

WEB PAGES AS AN INTERDISCIPLINARY TOOL IN ENGLISH FOR ARCHITECTS CLASSES

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Abstract

“The web in effect holds a mirror up to the graphic dimension of our linguistic nature. A significant amount of human visual linguistic life is already there, as well as a proportion of our vocal life.” (Crystal 2001: 195).

This paper proposes the use of web pages as an interdisciplinary tool in classes of English for Professional and Academic purposes. Languages and Computing are two areas of knowledge which the graduates of the Polytechnic University of Madrid and its School of Architecture (E.T.S.A.M.) need to study in order to supplement the education received during their degree with the aim of facilitating their entry into the working world. An optional course in English language which uses computers could bring the students closer to obtaining a more complete future training. Web pages have been used as an interdisciplinary pretext in order to work with a group of students with varying levels of English. The level of motivation and the success of the activities that were carried out show the usefulness of combining the study of languages with other disciplines.

Introduction

Due to the particular professional, academic and cognitive characteristics of architects, the use of web pages in English classes for architects represents a tool which can help us to improve their language learning (Forty 2000, Ubeda 2001, Caballero 2001). We consider this approach to be appropriate for the following reasons:

- The results of a study carried out by C.O.I.E. (Centre for Guidance, Information and Employment) during the academic year 1999-2000. This study highlighted that out of all U.P.M. (Polytechnic University of Madrid) graduates of the academic year 89/99, 63% supplemented the training they received at University with language studies and 64% did so with computing studies (GESE-UPM, 2000:20), their aim being to improve their possibilities of entering the working world. For the majority of graduates, the combination of languages and computing is considered to be an indispensable base and therefore the teaching staff within the system which trains future graduates should find a way of helping to complete the training which the students themselves consider necessary in order to make it easier for them to enter the working world.

- Likewise, Internet is one of the architecture students' preferred media for the dissemination and understanding of architecture. During the academic year 98/99, a national survey carried out amongst architecture students (Arquitectos, 1999:38) already ranked it as the third most popular resource, after books (first position) and magazines (second position).
- In this respect, a survey carried out in 2001 amongst my students, who chose the "Professional Applications in English for Architects" course in the Higher Technical School of Architecture of Madrid (see figure no. 1), revealed that the use of Internet was already widespread; they all used Internet, with an intermediate level of use (6 on a scale of 0 to 10). 50.8% of this use was devoted to degree-related matters and within this field of access, the students indicated that 56.5% of the pages were in English. This percentage of Internet use can be considered high for students from very diverse social backgrounds: It means that, firstly, they all had access to a personal computer (either at home or at University) and, secondly, they used it to access Internet regularly. This clearly shows that this communications and information resource has a high degree of penetration amongst our young architecture students. On average, over half of the time spent using Internet is devoted to degree-related matters thus indicating that it is a useful tool for study purposes. Furthermore, most of the pages accessed by the students when searching for architectural topics are written in English. This reaffirms the importance of the language in this profession, particularly when exploring the Internet for architecture-related matters.

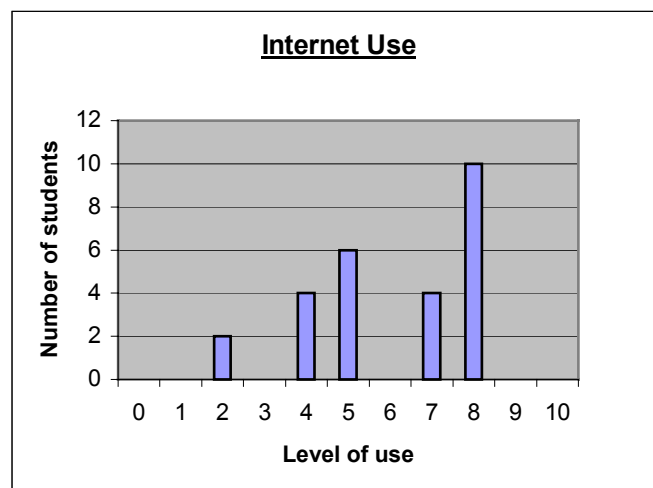


Figure no. 1

- Multimedia teaching and, in general, the acquisition of knowledge through several simultaneous media (in the case of web pages: text, images and even sound) represents a considerable increase in the ability to assimilate and retain knowledge.
- Due to the way in which architecture students learn, it is necessary to use teaching methods which concentrate on the use of images as a practical learning resource and technique and give emphasis to practical activities as part of the learning process.

- Architects intensively use images to communicate. Their study programme itself is made up of subjects which teach students to look and observe, as in the case of Graphic Conception, Analysis of Forms and History of Art, amongst others.
- With regards to future research, the creation of web pages in the architectural world has brought and will bring a new way of sharing information as well as a new form of communicative language between architects. Architects will not be limited to their work or their studio. With the appearance of web pages, a medium has been created for exhibiting projects. A mere photograph of a project represents a means of communication within a certain group of architects which share the same cognitive map.
- From the linguistic point of view, the emerging bibliography and future market needs indicate that it is a tool which will enable language teachers to share a new approach to foreign language teaching (Crystal, 2001). Internet is opening up new ground in the field of English for Specific Purposes (E.S.P.).
- Finally, interdisciplinarity leads to motivation for the student who can also benefit for other subjects in the career. In this case, the proposed tool is interdisciplinary in the sense that students not only will use the computer for learning english in their English class but also the use they do of activities and web browsing will be useful for other subjects in their curriculum.

The above points are the motivation behind the approach taken in this paper. The proposed methodology is adapted to and maximises the learning process and style of the students and will motivate them insofar as its interdisciplinary nature prepares them for the working world.

Theoretical foundations

The theoretical foundations for the proposed activity are essentially cognitive in nature, with special attention being given to the students' learning styles. Any educational process must take into consideration the way in which the students find it easiest to acquire knowledge in order to improve their motivation and increase the extent to which the subject matter is absorbed.

Learning styles may be defined as “cognitive, affective, and psychological traits that are relatively stable indicators of how learners perceive, interact with, and respond to their learning environment” (Reid, 1993: 56).

The Reid model (1995) looks at the sensorial nature of each individual (visual, auditory, kinesthetic and tactile) and the dependence-independence field factor (individual and social), in order to classify learning styles in the following groups:

- a) Visual style: people who usually react to new information in a visual or graphic way, i.e. with spatial thinking.
- b) Auditory style: people who learn by listening to oral explanations, with verbal thinking.

- c) Kinesthetic style: people who learn when they are physically involved in the experience.
- d) Tactile style: people who learn better when they carry out manual activities.
- e) Social style: people who like group dynamics and learn by working in teams and interacting with other people. They are dependent in the field and prefer a greater external structure, guidance and feedback information.
- f) Individual style: people who prefer to work alone and remember things better if they do them themselves. They are independent in the field and prefer to resolve problems personally.

In the case of Spanish architecture students, the dominant style is kinesthetic, i.e. they require action (Úbeda 2002). The secondary group consists of the Visual, Tactile, Auditory and Group styles. The Individual style is the least developed.

The Visual style, well suited for students of Architecture, finds its ideal medium in the Internet, which becomes an appropriate learning tool for them. In effect, not only are there many computer graphics but, in the specific case of architecture-related web pages, there are also many photographs. Furthermore, the text included in the web pages has an associated graphic dimension. In this respect, Crystal comments:

“The web in effect holds a mirror up to the graphic dimension of our linguistic nature. A significant amount of human visual linguistic life is already there, as well as a proportion of our vocal life.” (Crystal 2001: 195).

In fact, the Web has no barriers in representing written texts, not only with regards to the kind of letters and their size but also new dimensions such as colour, movement, animation and the fact that the text does not have to have a linear arrangement; the page designer may position the text wherever he/she feels that it is most appropriate and it is the user who decides on the sequence and visual route to be taken through the web page. This graphic dimension makes it still more appropriate for Visual learners as our students of architecture. The dimensions of the Internet text go further, and as Crystal indicates, the Web also ventures into multimedia through spoken texts, whether via voice files or more integrated hyperlinks which make it possible to hear associated spoken texts.

Multimedia teaching and learning, due to its integrated combination of different media, enjoys an excellent reputation as a teaching method in a period marked by a lack of time and globalisation in which flexibly time-tabled distance learning (at home with telephone/email support from the institution), e-learning (all materials through Internet) and self-teaching at home or in the company (no support from the institution, self-contained course) are considered valuable ways of learning. From a cognitive perspective, it is easy to understand this potential. However, there also exist determining factors associated to learning styles which may reduce the effectiveness of this methodology and must be carefully considered.

Generally, the term “multimedia” is associated with the combination of visual and verbal information; according to Mayer (1997), the student possesses one system for processing visual information and another for verbal information. In multimedia learning, the student is involved in three important cognitive processes:

- 1) Selection: the recognition of the basic verbal text or the basic visual image
- 2) Organisation: the creation of verbal or visual models corresponding to the system to be learnt
- 3) Integration: the creation of links between the two models

On the basis of experiments related to learning effectiveness, the Mayer model proposes five basic principles to be considered when using multimedia to help students to understand a scientific explanation:

- a) Principle of multiple representation: It is better to represent an explanation in words and images, rather than only in words; based on the integrating cognitive process.
- b) Principle of adjacency: in a multimedia explanation, present the appropriate words and images together, not separately.
- c) Principle of divided attention: in a multimedia explanation, present the words as an auditory narration, not as text on the screen.
- d) Principle of individual differences: the previous principles are more important for students with a low level of knowledge and high spatial ability.
- e) Principle of coherence: in a multimedia explanation, use few unfamiliar words or images.

As I mentioned earlier, the use of new educational technologies must be supported by a consideration for the students' learning styles. In this respect, given that the dominant style for architecture students is the kinesthetic style, an Internet exploration activity, which is highly interactive, would be perfectly appropriate. The kinesthetic style needs action, be it physical, manual or mental, since its roots are grounded on the process of doing. In some way, a search in the library, which is more physical, is equivalent to this "virtual" search, in which there is a permanent interactive action of the student. The effectiveness of learning by means of this tool is guaranteed and it will maximise their understanding and knowledge retention. In the case in hand, we are concerned with teaching English by means of activities using web pages.

Therefore, the proposed search activity suits the kinesthetic style since the student is very actively involved, having to "explore", albeit in a virtual space, in order to reach the desired information and also, in our case, to learn the language. Robinson (2001: 289) describes a similar activity in order to illustrate what he calls "Task based language teaching": the activity involves "finding a journal article in a library using library technology".

Obtaining information on the Internet is in fact a highly interactive cognitive process; when we search for something on the Internet, normally using the help of a Search Engine such as Altavista, Google, etc., and a Query which may be simple or advanced (with logic operators for example), we find information which is usually not exactly what we were looking for and whose relevance in the search is established by means of a further query to the Search Engine, with appropriate alterations (more specific, more exact, new key words, etc.). This process, which Belew (2000) calls Relevance Feedback, corresponds to the Recognition of an Object, in which the object that must be recognised is an internal representation of a prototypical document, according to the

cognitive meaning of prototype as used by Rosch (1976), which satisfies the informational needs of the explorer. The feedback process is repeated until the search is completed with a greater or lesser degree of satisfaction. The process may vary in the number of times it is repeated, not only depending on the time available but often also according to the importance of the search: for example a lawyer searching for jurisprudence on one of his/her cases, a doctor looking for possible solutions to a problem, a researcher checking that nobody has worked in his/her area or an architect searching for a description of an innovative technique will clearly repeat the process more times than a student who is looking for information to include in a class project or someone who is merely curious about subject and is looking for further information.

In the process of searching for documents, there also exist two conceptual domains in Lakoff's cognitive sense (1987): that of the user and that of the author of the document. The former can be seen in the prototype and in the way in which they express themselves in the search by means of words which may be used describe the document. The latter expresses himself/herself using key words associated to the created document which may often depend not only on the author's cognitive map but also on the context and the type of publication for which it is intended (popular, specialised, etc.). One single document may be described by its author using different key words according to these parameters. One single concept may be expressed or a document may be developed using different words depending on the linguistic genre to which it belongs (scientific article, newspaper article, etc.), its register and the associated vocabulary. In the middle of this we have the Search Engine which efficiently acts as a bridge between the two domains and, relying on a powerful technological platform and sophisticated algorithms which use Artificial Intelligence techniques, must be able to minimise the Information Retrieval time and, as far as possible, learn from the user and his/her cognitive map through Relevance Feedback.

In this respect the reading process is performed using the techniques of scanning (superficial and fast reading with the aim of locating specific information) and skimming (fast superficial reading whose aim is to extract the general idea, the essence of the text). With both techniques the reading acquires an important role for genres which come from a multimedia source.

Web pages, in turn, allow us to access genuine authentic texts as defined in Durán's classification of texts (1999: 199): genuine in that they are specialised and authentic in that they are useful for language teaching. Durán indicates the following advantages, disadvantages and recommended uses:

Text	Advantages	Disadvantages	Recommended use
Genuine authentic	<ul style="list-style-type: none"> - Interests the student due to its content - Motivates and gives a sense of achievement when it is understood - There is great variety from which to choose - Puts the student in contact with real scientific language 	<ul style="list-style-type: none"> - May be too long - May use concepts which are too sophisticated for the students and the language teacher - If the language structures are not understood, an organised presentation is difficult 	<ul style="list-style-type: none"> - Intermediate and upper intermediate level - Advanced level

The important cognitive dimension of the above-mentioned search process must be combined with an appropriate use of language in order to use the Internet effectively, with the necessary flexibility in the student's linguistic register. It is therefore essential to develop this skill amongst students who can then practice it in a motivating way in Web searches.

The next section describes the proposed activity which is based on the concepts explained above.

Example activity

The activity presented in this section forms part of module number one of the optional course "Professional Applications in English for Architects". The course is worth five credits and is taught during the first and second term at the E.T.S.A.M. (Higher Technical School of Architecture of Madrid). The students choose the course amongst other optional subjects that are offered within their architectural studies to obtain the degree of Architect. The average level of English that the group has had until now ranges from intermediate to advanced. By way of example, this paper proposes an exercise for working with web pages of an intermediate level. However, the bibliography includes some examples of other web pages which are suitable for students with upper intermediate and advanced levels.

In order to provide an adequate description of the activity which will help it to be understood and practically applied, three files are presented in the following pages: one for classroom planning, one for the didactic unit itself and one to put it into context within the course. The first is a contextual file which shows how the theoretical foundations of this project are adapted to the proposed activity. The second explains how the activity is carried out in real classroom time. Lastly, the third file shows the activities of the unit in question highlighted in blue.

1. Contextual File

Subject Area: ENGLISH	Course: PROFESSIONAL APPLICATIONS
Theme block I:	Timing: First and second term
DIDACTIC UNIT: "Working and learning through web pages".	

<p>Educational objectives:</p> <ul style="list-style-type: none"> - General objective of phase: to develop reading comprehension. - General objective of subject area: to stimulate a register that is appropriate for the working environment . <p>After finishing this unit, the students should be able to:</p> <ul style="list-style-type: none"> - Distinguish the structures of a formal register for a working environment. - Evaluate their colleague's opinions. - Identify metaphorical expressions as a way of communicating their thoughts and ideas.
<p>Evaluation criteria:</p> <p>After finishing this unit, the student must demonstrate that he/she can:</p> <ul style="list-style-type: none"> - Relate basic register verbs and structures with others of a register more suited to the working environment - Form phrases which express his/her ideas regarding a project, building or house - Understand the images that other architects have of their projects - List the important aspects which must be taken into consideration when describing a project.
<p>Concepts:</p> <ol style="list-style-type: none"> 1. Types of projects 2. The constituent parts 3. Ground plan and elevation
<p>Related subjects:</p> <ul style="list-style-type: none"> - Perception in architecture
<p>Procedures:</p> <ul style="list-style-type: none"> - Identification of an everyday type of enquiry - Identification of specific architectural vocabulary in English - Analysis and comments about well-known buildings in English - Producing descriptions of different projects in English
<p>Abilities:</p> <ul style="list-style-type: none"> - Development of project analysis within an everyday working context. - Development of the imagination in a leisure environment. - Development of mental activity in relation to entities which are common amongst architects.

2. Activity development file

LESSON PLAN

Course: 2001-2002	Subject: Professional Applications in English for Architects	Group: A
Class: SX5	Date:	No. Students: 24
Timing: 3hrs		Topic: "Working and Learning through web pages".

Aims:

- Scan and skim web pages which focus on professional projects.
- Use language to effectively convey information and "ideas" in a straightforward working situation, such as in a Practice.
- Take an active role in a group discussion, constructively contributing to the sustained development of the project.

Procedure:	Time: 3 hrs.
A. Students are taken to the computer room and are asked to browse through the web page http://www.fosterandpartners.com	15m
B. The teacher asks them to choose and carefully read the project they like the most.	15 m
C. The teacher asks the students to check with their classmate those words or sentences they don't understand. If they still have any doubts they ask their teacher.	15 m
D. Now the teacher asks them to browse through the web page http://www.calatrava.com	10 m
E. The teacher asks them to choose and carefully read the project they like the most.	10 m
F. The teacher asks the students to check with their classmate those words or sentences they don't understand. If they have still any doubts they ask their teacher.	5 m
G. Brainstorm. 1. Students say the things that both pages have in common. 2. Students say things that the pages don't have in common. In both cases, the students justify their answers.	15-20 m
<i>(Break) First session</i>	20 m
H. Students browse through new web pages according to their architectural preferences. The aim is to find a Practice with summer jobs for students which they can apply for.	30-40 m
I. The teacher assigns homework to the students	10 m

Materials & Aids:

- ◆ Computer room
- ◆ Set of photocopies of “Working and learning through web pages”.

Homework:

Students will choose a project to be printed from any web page they have browsed through in class. Then they will look for the same project text in an architecture magazine or journal. After reading both of them, they will classify them in the same way: unknown vocabulary; vocabulary considered to be specific for architects; metaphors and sentences or grammar structures they consider complicated.

3.File showing the context within the course

UNIT PLAN.

Subject “Professional Requirements in English for Architects”

LEVEL: Intermediate

	LEAD-IN	TEXTS	LISTENING	COM. ACTIVITY	WRITING	GRAMMAR	VIDEO	TIMING	EVALUATION
1. Where to start	Professional Requirements Description/discussion	Advertisements		What does a portfolio consist of? Architects contacts	Summarising sts. project in a portfolio	- Nominal group		1 week	Dossier on adv. and Portfolio
2. Working and learning through web pages	Contrasting web pages of well-known macro-international Practices. Description / discussion / comparison	Web pages: Norman Foster Santiago Calatrava	Tape: London's Changing face	Express and react to an opinion about a project	Describe a project you like	- Review of present perfect. - Phrasal verbs	1. N. Foster Practice. (53m) 2. Babel 2015 (25m.)	3 weeks	Dossiers on web pages visualising specific vocabulary
3. CVs in English	Making the most of yourself. Extracting and representing information	Example CVs	See video	Role-play: “An outstanding partner”	Writing your own C.V.	- Gerund - The infinitive - Gerund vs. infinitive	1. Looking good on paper (25m)	2 weeks	Dossier on C.V. +Adv.
4. Formal letters	Professional letter genre: comparison	Some samples: -Covering letter - Letter of application - Reference letter	See video	Role-play: “I recommend this architect to you”	- an Application Form - a Covering letter - a Letter of application - a Reference letter	- Review of tenses - The passive voice - Modal verbs	1. Looking good on paper (25m)	4-5 weeks	Dossier on +Adv. C.V.+ letters
5. Going for an interview	Asking questions	Body language manners	Tape: “Going for interview”	Role-play: “At the Practice; A tough interview”	Notes on interviewing	- Interrogative questions - Negative inversions	1. Oral presentation (20m)	1 week	Oral interview
6. Using the phone	Telephone contact over letters and face to face encounters	Why the correct use of the phone is so important	Tape: “Using the phone”	Role-play: “An unexpected call from my architect”	Writing messages	- Review of conditional		1 week	Making calls
6. Working and learning from videos	Different ways of working and living. Description / discussion / comparison	From the web pages on the given topic. e.g. Japanese dwellings: public and private	See video	Role-play: “A Japanese client looks for a Spanish architect”	“What would you design in 30m ² ?”	- Review of reported speech	1. Japan: the Zen way of building (45m)	2 weeks	Identifying specific vocabulary group
								15 weeks per term	Final Exam

Evaluation:

As indicated by Alcaráz & Moody (1983), evaluations are closely linked to objectives since the different tests which evaluate student performance must indicate which objectives have been fulfilled and which have not. We understand this relationship between evaluation and objectives to be extremely useful for both the student and the teacher. When evaluating reading comprehension, the main objective is to find out the student's ability to understand a written text. We must also consider the cognitive skills that are required of the student (Marín 1989:42): "capacity for comprehension, logical reasoning, knowledge of the world, etc.". After finishing this exercise, the student is given a text about a project taken from the web page of a well-known architecture studio and questions are made using different possible styles (true/false phrases, multiple-choice or specific questions about the text). The student must also complete tasks which involve distinguishing between information and opinions, identifying references and allusions to other projects which are not explicit in the text. There are also exercises involving vocabulary comprehension, synonyms and antonyms and the identification of any metaphors which may appear.

In the case of the tasks using web pages that we have discussed in this paper, the students must present a dossier containing exercises for evaluation purposes. The homework which is covered in the appendix forms only part of this dossier. In class, at the start of each unit, the teacher hands out a set of photocopies which include many of the exercises mentioned earlier.

Conclusions

The use of Internet in English classes for Architecture students, by means of the activities described, greatly motivates the students. Without realising it, they satisfy the needs of their particular learning styles, work with genuine authentic texts and absorb multimedia information which they receive whilst practising vocabulary, different lexical registers and flexibility in defining desired prototypes according to the cognitive process described.

The activity described in this paper mainly develops reading comprehension skills and must form part of a didactic unit which contains other activities related to the Internet searches carried out. When this unit is finished, in order to make full use of a coherent didactic block, the students must have completed, in later sessions, activities related to the four skills given below:

- Reading comprehension (Internet search activity)
- Written expression
- Listening comprehension
- Oral expression

The proposed activity has deep cognitive roots and this makes it easier to learn and assimilate language. In order to fully benefit from its advantages we must not stop here, instead we must gradually increase the complexity of the activity, both in terms of the pages and the search process, as well as the textual content. As Robinson says:

“...tasks making increasing conceptual/communicative demands increasingly engage cognitive resources, which progressively exploit learning mechanisms leading to greater analysis, modification and restructuring of interlanguage, with consequent performance effects” (2001:301-302).

An example of this could be one or several subsequent sessions which could be carried out at the end of the academic year.

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Web bibliography on Internet:

<http://isoc.org-internet-histoey-brief.html>
http://elsop.com/wrc/h_web.html
<http://puc.cl/curso-dist/infograf/reception>
<http://netvalley.com/intraweb.html>
<http://www.w3.org/>

Web bibliography used in the example proposed in class:

1st Part

<http://www.fosterandpartners.com>

<http://www.calatrava.com>

2nd Part

<http://interArchitects.com/english/architecture/architecture.htm>

<http://archinet.co.uk/index.html>

<http://europa.eu.int/comm/oof/work>

Some examples of web bibliography used, according to levels.

ARCHITECTURAL STUDIES		
Intermediate Level	Intermediate-Advanced Level	Advanced Level
www.architecturestore.com/famous.html	www.gibson-esign.com/	www.geocities.com/CapitolHill/2317/sullivan.html
www.fosterandpartners.com http://www.calatrava.com	www.richardmeier.com	www.greatbuildings.com/architects/Herzog_and_de_Meuron.html

APPENDIX No.1 Questionnaire on computer use.

Computing habits

1. Do you have a computer at home?
2. What do you use it for?
3. Do you use a computer at the University? What for?
4. What do you know about Internet?
5. Do you use it at home?
6. Do you use it at the University? What do you use it for?
7. If you could use a computer in your English class, what would you use it for?
8. Do you think it would be useful for improving your English level? Why?/ In what way?
9. Name 10 topics that you would be interested in studying in your English class, and explain or give a reason for your choice.
10. Give some advantages of working with web pages in your optional course "Professional Applications in English for Architects".
11. Now name some disadvantages of working with / using web pages in your optional English course.

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