

Internet Content-based Activities for English for Specific Purposes

THE NEED TO PROMOTE TECHNOLOGICAL LITERACY AMONG STUDENTS AND THE focus on content-based instruction as the most appropriate method to learn and construct knowledge have resulted in the development of activities to integrate the Internet into the classroom. WebQuests are activities designed for this purpose that take full advantage of the resources on Internet.

Although the WebQuests free to use on the Internet are designed for native speakers and have not been developed as activities for second and foreign language learning, I propose that they can be effectively used as activities for a content-based approach to English for Specific Purposes (ESP) instruction. In this article I will describe the benefits of a content-based approach to ESP, examine how WebQuests can be integrated into a content-based ESP syllabus, analyse the different types of WebQuests suitable for ESP teaching (specifically for engineering students), and discuss the limitations of this type of activity and the factors that should be taken into account when using WebQuests for language learning.

Technology in a content-based syllabus for ESP

A content-based curriculum integrates target language learning and content learning. Therefore, it is based on the content of a subject and on the use of authentic materials, and takes into consideration the students' linguistic needs and learning styles. Brinton, Snow, and Wesche (1989:2) point out that content-based instruction "employs authentic reading materials which require students not only to understand information but to interpret and evaluate it as well.... [and] requires students to synthesize facts and ideas from multiple sources as preparation for writing."

There are at least two major benefits of content-based instruction. First, if students are given multiple opportunities to interact with authentic, meaningful, and challenging material, the result is better learning (Brinton, Snow, and Wesche 1989; Kasper 2000a). Second, students' motivation is enhanced with the use of authentic materials relevant to their goals (Chávez 1998).

Since the main objective of an ESP course is to help students acquire the linguistic and communicative skills related to their disciplines, a content-based approach is especially useful. Content-based pedagogy promotes synthesizing and evaluating, and helps students improve their academic skills by raising their awareness of the concepts of audience and purpose (Kasper 2000b).

The Internet is a learning tool that fits well in a content-based ESP syllabus. Among the benefits of Internet use in the second and foreign language classroom, the most important are:

- Increased motivation and participation by students (Warschauer 1996).
- More opportunities to interact with the target language and content area because students spend more time on task (Kasper 2000b).
- Greater integration of reading and writing skills and opportunities to practice them in meaningful contexts.
- The possibility to implement a pedagogy based on problem solving and critical thinking (Warschauer 1999).
- More self-paced autonomous learning that is learner-controlled rather than teacher-controlled (Mak 1995).

In addition to the benefits just cited, the Internet provides the resources necessary to carry out authentic projects and analysis, and thus develop the communicative competence of ESP students. Such resources allow teachers to design simulation activities and role-playing using authentic material. Kimball (1997) points out that "Internet-generated materials can be flexibly arrayed to engage students with topics and cognitive tasks relevant to students' professional futures."

WebQuests and other Internet-based activities

Activities that can exploit Internet resources for ESP take many forms. In a discussion of using the Web for education, March (1997) explores the following five formats: topic hotlists, multimedia scrapbooks, treasure hunts, subject samplers, and WebQuests. The first two are activities for learners new to the WWW and are limited to simply exploring and downloading Internet resources. These resources can be organised and used later in other Web-based activities. A topic hotlist is a Web page containing sites categorised by topic. A multimedia scrapbook is a collection of Internet sites organised into categories, such as photos, maps, and sound and video clips. A treasure hunt develops students' knowledge of a topic by providing links to Web sites with information on that topic and by posing key questions concerning the sites. A subject sampler is an activity designed to get students to develop an affective connection to a topic by responding to Web sites with a personal perspective.

WebQuests develop problem-solving skills and promote learning through analysis of complex concepts; thus, they are the most useful for ESP teaching. The sections that follow provide a description of WebQuests and their uses and benefits.

What is a WebQuest?

WebQuests are inquiry-based activities in which learners interact with information coming primarily from resources on the Internet (Dodge 1995). There are hundreds of Web sites that offer guidelines for teachers and samples of students' work; entering "WebQuest" in any search engine will turn up dozens of them. One place to start is *A WebQuest of WebQuests*, an Internet site by Bernie Dodge (2001), a pro-

fessor of educational technology at San Diego State University in California who has been developing this model for Internet-based teaching and learning since 1995.

Most WebQuests are designed so that students can integrate complex concepts of a specific discipline—for example, science, music, art, or history—with new technologies (Dodge 1995; Abraham 1998; Cotton 1998). The principles underlying WebQuests are those of constructivism. Internet technology is integrated into the course curriculum, thus enabling students to learn by constructing their perceptions of complex concepts (Watson 1999).

A WebQuest must have the following steps (Dodge 1995):

1. An introduction that explains the activity and provides background information.
2. A task that is feasible and interesting.
3. A set of information sources needed to complete the task.
4. A description of the process the learners should follow to complete the task.
5. Some guidelines on how to organise the information.
6. A conclusion that closes the quest.

Dodge (1999) also distinguishes between short-term WebQuests (in which the main goal is that students make sense of new information) and long-term WebQuests (which involve students in deeper analysis and content transformation).

In a WebQuest, students go beyond mere fact finding by studying a controversial issue in order to analyze its components and suggest a solution (Krauss 2000). First, they need to learn some basic background information about the issue. Then, working in small groups, students become “experts” on some aspect of the problem by analyzing the Web sites given to them by the teacher. Finally, students complete a real world activity such as e-mailing elected officials or presenting their interpretation to recognized experts on the topic (Krauss 2000).

Research on WebQuests has focused on their use for interdisciplinary teaching (Pohan and Mathison 1998) and cooperative learning (Brucklacher and Gimbert 1999). WebQuests also promote learner motivation and skills in problem solving and decision making (Cotton

1998; Seamon 1999). Most WebQuests are intended for middle or high school, but their use at university level has also been explored (Abraham 1998).

WebQuests foster cooperative learning, since students usually have to collaborate and share information to solve a problem or find an answer to a complex question. They engage students in performing authentic simulation tasks by providing up-to-date information on a topic and by helping students develop critical reading and synthesizing skills. They also promote writing with a purpose for a real-world audience.

WebQuests for content-based instruction

WebQuests are activities specially suited to content-based language learning; students perform a real world task using authentic materials related to a topic within their academic discipline. The pedagogical principles of a WebQuest are to assign small groups of students with a challenging inquiry, provide access to an abundance of online resources, and scaffold the learning process to promote higher order thinking (March 1997).

The rationale behind WebQuests has three components (March 1998):

1. WebQuests promote motivation and authenticity. Students perform an authentic task, since they have to understand or solve a real world issue. Motivation is increased by giving students real resources and assigning them a role within a cooperative group, which implies that success depends on all members doing their jobs.
2. WebQuests develop thinking skills. The question that the students have to research and answer should be a complex one that forces them to transform information. Dodge (1995) states that a WebQuest activity might require the following thinking skills: comparing, classifying, generalizing principles from observations or analysis, deducing, analysing errors in one’s own or others’ thinking, constructing support for an assertion, abstracting, and analysing different perspectives about issues.
3. WebQuests foster cooperative learning. Since WebQuests are concerned with complex topics, students have to coop-

erate and take on specific roles to complete the task.

WebQuests also meet the following four criteria for content-based activities:

1. Learning activities should provide more than one perspective on the content area. This is met by WebQuests, which offer a large number of Web pages with information on different aspects of a topic.
2. Activities should present authentic content without oversimplifying it (Spiro and Jehng 1990).
3. Activities should incorporate visuals and other aids for making associations, since that facilitates deeper thinking (Craik and Lockhart 1972). The Web pages used in WebQuests contain not only text, but also pictures, sound, and even animation.
4. Activities should encourage the SQ3R formula: surveying, questioning, reading, recalling, and reviewing materials under study (Schmeck 1986).

The Internet has been successfully used in ESP and content-based instruction. An example is the ESP course proposed by Kimball (1998), in which the focus is on “discipline-relevant concepts” and “tasks in the form of contextualized problem-sets.” The tasks are a vehicle for presenting samples of the target language. Teachers design the tasks to pose problems of relevance to the students, who then have to solve them, not simply by collecting information, but by engaging in sub-tasks of increasing complexity.

WebQuests in ESP for engineering

Dodge (1999) provides a WebQuest “taskonomy” in which he describes formats for WebQuest tasks. Some of these tasks are particularly relevant to ESP because they help students develop skills associated with their discipline. Therefore, when designing tasks teachers must consider the students’ field of study and the methodology of that academic discipline. The technical English course I teach is for engineering students. I will describe some tasks that are relevant for teaching ESP to these students.

Summary and synthesis tasks

Summarising and paraphrasing are basic writing skills for engineers. Braine (1989)

found that most assignments in writing courses for engineering require the summary and synthesis of information from multiple sources. Retelling tasks, which require students to read texts and reword them in order to produce a new document, are useful for developing comprehension and summarising skills. Compilation tasks provide students with practice in explaining the choices they make and in paraphrasing information drawn from a variety of sources (Dodge 1999).

Design tasks

Design tasks fit well with the methodology and goals of engineering and are closely related to the work engineering students will perform after graduation. This type of task requires learners to create a product that achieves a predetermined goal and works within specified, authentic constraints, such as working within a budget and taking into account social, legal, and ethical restrictions (Dodge 1999). The motivation of the students will be high, since they do not feel that they are just performing a class activity. Design tasks can be used to practice discourse features of specific genres, such as proposals. The final result can also be an oral report presenting the product designed.

Negotiation and interaction tasks

Engineers have to use language not only to report information, but also to establish interpersonal relations. Consensus building tasks teach students to consider, articulate, and accommodate different viewpoints. Judgment tasks lead students to make decisions among a number of choices and use language articulately to justify their decisions. Students can be asked to evaluate authentic documents, such as technical specifications or advertisements. These tasks can help engineering students develop the reading and thinking skills necessary to write recommendations and evaluations and to learn the language of negotiation and interaction.

Analytical tasks

Analytical tasks require learners to look closely at one or more things, find similarities and differences, and determine the implications inherent in the similarities and differences (Dodge 1999). Such tasks are also useful for examining cause-and-effect relationships and providing students practice in the

rhetorical patterns typical of technical and scientific texts.

Scientific tasks

Scientific tasks help students develop their skills in gathering data and making and testing hypotheses. As the final stage of a scientific task, students can write a report describing the results and implications of their research.

Effective use of WebQuests in ESP

Although the Internet is a useful tool in teaching, it has limitations and can pose problems for some learners. Elementary and intermediate level students can feel overwhelmed by the wealth of information and may lack the proficiency in English necessary to understand many texts. Of course, not all the information accessible on the Web is relevant for ESP students. Additionally, lack of direction may become an insuperable hindrance. Therefore, at every stage of an activity learners need to know the purpose of the task they are performing and what to do next.

These difficulties can be overcome with appropriately planned WebQuests. A WebQuest must be integrated into the ESP curriculum, taking into account the overall design and goals of the course. The teacher should explain the activity, its purpose, the benefits the students can obtain by doing it, and the expected outcomes. Before starting a WebQuest, students should be given some background information on the topic of the task and some practice with the vocabulary they will encounter in the WebQuest.

The task must be challenging and relevant to the students in order to maintain their interest and enhance their motivation. The type of WebQuest and the tasks that the students have to perform must be suitable to their level of knowledge of English and the ESP content area. The topic should be familiar to them and the material should be related to their field of knowledge, in order to enhance their confidence. The number, length, and linguistic difficulty of the texts will depend on the level of the students for whom the activity is intended. When using authentic materials in ESP, especially considering the abundance of material available online, it is preferable to simplify tasks rather than simplify authentic texts.

The tasks that the students have to complete should be divided into sub-tasks of

increasing complexity and should be clearly described, thus guiding students through the activity. As the students work in groups, it is desirable to match less proficient with more proficient students. In this way, the more proficient students can take on the most complex roles and collaborate with the others to complete the task. A potential problem pointed out by Brown (1999) is the students' lack of Internet knowledge. This can be solved by matching computer novices with more experienced students. However, this does not seem to be a serious problem in engineering classes, where most students are computer literate.

The guidelines for teachers given by Warschauer and Wittaker (1997) are useful for the design of WebQuests and for ways to use them in class. Teachers should consider carefully the goals of the task, not underestimate its complexity, provide necessary support, and involve students in decision making.

Conclusion

In this paper I have proposed that the WebQuest can be used in a content-based syllabus for ESP. This activity involves the use of authentic material from different Internet sources and engages students in reading extensively on a topic related to their discipline, performing tasks of increasing complexity, and creating oral or written texts to present the results of their online work.

WebQuests fit well in a learner-centred curriculum that seeks to help students develop autonomous learning. The use of technology with a content-based curriculum results in a learning environment in which students take more control of their learning. The role of the teacher is not to transmit knowledge, but to provide resources, help students develop learning strategies, guide the learning process, and offer support throughout the process.

The use of WebQuests to learn languages integrates the pedagogical benefits of project work, content-based instruction, and language learning via the Internet. ESP students become more motivated because they are using new technologies and authentic texts to complete authentic tasks related to their disciplines.

The WebQuest is an activity that can be fruitfully exploited in ESP. It helps students develop academic skills such as scanning, skimming, paraphrasing, summarising, organising,

analysing, and problem solving. Through extensive reading students acquire the vocabulary related to a topic of their discipline. By using authentic texts to perform real world tasks students become aware of concepts such as purpose and audience and see the utility of studying a second or foreign language.

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