

## **Interactive Software System to Teach English**

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### **Abstract**

*At the core of the e-learning context is a collaborative constructive transaction. E-learning is exciting from this perspective, because it enhances and enriches both the content and the context. The challenge is to design and create a context around it, with appropriate level of social presence, which provide for congruency with the instructional goals and for enhancement of learning outcomes. We present here our current solution, constructivist and collaborative, for a reflective blended teaching and learning environment around Petroleum English, that wants to be an integrated e-learning hypermedia application.*

### **1. Introduction**

Multimedia computers and electronic communication offer new perspectives; today technology enables a text, sound and a picture to be integrated. The use of computer networks is gradually opening doors to virtual universities. At the core of the e-learning context is a collaborative constructive transaction. E-learning is exciting from this perspective, because it enhances and enriches both the content and the context. The challenge is to design and create a context around it, with appropriate level of social presence, which provide for congruency with the instructional goals and for enhancement of learning outcomes [4].

The target of our project is to create an interactive software system to teach English in the petroleum field. We have considered that in spite of the large variety of courses that can be found on the Internet or in bookshops, no course of petroleum English was good enough for the graduates of drilling-production section within our university. We present here some ideas of our solution, constructivist and collaborative, that is a combination of an open engagement for lectures with working action, and an integrated e-learning hypermedia application.

### **2. Background: E-Learning Context as a Collaborative Constructive Transaction**

An educational experience has a dual purpose. The first one is to construct meaning (reconstruction of experience) from a personal perspective. The second is to refine and confirm this understanding collaboratively within a community of learners. These aims are interleaving each other within teaching and learning situations resulting in an educational process which is a unified transaction.

Educators must create cognitive and social conditions that will allow and encourage students to approach learning in a meaningful way. Of course this demands content expertise, but it is what the teacher does pedagogically that determines the degree to which students assume responsibility for their learning. Having the learner accepting this responsibility is a crucial step in realizing successful educational outcomes – both in terms of specific functional knowledge structures and in terms of developing the higher-order cognitive abilities that are necessary for continuous learning [3, 4, 9, 12].

For acquiring reflective instruction educators and learners must engage and work together so that they jointly construct meaning and knowledge from the course material. The educator becomes a facilitator of learning and the focus is on students' learning and how they may come to understand, appropriate, modify and transcend meanings with the content.

Learning contexts in any education forms are social constructs. Knowledge therefore is socially constructed. Essentially, the context of learning and what the learner perceives, consciously or not, as the ability to think, feel and act in any situation is crucial to the means by which that person becomes an innovative transformational learner. Transformational or critical learning requires conditions that enable the learner to reflect upon her/his learning not only by oneself but also along with others within a collaborative environment.

Internet, multimedia, information superhighway are linked to the innovation and incredible technical progress, being made in the area of computer supported communication. Communication is considerably more efficient to convey information to an whole group than separately to each member of the group. Course participants who use the Web to procure the learning materials they need, deliver their completed assignments and then receive feedback from the instructor – this is also a case that requires group communication. The media services, like audio/videoconferencing, create an environment in which everyone feels his/her ideas will get a fair hearing.

Media services will establish collaboration which can energize learners, promote deeper learning and make learners more self-reliant. Many companies and universities have already installed collaboration and conferencing tools. Several vendors offer server-based packages for delivering media-based training. Many of these packages include or are built around collaboration and communication tools.

Research on teaching and learning generally shows that in order to have students understanding and applying what they learn, the learning experience should be collaborative, make possible applying the new knowledge to various real-life scenarios, and deal with content applicable to students' life and work situation. This can be accomplished with well-designed and constructed online material and collaboration tools for integrated learning experiences [6, 9].

At the beginning, English lessons were supported by a written material, which has been supposed to follow the student natural approach for learning. The material was designed to be easy to understand, self-contained, supportive, and with many examples intuitively explained.

The most frequent source is the Internet that nowadays combines different functions. From a simple search on the Internet, we can find on-line general courses of technical English (English for Science and Technology) which are free.

The problem of such an on-line course is that this course does not refer to a specific specialization and this does not refer to the petroleum field precisely. Our system tries to incorporate knowledge of petroleum English with our ideas about reflective learning means and with the well-known advantages offered by well-done e-learning applications to students (anytime/anywhere/anyone access, pace/path/depth of learning suitable to learner needs, abilities and schedule, possibility of repeated e-experimentation and self-testing etc.). It offers to students various possibilities from accessing the content of course, to various tests, interactive exercises, simulations, useful links, final test requirements or contact information.

Online content can go beyond what can be offered in a textbook or in the classroom: interactive exercises with computer-generated responses, graphical representations of various scenarios that immediately respond to student manipulation, threaded discussions where the conversations can be continued outside class time etc. [6, 10, 12]

## **2. Project: Interactive Software System to Teach English**

We often hear that it is not the one who participates in some form of training that has to adapt to the school system, but, on the contrary, it is the school system itself that has to adapt to the one who is trained. With this project we envisaged the creation of an interactive training system that could offer the user, irrespective of level (undergraduate or graduate), the possibility to develop linguistic self-awareness as they learn general and technical English, especially for the petroleum field.

Our project consists in the fusion between information from more than one field: the linguistic field (the English language), informatics (e-Learning, web technologies) and the petroleum field (drilling, production, transport, and environment protection).

The project addresses itself mostly to the students in the petroleum fields, to the engineers or technicians involved in a continuous learning form who are taught or assessed in English. At the same time it addresses to the students in the last year in Philology or to the graduates of Philology sections who want to improve their petroleum English. A summary scheme of our project is presented in the Figure 1.

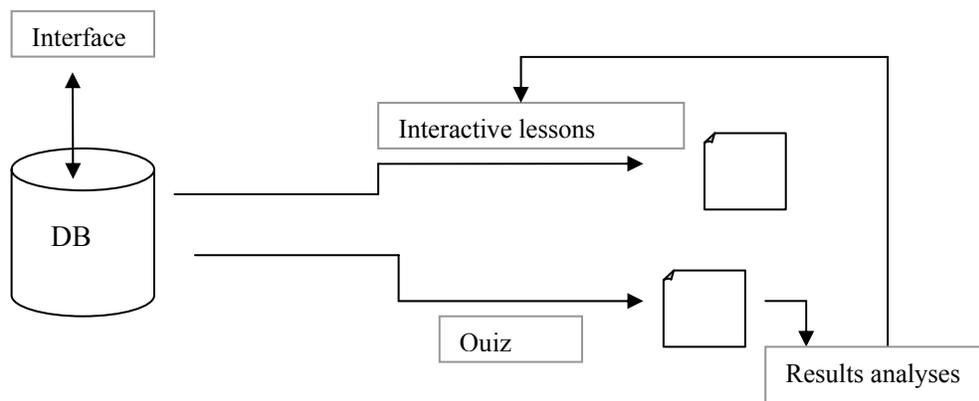


Figure 1. Summary scheme of the project

With the interactive system the user can learn at their own pace, the system being capable of adapting to the user’s individual needs. By means of numerous self-assessment units (Controlled Practice within each of the fifteen units, the initial and the final tests), the system can offer the user items of information that are to be processed as well as the possibility to obtain and consolidate knowledge. Each unit has the following structure: Pre-reading, Reading (each Reading contains Listening: a native speaker reads the texts, so that the user can familiarise themselves with the right English pronunciation), Ways with Words (based on vocabulary exercises), Grammar Reference (that contains theoretical explanations), followed by Controlled Practice, made up of one to four types of online assessment units. The user interested in completing the exercises contained in Ways with Words is asked to fill in the answers and send them as attachment to their teacher of English. The user may also use the chat module and make searches in the databases containing petroleum terms (English-Romanian dictionary, English-English dictionary, several phrases, lists of verbs, prepositional verbs and adjectives, etc.).

We present below some e-learning techniques that we used to develop our project:

- o easy access to resources (search in databases, FAQs, units with menus, audio and video lessons, etc. )

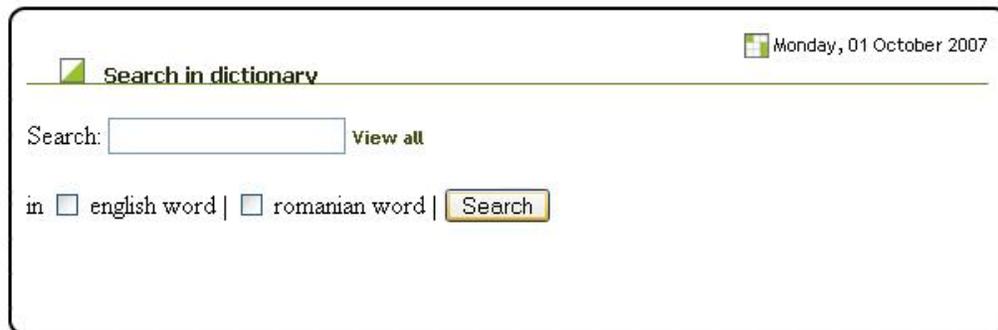


Figure 4. Search possibilities

Monday, 01 October 2007

## Reading

### Social English

Read the following text about George Ionescu, a student in Romania. Make your own presentation and send it to your teacher by mail.

My name is George Ionescu and I am a student in the Faculty of Drilling-Production at "Petroleum-Gas" University of Ploiești. I come from Oradea, a town in the North-West of Romania. I came here to study because this is the most important petroleum university in the country, and although I am very far away from home, I want to learn many things here.

I'm studying French and English: I can speak French well and a little English. I intend to improve my English as soon as I can.

Figure 5. Audio elements

- o synchronous (chat) and asynchronous possibilities (threaded discussions, collaborative exercises);

Monday, 01 October 2007

Inbox
 Outbox
 Trashcan
 Compose

---

to

Show users

Message

copy to me

### Mail Notifier

Private Messages

no new

### Discussion

Latest Message:

1 month, 1 week ago

---

user11 : verbe neregulate

user11 : shadfjks

user11 : asdfsd

user11 : asdaasdas

user11 : cred ca nu

user11 : vb cineva cu mine?

Name: user11

Message:

Figure 2. Chat end e-mail with teachers and colleagues

Monday, 01 Oct

**True/False**

Could you call him back in twenty minutes as he ... a bath right now.

has

is having

**Question: 1** **Points: 0**

Figure 3. Collaborative exercises

### 3. Conclusions and Future Work

By focusing on the idea of reflective dialogue between educator, as facilitator and learners, we have been aiming to a basic form of an emerging connection that can evolve to a framework for transformational learning. Critically transformative learning involves not only deconstructing meanings and the taken-for-granted attitudes, ways of seeing things, and myths, but also reconstructing by re-conceptualizing and rebuilding. This permanent process becomes the subject of further transformative learning. It is a restless, ever-changing process of evolution for the learner where the basis is laid in the experience of higher education for life [3].

As future work, we intend to work to a more formal implementation of the evaluation strategy for the reflective instruction cycle. We would like to analyze correctly the outcomes of this blended learning solution and to prepare a methodology for reflective learning in science, having aid from specialists in education field. Effective teaching requires more than a repertoire of techniques. To make real a rational interplay between the collaborative (social) and constructivist (cognitive) nature of correct teaching and learning it takes more than a methodology. It takes personal appointment from all the actors involved in instructional transaction.

This project will help the users to become more competent linguistically speaking and will get better positions both in Romania and abroad. Through their linguistic competencies they will be able to train themselves in postgraduates' courses or continuous learning and will become more competent in their jobs.

Increasingly, higher education is returning to its roots by focusing on the values and practices associated with collaborative approaches to learning, and we include here the educator also. Along with this is the understanding that constructing personal meaning is enabled by opportunities to test one understands in a social context and to apply new ideas and solutions in relevant contexts.

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