Research on Humanities and Social Sciences www.iiste.org
ISSN 2222-1719 (Paper) ISSN 2222-2863 (Online)
Vol.3, No.8, 2013 - Selected from International Conference on Recent Trends in Applied Sciences with Engineering Applications

# English Language Learning for Engineering Students with Internet-Based Projects

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**ABSTRACT**
This article presents a student-centered approach of teaching English by making use of internet based projects. Whereas many educators enthusiastically embrace the use of Internet-based resources, little theoretical and empirical research exists that demonstrates how to make use of such practices in a sound pedagogical way. Based on concrete sample lessons, this article provides guidance to teachers and curriculum developers to integrate Internet-based activities into a language learning class.

**INTRODUCTION**
Learner-determined lessons follow an approach to integrate Internet-based resources that are entirely learner-centered. As seen from the examples in Appendix A, the learners determine the topics, reading materials, and the way they go about exploring the readings themselves. They decide on the process and the product, formulate the goals, identify Internet-based resources, and make a decision on how the outcomes should be evaluated. In this way, the students take on the roles of self-directed and autonomous learners, and take full charge and responsibility for their outcomes. The teacher only gets involved in the role of a facilitator offering support and guidance throughout the process as much as necessary. Types of assessment may include teacher-, self-, or group-assessment. Assessment of learner outcomes may be teacher-directed or student-determined. Examples are short writing assignments, essays, or mini-projects or presentations that show the students' analytical and interpretative skills of cultural readings and texts. Students may also document the process and stages of their projects through diaries or maintaining a portfolio. Internet-based projects can be carried out intensively over a short period of time or extended over a few weeks.Generally speaking, this approach of integrating Internet-based materials lends itself to long-term assignments with intermediate and advanced language learners in the target language.
This approach is based on the theory of project-based learning. Its benefits have been described at various places. For example, Stoller (1997) summarizes some of the pedagogical advantages in the following way: Project work focuses on content learning rather than on specific language targets. Real-world subject matter and topics of interest to students can become central to projects. Project work is student-centered, though the teacher plays a major role in offering support and guidance throughout the process.
Project work is cooperative rather than competitive. Students can work on their own, in small groups, or as a class to complete a project, sharing resources, ideas, and expertise along the way. Project work leads to the authentic integration of skills and processing of information from varied sources, mirroring real-life tasks.
Project work culminates in an end product (e.g., an oral presentation, a poster session, a bulletin board display, a report, or a stage performance) that can be shared with others, giving the project a real purpose. The value of the project, however, lies not just in the final product but also in the process of working towards the end point. Thus, project work has both a process and product orientation, and provides students with opportunities to focus on fluency and accuracy at different project-work stages.
Project work is potentially motivating, stimulating, empowering, and challenging. It usually results in building student confidence, self-esteem, and autonomy as well as improving students' language skills, content learning, and cognitive abilities.
Project-oriented work embraces principles of learning that are promoted by various theories, approaches, and philosophies of learning. For example, project learning is in accordance with the principles of communicative language learning (Omaggio-Hadley, 2001). Students apply their knowledge in real-life situations by exploring authentic materials. The learning activities resemble real-world tasks. The students strive for an end product, whose goal they accomplish by collaborating with their peers in order to ultimately share what they have achieved with others.
Project-oriented work also lies at the heart of autonomy in language learning. As Holec (1981) claims, autonomy is the "ability to take charge of one's learning" which is a skill" to be acquired by 'natural' means or in a systematic, deliberate way." According to Holec, learners alone are responsible for deciding what is to be learned, when, how, in what order, and by what means. It is also their responsibility to set their own goals and measure the degree to which they have been effective in attaining them.
The major strength of this approach lies in its constructivist approach to learning. According to Chun & Plass (2000), "Constructivist approaches to learning advocate allowing learners not only to interact directly with

information to be learned, but also to add their own information and construct their own relationships" (p. 160). By taking a major role in planning and negotiating course content, the students become active contributors to their language learning rather than being passive recipients of knowledge.

An Internet-based approach to project learning consisting of the different stages of the research process. These stages are

**Questioning** -- Decide what information is lacking or what problem needs solving.
**Planning** -- Develop a strategy to efficiently locate valid information.
**Gathering** -- Locate the best sources, Internet and other, and collect needed information.
**Sifting** -- Select from what was found that information most pertinent to the research question.
**Synthesizing** -- Sort the information into a meaningful pattern.
**Evaluating** -- Assess progress in answering the research question, and if needed, return to the first step in this cycle .

Such an instructional practice underscores and supports the development of higher-order thinking skills like "synthesizing" and "evaluating" which students need when conducting research.

The use of the Internet for research purposes requires a variety of searching skills. It asks for knowledge of different search engines and how they work, such as whether they are case sensitive or not. Furthermore, it assumes the user has some information-seeking skills. Nahl (1996) showed that being somewhat knowledgeable of the topic being searched is necessary for learning how to search the Web, and that being somewhat knowledgeable about Web searching is necessary for exploring new topics. Several studies which have investigated students' searching behavior have found that students are often lacking searching skills (Nahl & Harada, 1996; Neuman, 1993). In conclusion of their findings, most of these researchers agree and recommend the need for formal training in Web searching, for teachers and students alike. They point to the need for training beyond the technical competencies required for Web searching, and thus emphasize the importance of integrating information-seeking skills into the curriculum.

The open-ended approach to exploring Internet-based resources requires language learners to have a solid foundation in their language proficiency skills. This makes the project-based approach most appropriate for engineering students.The exploration of such Internet-based materials or readings is best assigned in stages on a long-term basis. Similar to a teacher-facilitated approach, the open-ended structure of a student's product makes the assessment process subjective and time consuming. Therefore, assessment rubrics are recommended to indicate how a student's product is evaluated.

## INSTRUCTIONAL GUIDELINES

In the section above, I have provided a pedagogical rationale of this approach to using an online environment to explore Internet-based resources. I have discussed pedagogical issues such as the degree of teacher-centeredness, learner control of contents and learning processes, level of proficiency, the scope of Internet resources, and text types that need to guide the design of Internet-based reading lessons and task design (see Table 1 for overview).

**Table 1. Overview of Pedagogical and Instructional Design Issues**
***STUDENT -CENTERED APPROACH***

| Pedagogical Issues | High | Medium | Low |
|---|---|---|---|
| Instructor's control of contents, learning tasks and processes | | | X |
| Potential anticipation of student answers by instructor | | | x |
| Learner autonomy (contents, Web environment and process) | X | | |
| Potential use for cooperative learning | x | | |
| Degree of teacher- centeredness | | | |
| Development | | | |
| Degree of pedagogical expertise (development of reading tasks, e.g., comprehension and text management strategies ) | | | X |
| Preparation time (e.g., choice of materials pre screening materials) | | | x |
| Degree of technological expertise (e.g., HTML programming, Web design) | | | x |
| Preparation of students | | | |
| Need for students' level of proficiency in using the Internet (e.g., doing Internet search) | | | |

## APPENDIX A. SAMPLES OF LEARNER -DETERMINED PROJECTS

**EXAMPLE 1**

Following the principles of project-oriented learning, students make their own choices of the end product. Thus, the examples of student projects demonstrate the exploration of Internet-based resources including text-based and multimedia information.

Groups of students prepared News bulletins of about 20 minutes each spiced with images, Video clippings and includes: Headlines, Breaking News, Cover stories, Weather reports, Bollywood Blockbuster, Techno mantra.

**EXAMPLE 2**

The second web activity used in the English language lab was a wequest. "A WebQuest," according to Bernie Dodge, "is an inquiry-oriented activity in which most or all of the information used by learners is drawn from the Web. WebQuests are designed to use learners' time well, to focus on *using* information rather than on looking for it, and to support learners' thinking at the levels of analysis, synthesis, and evaluation." This means it is a classroom-based lesson in which most or all of the information that students explore and evaluate comes from the World Wide Web. Beyond that, A WebQuest :

- presents students with a challenging task, scenario, or problem to solve;
- can be as short as a single class period or as long as a month-long unit;
- usually (though not always) involve group work, with division of labour among students who take on specific roles or perspectives;
- is built around resources that are pre selected by the teacher. Students spend their time using information, not looking for it.

The best reason is that, like any carefully planned lesson, a good webquest makes learning interesting for your students. However, several other factors make web quests a powerful pedagogical tool.

The best way to compose a webquest is to scan through existing webquests relevant to your subject. Lots of webquests are being generated on the Web. This study involves a webquest named “A Business Trip To India” drawn from the search link (http://webquest.org/search/) at WebQuest.org and further modified according to the needs of the students.

**A Business Trip to America**

Not long ago your company, HSL, was bought by an Indian company, Acorn Electronics Distribution Corp (AED). Robert Blew is the new head of purchasing and you get along quite well with your new boss. Mr Blew wants to negotiate new umbrella contracts with major suppliers. He also wants to establish a good working relationship with them. For this purpose he is planning a trip to America in October. Mr Blew thinks this would be a very good training opportunity for you. If you help him with the preparations, he will take you with him. Are you in?

**Task**

Your task is to prepare the business trip to America. There are two parts to the preparations:

finding out about and sometimes booking flights, a hotel, bars, restaurants as well as activities and transportation in America.

finding out about America's culture: what should or should not Mr Blew do in America (for example, concerning meeting and greeting, gift giving etiquette or communication)?

You will prepare Mr Blew for this trip with a presentation of 10 minutes and a handout of one page A4 per group. Every member of the group should take part in the presentation.

| | |
|---|---|
| **The moderator** | takes care that everybody gets the chance to contribute to discussions |
| **The time keeper** | takes care that the group works effectively and finishes the work in the available time |
| **The controller** | writes down who in the group is responsible for what part of work and makes sure that they do their job |
| **The language watchdog** | reminds people to speak English if they fall back into their native language |
| **The advocate** | points out the advantages or benefits of proposals to the group |
| **The critic** | points out the disadvantages or costs of proposals to the group |

You will start working in two groups, one group will focus on part one and present this part and the other group will focus on part two. Within your group, you should split the work into work packages. For example,

one group member could deal with the flights, another with the hotel and so on.Your group should also appoint members to perform certain roles in the work process: moderator, time keeper, controller, language watchdog, advocate and critic.

**Part 1**

1. Mr Blew's first appointment with Mica Manufacturing (MM) in California is on Monday, October 6. He would like to be there on the preceding Saturday or Sunday. The return flight should be on Friday or Saturday morning at the latest. Up to two stops are acceptable but the duration of the stops should be no more than 3 hours. Please find flights for him and write down the flight information on Booking Slip 1. You should look for flight on this webpage. (http://en.momondo.com/Flights.aspx).After you have filled in the booking slip, act out the reservation phone call with a partner.
2. Find a suitable hotel near MM's premises. MM's address is: 3C, Carmac Street, California 700 016 America. Write down the hotel information on Booking Slip 2. You can find information on hotels as well as bars, restaurants and sights to see on this webpage (http://www.lonelyplanet.com/india).After you have filled in the booking slip, act out the reservation phone call with a partner.
3. Please find the best way for Mr Blair to get from the airport to his hotel.
4. A lunch break with Miss Rajgarhia, MM's representative, needs to be organized on Tuesday, October 7, at 12:00 p.m. Find a good location near MM's premises and fill in Booking Slip 3, so that a reservation can be made. After you have filled in the booking slip, act out the reservation phone call with a partner.
5. Mr Blair would like some outdoor activity with Miss Rajgarhia. Please find and organize something in or near Calcutta on Wednesday, October 7, between 10:00 a.m. and 4:00 p.m. Fill in Booking Slip 4.After you have filled in the booking slip, act out the reservation phone call with a partner.
6. On Wednesday at 8:00 p.m. there is going to be a dinner with Miss Rajgarhia and MM's CEO, Mr Rajgarhia (junior), which we will organize. We need a really excellent restaurant - find one. Fill in Booking Slip 5.After you have filled in the booking slip, act out the reservation phone call with a partner.
7. Find about visa requirements for America and the safety situation there at the US State Departments website (http://www.travel.state.gov/travel/cis_pa_tw/cis/cis_1139.html).

**Part 2**

India's culture is rather different from the American or German culture. Check out the following webpages:
Executive Planet (http://www.executiveplanet.com/index.php?title=America)
Kwintessential (http://www.kwintessential.co.uk/resources/global-etiquette/ametrica-country-profile.html)
Analyze America's business etiquette and protocol. What things should Mr Blew do and what should he avoid doing when meeting his business partners? In particular, Mr Blew wants to know about the following:

- dress code (Please check Mr Blew's agenda and advise him on what types of dress he should bring to Singapore and when to wear what.)
- meeting and greeting,
- gift giving etiquette,
- communication.

Is there any other useful advice you can give Mr Blew to negotiate successfully with his American business partners?
Also, Mr Blew needs gifts for his business partners. Please make a suggestion for suitable gifts and packaging.

**EVALUATION**

| | **Beginning** | **Developing** | **Accomplished** | **Exemplary** | **Score** |
|---|---|---|---|---|---|
| **Oral Presentation** | The group doesn't speak in English or doesn't speak at all. No fluency and no coherence. | This group tries to speak in English but uses Hindi words. No fluency but coherence. | This group speaks in English .Fluency and coherence. | The group speaks in English and keeps the interest. High fluency and coherence. | |
| **Preparedness** | No, students don't seem at all prepared to present. | The students are somewhat prepared, but it is clear that rehearsal is lacking. | The students seem pretty prepared but might have needed a couple of more rehearsals. | The student is completely prepared and has obviously rehearsed. | |
| **Time limit** | Presentation is less than 6 or more than 12 minutes. | Presentation is 6 or 12 minutes long. | Presentation is 7 or 11 minutes long. | Presentation is 8 or 10 minutes long. | |
| **Volume** | Volume often too soft to be heard by all audience members. | Volume is loud enough to be heard by all audience members at least 80 % of the time. | Volume is loud enough to be heard by all audience members at least 90 % of the time. | Volume is loud enough to be heard by all audience members throughout presentation. | |
| **Content:correctness/realism** | Information given is not often correct. Travel plans do not reflect the business context at all. | Information is sometimes not correct. Travel plans are some of the times realistic (89to75%). | All information given is correct. Travel plans are mostly (99to90%)realistic. | All information given is correct. Travel plans are absolutely realistic. | |
| **Content:Completeness** | Many aspects of the task have not been covered. | One or two aspects of the task have not been covered. | All aspects of the task have been covered. One or two aspects are little confusing | All aspects of the task have been covered thoroughly. | |
| **Slide presentation** | The layout is confusing and unappealing. | The layout is acceptable but sometimes a little confusing. | The layout is clearly arranged and appealing. | The layout looks really good and information is arranged very clearly. | |
| **Handout** | The handouts look very messy and contain many errors. Much of the relevant information is missing. | The handouts look very untidy and contain some errors. | The handout looks alright and is free of errors. Most of the relevant information is given and fairly easy to find. | The handout looks good and is free of errors. Most of the relevant information is given and easy to find. | |
| **Collaboration** | Student's don't cooperate and don't work efficiently. Too much dependent on the teacher. No motivation at all. Bad use of the Time. English is rarely spoken. | Students work in team but are too dependent on the teacher. A little motivation. Positive use of time. English is spoken some of the times. | Students work happily in a team and are supporting and interactive. Rarely needs the teacher. Good motivation and good use of time. English is spoken some of the times. | Students motivate the others and help them to accomplish the task without asking them to help. Excellent use of time. English is spoken all of the times. | |
| **Group roles** | Students do not act according the role or if they do. They do | Student's some time acts as goal-oriented according to their | Student's mostly acts as goal-oriented according to their | Student does really fill their roles with life. Within their | |

| | | | | | |
|---|---|---|---|---|---|
| | it in a way that does not help with the task. | roles. | roles. | roles they act competently to ensure that the group accomplishes the task. | |

The incorporation of multi-media accompaniments elicited much enthusiasm on the part of both the presenters and their audience. For instance, in the presentation of News Bulletin, students learned, performed and enjoyed very much. The gathering of information, collection of data, organization of pictures and video clips instilled a feeling of great responsibility and autonomy in them.

With regard to the solving a webquest the students reported to have developed collaborative skills, problem-solving skills and other professional and managerial skills. They felt that this assignment made their classes more lively and organic.

## CONCLUSION

It can be concluded that internet is a powerful tool to be used in the language class. It is full of visual materials which serve as an aid to understanding and successful learning. As learners are involved in real communicative situations and have to make many decisions and choices for themselves, they take more responsibility for their own learning which leads to increase in learner autonomy. Further, the interactive and multimedia capabilities of the Internet and the novelty of working with a new medium make it a motivating learning tool for the students. So, why not to enjoy the high swings on this web ride and become tech-savvy teachers and prepare students for the digital classes.

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