as there are not permanent attendants. This destroys the teaching coherence and wastes time. The number of the computers available makes cooperation difficult because the students refuse to share a computer with their classmates.

Finally, Greek culture, which encourages teacher-centred teaching, is a burden in the implementation of the program. The undeniable Greek feature of uncertainty avoidance (Hofstede, 1994) dictates the students' exposure to precise and detailed instructions in order to be productive language learners (Higgins, 1986). So lesson in front of computers "is not really a lesson"!

THE MATERIAL AND STUDENTS INTERFACE
Aims of the software
The aims of the material are
- to develop the students' listening skill and integrate it meaningfully in activities that involve the other language skills
- to enhance their vocabulary on Internal Combustion Engine and the use of specific linguistic elements like the passive and the sequencers.

All these aims are achieved through the multimedia ability to "deliver video, sound and text in a variety of combinations" (Brett, 1995:78).

Technological specifications
The authoring tool used for the program was Asymetrix Toolbook and it is delivered on a CD-ROM. It requires Windows '98 or above, with multimedia extensions. An Internet connection is also required because there are hyperlinks to the Web. Headphones are needed for the videos.

Learners' choice
The material can be used in two ways. First, it can be used by autonomous learners, who either want to check their knowledge on Internal Combustion Engine or need to work on the familiar ESP, in the university's computer laboratories, any time they want. Second, it can be used during the ESP course as a tutoring tool, which helps the teacher present authentic material, useful language and different strategies. What is more, students can choose whether they want to work on the program individually or in pairs. This option is provided on the first page of the program and it is not repeated.

Major characteristics of the program
Size and design
The I.C.E. program consists of 15 pages, 10 of which contain activities of different kinds. The 5 remaining ones contain either instructions and navigation guidance or self-evaluation forms and further reading information.

Navigation
The way the learners can navigate by using the mouse to move around the screen, and the keyboard to write their answers. On the left hand side of the pages the menu bar is located and the

learners can visit any page they want if the linear order of the program does not fit them. An exit button also appears on every page.

Video

The material includes two pieces of video, one 15'' and one 7' long. The shorter video has no sound; this 'silent viewing' presentation technique (Stempleski & Arcario, undated:13) is used for prediction and brainstorming on page 3. The longer one is divided into 4 smaller chunks presented in different pages and serving as authentic input. The videos are controlled with buttons on the pages.

Feedback

There are buttons showing the number of correct answers and revealing pop up windows. Afterwards the score button turns into a reset button, which puts the students through the activity again in order to be more careful and have better results. Another way of giving feedback is by the use of 'hotwords', which hyperlink to definitions and grammar when clicked. Finally, there are buttons which reveal some of the transcriptions of the videos and which can help learners comprehend the listening parts and focus on the problematic areas of their performance.

TEACHER'S ROLE

The role of teacher in this program is to help the students to manipulate the computer and provide answers if it is asked. As Fisher claims that "when the computer is present, it can take on some of the management normally carried out by the teacher, leaving the teacher free to act as a facilitator or counselor" (1993:67).

EVALUATION OF THE MATERIAL

The first question teachers should ask themselves before using multimedia is the reason for using it. Brett (1998:83) gives a convincing answer, claiming that "multimedia provides opportunities to experience language in a variety of media, each of which can serve to reinforce the other" providing "a fuller type of language input". In order to provide this input through multimedia, Chapelle (1998:27-28) has suggested 7 criteria, which apply to the Internal Combustion Engine program.

Making key linguistic characteristics salient.

The idea of "noticing" is essential in the design of the program because if learners notice a difference between L1 input and L2 output, then "changes may occur in the learners' interlanguage to reposition it in a form closer to that of the input" (Brett, 1998:86). This is achieved in different ways. First, different colours are used to highlight different linguistic elements. However, one important element of the program is its simplicity in colours and shapes because the appearance should not "overshadow the content of the page" (Ivers & Barron, 1998:29). Second, fonts in bold in the video transcriptions help the students focus on specific information given in the listening texts. The way the video is presented in small parts no longer than 20'' each helps students focus on the particular part, which includes all the information needed to do the tasks.

Offering modifications of linguistic input.

The use of multimedia gives a variety of modifications of linguistic input, which is provided through written and aural language. The former exists in the form of reading texts in tasks or as a transcription of the videos. Video itself provides a plethora of modifications. The control panel of the video gives learners the opportunity to repeat it as many times as they need to comprehend. What is more, it provides a lot of features of the situation, which enhance comprehension, like

body movements and setting.Although the language of the video is not authentic because it has been designed for the language classroom (Porter and Roberts, 1981:37-9), there are some real world characteristics, which are meant to created what Rivers and Temperley (1978:87) call 'pseudo-communication". This means that the linguistic input is designed and delivered in such a way that encourages learners develop strategies that lead into communicative language output.

Providing opportunities for "comprehensible output".
   For the production of comprehensible output, Chapelle suggests that learners are encouraged to produce language, which is "syntactically well-formed and pragmatically appropriate" (1998:27). So the output is evaluated through writing tasks and activities, which are based on learner-computer interaction. On page 1 there is an advanced organizer, which enhances the understanding level of the students if it is prior to viewing (Chung & Huang, 1998: 560-1) because it familiarizes the learners with the aims of the program, its focus, the time needed and the content of the videos they will watch.

   The major characteristic of the material is the presence of digital video, which "can be surrounded by, and linked with, other language materials", and which "shows enhanced listening comprehension" (Brett, 2000:43-4). For this reason, there are clearly defined stages of pre, while and post listening activities.

   Pre listening stage – the activity on page 3 where the students have to answer before watching the video enhances
- The ability of the learners to predict both the factual content and the interactional structuring of what they will see (Brown, 1994:278)
- The stimulation of their relevant experience (Brown, 1994:279) or schemata (Burgess, 1994:309-310).
- A purpose to determine what meanings they must listen for and which parts of the spoken text are important (Littlewood, 1981:67).

   While listening stage – during this stage the students are exposed to authentic and "real" language not intended for non-native learners (Porter & Roberts, 1981:37) and multimedia material. There is an integration of the other skills like reading and writing in order to reflect real world communication and lead to production of new language (Burgess, 1994:309). What is more, in this social context, language teaching becomes meaningful (Ellis, 1996:214) because learners can sense that a whole language approach is essential (Brown, 1994:94) if they want to ameliorate their performance.

   Post listening stage – during this stage a holistic view of the video is provided during which the students can maximize their comprehension and produce more language output if they want to. Based on the ancient Greek proverb that 'Repetition in Mother of Knowledge' learners can find out the degree of their comprehension and feel more confident to produce comprehensible output.

Providing opportunities for learners to notice their errors.
   Learners are given the opportunity to watch the video associated with their task before entering their answers and they may confirm or change them. There are pop up windows, which refer to the errors and encourage learners think again. Error correction is not direct but indirect, giving some hints about problematic areas in the output. A very important way in which students can notice their errors is by completing the Self-reflecting page at the end of the program. By rethinking

about the parts they did well or not, learners can 'develop the self-efficacy judgement of *can do*' (Robinson, 1991:160).

The feedback students is positive, focusing on the things they did well and on patterns, which show *why* the answer is right or wrong (Warschauer & Healey, 1998:66) and which suggest ways in which students can develop a strategy. Finally it is important that students can choose whether they want to have the feedback or not because they have different interests and needs (Brett, 1995:78).

Providing opportunities for learners to correct their linguistic output.
The tasks are not meant to test learners; as 'just locating the error is not enough' (Robinson, 1991:160). Instead, there are hints provided through hyperlinks to dictionaries, and pop up windows, which lead learners to further reading. This automated feedback can do much to guide learning and to correct mental models when misinterpretations of material occur (Barker, 1994:52). Production of correct language, self-assessment and learning how to learn the aims of the program and learners are guided to it either directly by presenting correct structures or indirectly through a button, which reveals the correct text.

Pages 14 and 15 provide 'error-specific help' and 'access to more general reference materials' (Chapelle, 1998:28) by containing titles and pages of reference and grammar books, and hyperlinks to the Internet. By using this information, learners can improve their L2 production and reassess themselves later.

Supporting modified interaction between the learner and the computer.
This criterion refers to the way learners are led to the tasks by the program itself. Through navigation instructions there are features which help the learners develop **a.** the belief that they know what to do and **b.** the competence needed in order to succeed in the activities (Robinson, 1991:158).

Acting as a participant in L2 tasks.
As Chapelle suggests students should focus on the use of language to accomplish the tasks and not on solving problems (1998:28) and be encouraged to establish a kind of communication with the computer. However this seems to be quite difficult because human-computer interaction differs from human-human interaction. Then, how can we have negotiation of meaning in a case like this?

Brett (1998:86) claims that negotiation of meaning can be achieved when the multimedia language learning environment provides language input and "accompanies this with a range of support features which can be used to assist comprehension". So computers become "advanced interlocutors" (Johnson, 1991:63) and learners can 'ask' for more help in order to comprehend by using different levels of input.

CONCLUSION
This paper described the design of a program called Internal Combustion Engine and presented its most salient features supported by the relevant literature provided by the course. It focused on the educational aspects of the program and the way it can be used in the classroom by the teacher of English who knows the particular or individual needs of the learners and can make all the necessary changes to meet these needs (Levy, 1997:105-6, 116).

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