

DESIGNING WEB-BASED MULTIMEDIA MATERIAL

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Abstract

The purpose of this paper is to describe the design of a multimedia application intended for autonomous learning of English for Special/Academic Purposes at a higher education institution in Slovenia. The outline of the teaching/learning context is followed by the description, use and objectives of the application. The theoretical bases are discussed that underpin the selection of the teaching strategy, facilitation of language acquisition and design of learner-based, interactive and efficient software.

Introduction

Multimedia is increasingly used in language learning since it has proved to be useful and stimulating. This is because it enables students to interactively use a combination of text, images, audio and video. This paper describes a multimedia application designed for use as part of autonomous web-enhanced learning. The paper begins by outlining the teaching/learning context in which the multimedia software will be employed. Next, it describes the software, explains how it was designed and how it will be used. It continues by outlining the objectives of the multimedia material. The paper then goes on to highlight some theoretical reasons underpinning the design of the application.

The teaching context/learning context

The designed multimedia material is intended for full-time and part-time second-year Sociology students at the Faculty of Social Sciences (FSS) of the University of Ljubljana. Second-year Sociology students take the 'English for Special/Academic Purposes 2' course (English 2) in their second study year after having passed their 'English for Special/Academic Purposes 1' examination. English 2 is taught at an advanced level, the teacher uses communicative and integrative teaching methods and includes in her classes discussions, group presentations and the like.

The need to introduce web-based multimedia materials for autonomous learning arose due to some difficulties regarding the English 2 classes with second-year Sociology students:

- **The students have insufficient class hours.** Full-time students have 60 hours of classes per academic year while part-time students have only 20 hours. Including discussions, group presentations and problem-based learning projects (all of which

are very time consuming) in classes means that there is insufficient time left for other types of language practice such as language exercises or reading longer texts.

- **The number of students in a class is very large.** The size of the average full-time and part-time class is 50 students. Such a high number of students in the classroom generates more noise and, as a result, some activities such as listening are much less effective.
- **The students have uneven proficiency levels.** Although all had achieved the B2/C1 level before entering the university, some are much more proficient than others. For a language lesson to work, the materials and classes have to be designed in the 'middle range' which is not challenging enough for stronger students and too demanding for weaker ones.

This paper suggests that a good solution to these problems lies in the creation of multimedia software that students can access independently on the Internet. The following section describes some software that has already been designed and added to the teacher's existing web page.

Description of the multimedia software

The multimedia software in question can be found on the teacher's home page (<http://www2.arnes.si/~vzorko/>) containing links to resources for students learning English. By following the link *English 2, Unit 1 – Globalisation* is reached. *Unit 1 – Globalisation* is the first of six topic-based units that correspond to those found in the English 2 student book. The multimedia materials, once finished, will complement class discussions on the six topics. At the time of writing this paper, only the web materials for the first unit, *Unit 1 – Globalisation*, had been completed and they form the focus of this paper. They are described below.

Description of *Unit 1 – Globalisation* multimedia materials

When students access the *Unit 1 – Globalisation* screen, they are presented with the title supported by an image of globalisation and a list of activities. The principal activity around which the tasks are structured is listening to an authentic lecture. It is a Reith lecture on globalisation given by Anthony Giddens and published by BBC.co.uk. A list of pre-, while- and post- listening activities is provided. These activities include the following:

- **Before you listen 1 - Questions:** This activity contains five questions whose purpose is to raise interest and activate background knowledge. Three help links to resources are provided where the students can independently find the answers.
- **Before you listen 2 - Vocabulary:** The activity includes four exercises that help the students learn or revise potentially problematic vocabulary that appears in the listening exercise. The first three exercises are of the drag-and-drop game-type and provide feedback with keys and scores. In the fourth task, the students write

definitions of words in the space provided and can look for help in the linked resources.

- **While you listen – Note taking:** The students are provided with an outline of the lecture and some headings that help them focus their listening more easily. The link to Giddens's lecture on BBC.co.uk site is found below the outline.
- **After you listen 1 – The meaning of concepts:** This activity checks whether the students have understood the main concepts introduced and illustrated in the lecture.
- **After you listen 2 – Vocabulary:** The students fill in the sentences from the lecture with a list of potentially difficult words. Keys and scores are provided.
- **After you listen 3 – Paragraph coherence:** Three paragraphs from the lecture are used in drag-and-drop exercises with a key to raise awareness of paragraph coherence. A link to help with coherence is provided.
- **After you listen 4 – Writing:** In this activity the students are asked to write a short essay on globalisation to apply the knowledge they gained in the previous tasks. The link to the teacher's email address is provided as help.
- **After you listen 5 – Outline design:** This is preparation for a class discussion. The students are asked to reflect on what they have learned and create an outline to help them participate actively in class.
- **After you listen 6 – Discussion forum:** The students are provided with a link to a discussion forum on globalisation where they can actively participate with their own contributions.
- **After you listen 7 – Learning English Message Board:** In this activity the students are invited to participate in a message board where they can ask questions related to learning English or share their experience with fellow learners around the world.
- **After you listen 8 – Further listening:** The students are encouraged to do some further listening practice on related topics. A link to other Reith lectures on globalisation is given.

At the bottom of the page, the students find an invitation to send their feedback to the teacher using the given link.

Tools used to design the *Unit 1 - Globalisation* software

The multimedia software for *Unit 1 – Globalisation* was designed using various tools. The page layout was designed with Web Builder 2. The language exercises were created with Hot Potatoes

6. Both the tools are free and very simple to use. The photographs, which were obtained from a friend, were edited in Adobe Photoshop 6.0.

How the multimedia material will be used

The *Unit 1 – Globalisation* multimedia software will be used to complement the student book and class sessions. The activities will be optional but highly recommended. The students will be encouraged by the teacher to start doing the activities a few weeks before the corresponding class sessions to be prepared for the class discussion. The multimedia activities will be done autonomously, at home or using the faculty's facilities. The students will do the tasks in either the suggested or in their preferred order. They will be able to repeat any of the activities as many times as they need or like.

Objectives of the multimedia material

The multimedia material was designed with the following primary objectives in mind:

- **To help the students to improve their skills in listening to lectures:** The needs analysis of Sociology students' target needs carried out among Sociology students, ex-students and lecturers showed that listening to lectures and speeches was a high priority. The research also revealed that students found listening to recorded English lectures in class the least useful and least likeable classroom activity. They listed various reasons such as long recordings being too difficult to follow, the noise in the large and crowded classrooms being too distracting, and not having the possibility to repeat the listening as many times as needed. It therefore seemed reasonable to include listening to lectures in autonomous web-based learning because the students would be able to listen to it at home without any distracting noise and would be able to stop, pause or repeat it whenever necessary.
- **To prepare the students to actively participate in the class discussion on the topic of globalisation:** The listening and accompanying tasks help to activate the students' background knowledge and to acquire new knowledge on the topic as well as revising and learning the vocabulary needed to talk about it. Doing similar activities in class would take up too much valuable discussion time.
- **To give the students the opportunity to use a wide range of quality authentic online resources and become familiar with using them independently:** The preparation of the material was heavily influenced by considerations of authenticity and a Reith lecture was chosen because it is an excellent example of authentic spoken discourse relevant to Sociology students. Similarly, the links to online information on globalisation, famous lecturers, dictionaries, forums, discussion boards etc. are all useful authentic resources.
- **To give the students an opportunity to produce linguistic output and receive feedback:** Every task offers opportunities for online output (writing definitions, notes, explanations of concepts, outlines, expressing opinions, sharing experiences,

asking questions and doing exercises). The output in class is active participation in the discussion of globalisation. The email output is an essay. Each of these forms of output includes feedback. This may be the teacher in the computer (exercise key and scores, online resources such as dictionaries etc.), the teacher (essay correction and general help), participants in the forums (responding to students' messages), as well as peers and the teacher (class discussion).

- **To provide the students with an opportunity to engage in authentic communication:** Links are provided to discussion forums where the students can engage in authentic communication with people from all around the world. The class discussion will provide another opportunity for authentic communication.

Theoretical bases for the software design

This section presents some theoretical views that were considered when creating the *Unit 1 – Globalisation* multimedia material and helped the teacher to decide on an appropriate teaching strategy, create favourable conditions for language acquisition, and design some learner-based, interactive and efficient multimedia software.

Teaching strategy

The teaching strategy used in the design of materials involves a combination of what Kennedy and McNaught (1997) termed 'pre-emptive' methods that provide help in pre-empted problem areas, and 'transformative' educational methods that promote students' active construction of knowledge.

- **Pre-emptive methods** are used, for instance, in the language exercises which contain vocabulary with which students typically have difficulty. Moreover, most activities contain help links to previously selected relevant online resources where the students can easily find the answers.
- **Transformative methods** are reflected in:
 - o activities that allow the students to construct their own knowledge freely, e.g. the activities After you listen 5, 6, 7 and 8;
 - o activities that encourage deep learning, e.g. Before you listen 1;
 - o the flexibility of the material that enables the students to determine and balance their workload, e.g. the students can choose which activity to do and when. Such an appropriate workload contributes to teaching quality (Kennedy & McNaught, 1997).
 - o the students' participation with suggestions and questions in the design process, which ensures good teaching practice (Kennedy & McNaught, 1997).

- o activities that encourage the development of students' personal views on the issue of globalisation, e.g. Before you listen 1 and After you listen 4, 5, 6, 7 and 8.

Language acquisition

In determining the extent to which the material would facilitate language acquisition, I evaluated it on the basis of Chapelle's hypotheses about second language acquisition (Chapelle, 1998, p.23) and found that:

- The material facilitates the perception of problematic vocabulary in the lecture through the pre-listening vocabulary exercises.
- The material provides help with vocabulary, concepts and paragraph cohesion in the form of true or false answers, hints, teacher's email address and links to online resources. Using the links to relevant online resources such as dictionaries, terminological databases etc. also encourages the students to get used to these resources because they will need them to perform other tasks, e.g. problem-based learning projects in English, English text analysis in other major courses etc.
- The material gives the opportunity to produce comprehensible target language output in real communication in which the students will also be able to negotiate the meaning. This will occur, for example, in the discussion forums or in communication with colleagues in class discussions. The interaction will be good because it will be two-way and since the students will have a clear communication goal, e.g. to present their opinions, get an answer to their query, express something etc.
- The material enables the students to notice and correct gaps in knowledge or skills while producing output, by receiving external or internal feedback in real communication with their colleagues or teacher in class, or through the people responding to their messages in the forums.

It can thus be concluded that the *Unit 1 – Globalisation* material will facilitate language acquisition to a large extent.

Learner-based design

The design of the material is based on Watts' learner-based model (Watts, 1997, p.3), according to which learners' needs, situations and goals are of primary importance and determine the software development. Watts also provided guidelines to achieve this. The next three sections show how the material follows them.

Learner needs

In order to correspond to the learner's needs, Watts (1997, p.4) suggested that multimedia software should offer students autonomy and mindful engagement in tasks, and encourage the

development of their metacognitive and cognitive strategies. In line with his ideas, the *Unit 1 – Globalisation* material will achieve this through:

- clearly defined links that enable an easy choice of activity;
- visual cues that help the students tune into the topic (no more than two photographs were included in order not to slow the downloading of the pages);
- offering a choice of activity and hyperlinked help resources; and
- allowing the inclusion of students' notes and answers in the hypertext.

According to Watts, the software should also be suitable for various learning styles. To ensure suitability, Felder and Henriques (1995, pp.28,29) advocated a balanced teaching style and recommended some techniques, five of which were applied to create materials that would address a variety of learning styles:

- Motivation will be increased by teaching in context and relating the material to the students' experiences, e.g. Before you listen 1 – Questions.
- Concrete information will be balanced with conceptual information. For example, learning data on globalisation is balanced with the exercise of organising the paragraphs coherently.
- The structured tasks are balanced with open-ended tasks. For example, drag-and-drop exercises and writing a short essay.
- Drill-type exercises are provided, e.g. drag-and-drop exercises.
- Elements that cater for all types of learners are included: a listening element in Giddens's lecture, a visual element in the two photographs, an audio-visual element in the welcome video on the home page, a writing element in keying in notes and answers, and a kinesthetic element in the drag-and-drop exercises.

Learner situations

The *Unit 1 – Globalisation* material is suitable for various learner situations. These are partly formal because the students do interactive activities that have been systematically organised, and partly informal since the students have many opportunities to learn the new language accidentally, e.g. while reading about Anthony Giddens on the linked page. The learner context is predominantly individual because the students will use the materials autonomously, but it can also be co-operative if the students do the tasks in groups of two or three around one computer, e.g. preparing together at a student's home. Considering Watts's suggestions (1997, p.6), the material meets the requirements of these learner situations in the following ways:

- the activities are designed in a versatile way;

- not only language activities but also activities in which the students use language to access areas of knowledge are included;
- drag-and-drop activities are incorporated to provide an informal learning element;
- the uncomplicated on-screen instructions and uncluttered screens with a clear display of the learning contents are suitable for the easy navigation of individual users;
- the language exercises offer immediate and appropriate feedback on student performance;
- the sequences in the materials are not predetermined and the activities can be done as many times as needed in a self-paced way. The software leads the students by suggesting the preferred pathway. However, they are free to navigate and choose the order of doing the tasks independently. Such independence ensures the better teaching quality of the material (Ramsden in Kennedy & McNaught, 1997); and
- a short video clip of the teacher welcoming the students to the resources reduces the impersonality of the technology.

Learner goals

Learner goals such as e.g. improved listening comprehension, acquisition of knowledge on globalisation to be used in classroom discussions, familiarity with and use of various online resources and improvement of Internet skills will be better attained if the materials are motivating. Watts's suggestions (1997, p.6) as well as Davies and Crowther's recommendations on increasing motivation (Davies & Crowther, 1996) were taken into consideration to make the material more motivational in these ways:

- the students have freedom to choose content areas according to their goals;
- the students can follow their own paths to achieve their goals, e.g. they can spend more time on listening to the lectures or participate more in the forum;
- it includes tasks that accommodate different language skills: listening to a lecture, writing (notes, on the forums, essay), reading, thinking and speaking in class;
- the interfaces are user-friendly and do not discourage the students from working with computers;
- activities are varied, innovative, intellectually challenging and stimulate active learning;
- a wide range of authentic documents is included;

- the students can access data that give them additional information on the related topics;
- the students are informed of the benefits of the tasks and the goals that will be achieved by completing them. Familiarity with the clearly stated goals published in the course outline and displayed on the faculty web pages contributes to better teaching quality (Ramsden in Kennedy & McNaught, 1997);
- the content and type of tasks is based on previous primary research into what motivates students. For example, the matching drag-and-drop type of exercise has been found to be the most motivating way of learning and revising vocabulary; and
- the students have an opportunity to participate in real-life activities. They use real-life links with real-life contents, for example, the Reith lectures are published on the BBC web page for a general audience. Participating in the forums enables real-life communication.

Interactivity

An important aspect of multimedia learning software is interactivity. According to Sims (1999), interactivity is present if the independent learner has control over the structure and content of the materials, if the programme responds to the student's choice and if the learner is actively engaged in the material. Interactive multimedia materials will bring 'better experiences, more active learning, enhanced interest and motivation' (Sims, 1999). In order to achieve interactivity, he suggests following Fenrich's guidelines (Fenrich in Sims, 1999). These include thought provoking questions, active participation, feedback, building on current knowledge, learner control of the pace, learner comments and annotations and learner modifications to the computer programme. The material in question provides for interactivity in the following way:

- thought provoking questions can be found, for example, in the activity 'Before you listen 1';
- the students have the opportunity to actively participate in the discussion forums as well as in class discussions;
- feedback is provided in all activities, for example in the form of right/wrong answers and scores, the teachers' email feedback on the essay and help with general problems, responses in the forum etc. The feedback also offers appropriate assessment which Kennedy and McNaught (1997) list among the criteria for teaching quality;
- the students can build on their knowledge and experience while comparing their predictions and solutions because the material is contextualised and relates to the students' prior knowledge and life-world experiences, which characterises good teaching practice (Kennedy & McNaught, 1997);
- the students have control over the pace and sequencing of the learning; and

- the materials allow the students' comments and notes to be included and analysed later.

Efficiency

Davies and Crowther (1996) believed that multimedia software should be efficient and that the designers should examine considering efficiency before developing the educational courseware. The *Unit 1 – Globalisation* material is highly efficient in terms of:

- **the teacher's time needed to design the materials:** highly simple and user-friendly tools were used to design the materials around an authentic lecture for which there were no copyright problems since it will be accessed at the original location on the Internet;
- **the teacher's time in the classroom:** more time will be left in the classroom for communicative activities and problem-based learning;
- **the students' time and money to access authentic text, audio and video materials:** the students can access the materials immediately without having to go to the library, bookshop or newsagent etc.; and
- **the faculty's money:** no faculty resources were required to create the material.

This section has shown which theoretical issues influenced the development and design of the material and how they informed the decision on the appropriate teaching strategy, facilitation of language acquisition as well as the design of learner-based, interactive and efficient software.

Conclusion

This paper has described some web-based multimedia software that will complement the corresponding English class sessions for second-year Sociology students at the FSS. It has attempted to show that the material's combination of various channels of communication and its interactive nature will make it particularly useful and motivating in an autonomous web-based learning environment. The paper has presented some theoretical views by some experts in the field of education and multimedia, and illustrated how they informed the design of the *Unit 1 – Globalisation* material. In the near future, similar multimedia materials will be created for the remaining five topics that form the core of the English for Sociology Students 2 course.

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