

THE BEST PRACTICES OF E-LEARNING FOR ECONOMICS

Luísa Margarida Cagica Carvalho, Boguslawa Maria Barszczak Sardinha

Instituto Politécnico de Setúbal, Escola Superior de Ciências Empresariais. Setúbal, Portugal

Abstract: Online learning can be used to create programmes in order to respond the needs of people, countries or companies. In Portugal exists a necessity of development of the work/place education since the Portuguese worker has a very low level of qualifications: therefore exists a necessity to increase economics literacy in school. This is the goal of economics principle lessons. On this propose the teacher of economics has crated a web page for economics principle. The work was initiated in 2001 and the page is available since October 2002. We've checked many economics pages around the world and identified some characteristics of the best practices of support economic pages. We've just started, so we've provided the evaluation questionnaire to improve the page in order to satisfy the student's needs.

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THE TEACHING OF INTRODUCTORY PHYSICS COURSES IN PORTUGUESE PUBLIC UNIVERSITIES

José Paulo Cravino, J. Bernardino Lopes

Physics Department, Universidade de Trás-os-Montes e Alto Douro

Abstract: This study intends to characterize the teaching of introductory physics in portuguese public universities. We collected information about the physics introductory courses taught to undergraduate students of two graduate courses in teacher education: Physics-Chemistry and Biology-Geology. We also interviewed the teachers responsible for these courses, a total of twelve interviews in nine public universities from continental Portugal (from a possible universe of ten universities). The interviews were carried out during the second semester of 2001/2002.

Our main aim was to characterize the teaching in these courses. We analyzed the interviews and documentation using the following dimensions: curriculum (teaching methods, course content, course materials, and evaluation of the students' knowledge); evaluation of teaching (self and external); teaching conceptions; organization of teaching; search for the improvement of teaching and learning quality; teaching experience and level of responsibility.

Another aim of this study was to find teachers that were conducting specially innovative or experimental courses in introductory physics, having as a reference the physics education research.

Most teachers lead a conservative teaching, based upon standard lectures (with little interactivity), conventional problem solving classes using textbook-like exercises and, in some cases, laboratory work (mostly guided by a strict protocol). We identified four teachers whose courses have relevant educational features. These teachers have a more elaborate teaching conceptions and use feedback about their teaching.

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Luísa Margarida Cagica Carvalho

Instituto Politécnico de Setúbal, Escola Superior de Ciências Empresariais, Setúbal, Portugal

lcarvalho@esce.ips.pt

Boguslawa Maria Barszczak Sardinha

Instituto Politécnico de Setúbal, Escola Superior de Ciências Empresariais, Setúbal, Portugal

bsardinha@esce.ips.pt

Abstract

Online learning can be used to create programmes in order to respond the needs of people, countries or companies. In Portugal exists a necessity of development of the work/place education since the Portuguese worker has a very low level of qualifications; therefore exists a necessity to increase economics literacy in school. This is the goal of economics principle lessons. On this propose the teacher of economics has crated a web page for economics principle. The work was initiated in 2001 and the page is available since October 2002. We've checked many economics pages around the world and identified some characteristics of the best practices of support economic pages. We've just started, so we've provided the evaluation questionnaire to improve the page in order to satisfy the student's needs.

Key words: Economic Literacy; E-learning; Apprenticeship; Web Page; Best Practices

1. INTRODUCTION

Portugal is one of the European countries of worse economic literacy .Maybe in the future online learning can be the way to tackle this problem.

Schools, particularly business schools have a civic mission, to development the knowledge, skills and attitudes needed for responsible citizenship. This mission cannot be fulfilled without effective teaching of economics.

The reality of Portuguese society is a quite different from the majority of development countries in European Union.

The introduction of new technologies has been a slow process. Online learning is still in an incipient phase.

The teacher is a challenge to transform knowledge on the subject of Economics into the lessons on economic literacy for citizenship.

With this paper, we want discuss the use of online training and education to learning economics, in a specific case, of the creation of a web page for Principles of Economics.

2. EDUCATIONAL USES

2.1. Basic Skills Training and Literacy

Online learning can be used to create programmes to meet the needs of the people of a country or in of a company.

There are many reasons to create a program of Basic Skills training and literacy in the country, like:

- Create long life learning opportunities;
- To promote the transition from the classroom to the workplace and from job to job, encouraging labour mobility;
- Preparing workers for a global economy;

In Portugal it's important to give a training certificate, (some kind of degree), because most of the learners doing training for professional reasons.

These programmes aim is to develop workplace literacy and basic skills of learners like skills needed by employees at work, such as reading, writing, computers, mathematics and problem solving, or other important skills like listening and oral communication, teamwork, leadership, self-direction and self-motivation, computer skills, foreign language. (These Programmes are developed by enterprises, multinationals).

The work-place programmes need to be tailored to individual, organizational and job-related needs. This is the key for work place education to be successful.

Programs should be based on needs identified by all stakeholders. Work place education programs can combine job-specific, job related and other needs as identified by program participants, employers and other stakeholders. [Ontario 2000]

In Portugal, work-place education needs to be developed, for the reason that the Portuguese workers have a low qualification level, and that fact has a great impact on productivity of labour. Portugal has the lowest productivity of the European Union. [<http://www.gepe.pt/>]

And about 10% of the population don't know how to read!

The utilization of a foreign language is a very difficult task.

The Portuguese work force needs a highly level of skills and must be adaptable to compete in a global economy.

They need to upgrade the basic skills of the work force, because:

- ✓ technological changes and quality initiatives require workers to learn new skills and take on new responsibilities;
- ✓ The move to a knowledge based economy means that work force will experience an increase in information requirements on the job which will require a higher level of basic skills.

2.2. Economic Literacy

“Economic literacy is crucial because it is a measure of whether people understand the forces that significantly affect the quality of their lives”

Gary H. Stern, President Federal Reserve Bank of Minneapolis

“Economic Literacy is a vital skill, just as vital as reading literacy”

Robert F. Duvall, President and CEO
National Council on Economic Education

Economic Literacy is the one preoccupation in some parts of the world. In the United States of America, we can find special programs dedicated to this area, and it is an important objective of national educational programme.

In current society, it is important that people have the knowledge, understanding and skills to make informed economic choices.

Students which have economic ways of thinking and problem-solving become responsible consumers, producers, savers and investors, and effective participants in global economy. Employees, who understand economic concepts and economic ways of thinking, are better able to make informed decisions in their personal finance, in workplace and as citizens.

In Portugal preoccupations about it don't exist yet, even though according to the OECD we are in a bad position on that problem.

If economic literacy is low, this has an impact on people's day by day, when they making purchasing decisions, and spending money. Customers need to know, for instance, the relationship between price and quantity demanded and the effect an increase in demand has on price. It's also important, understanding of the supply side, the definition of an entrepreneur, determinants of production and the methods used to accelerate innovation. It's important to understand the implications of government established price ceilings or who benefits from government supplied goods and services. And, the current issue in Portugal of the achievement of Stability Growth Pact, and why is important to have a budget deficit 3% lower than GDP.

2. 3. Provide assistance in a specific subject. The case of Principles of Economics

Economics Principles is a common subject to the all courses of the first year in the Management School of the Polytechnic of Setúbal. Each year this subject has about five hundred students of five management courses existing in the School.

Generally students have some problems with this subject, and the teachers have been adapting the programme and pedagogical strategies to resolve these problems.

It is with this in view that we creating a web page for this discipline.

The teachers initiated this work in 2001, and the web page will be available in 2002 October. (in order to begin on academic year 2002/2003).

First we decided analyse some web pages, to identify the best practices, and to learn more about the possibility of transforming a web page to a pedagogical resource, in order to help the learners to learn economics.

3. THE BEST PRACTICES. ANALYSIS OF 12 WEB PAGES

For these analyses we consulted 12 web pages of any Universities and Colleges around the world:

- University of Winconsin - College of Business and Economics
- Pietermaritzburg Campus Faculty of Human And Management Sciences
- Texas Tech University Agricultural & Applied Economics
- University of Illinois Department of Economics
- Colorado State -University- Division of Educational Outreach
- Adelaide University Graduate School Management
- Douglas College Faculty of Commerce and Business Administration
- Mississippi State University Department of Agricultural Economics
- Rice University Rice Economics
- The University Of Manitoba Economics Department
- Reed College Economics Department
- Bucknell University Economics Department

We want to refer some special characteristic to about these web pages,

Important items:

- ✓ Frequently asked questions
- ✓ Animation and figures (the case of Texas University)
- ✓ Spring and Summer course- Small courses to another type of students – Continuing courses (case of the Colorado University)
- ✓ Humour utilizing economics cases
- ✓ Programmes to help the read of documents like Acrobat reader or Adobe Photoshop
- ✓ Courses supported by internet based text book sites (case of Adelaide University)
- ✓ Links to student online exam & assignment results
- ✓ Filebox with messages and files for class use are stored there (Douglas College)
- ✓ The fundamental ideas that the information are not in excess, are not boring,
- ✓ Have a calendar
- ✓ Readings, home works, assessment, tutoring, sample exams and the variety of the resources accessible to learn this subject.

4. OUR NEEDS

Our students demonstrate some preparation gaps. A few years ago in a questionnaire distributed between 186 of total of our students of school, 26 % responded then that they had many difficulties in Economics, this was the second worst difficulty pointed, exceeded only by the foreign language difficulty, about 30 % of positive responses. It is curious that the teachers weren't totally agreed with the student appreciation. Only 16 % responded that the students had a difficulty in Economics. The biggest difficulty identified by teachers was the Portuguese difficulty, (an interpretational problem), about 80 % of teachers response in contrast with 6% of students response, and mathematical difficulties over 65 % of teachers response in contrast with 15 % of students response.

What happened? Our teachers didn't value the Economics difficulties of students properly? I discussed this problem with my colleagues in the Economics department and we've agreed that the most referred Economics problems resulted from the other scientific area lacks. For example in the Economics there exists a large application of mathematics' tools, like graphs or functions. Many of our students have many difficulties with these tools. This year was done in our schools a diagnostic test on very basic secondary level

knowledge on mathematic preparations. About 52 % of our students had negative results, and about 28 % had lower results than 7 (0-20 scale). These kinds of students have great difficulties in using basic mathematic tools in an Economics application.

Another problem of our students is the utilization of the Portuguese language. This is a very complicated problem to solve. The interpretation of the economics questions is getting worse every year. In economics, students must join the interpretation skills with mathematic skills and then apply economics theory.

To learn economics is “to combine the study of economics models with both analysis and application of those models.” The students must demonstrate that they can analyse these models in order to achieve an understanding of economics. So they need to develop some skills in order to respond this academic challenge like: [Mogab J. Jonson]

- Knowledge – the remembering of the previously learnt material;
- Comprehension – the ability to grasp the meaning of material (translating material from one form to other, by interpreting material and predicting consequences);
- Application – the ability to use the learnt material in new concrete situations,
- Analyses – the ability to break down material into its component parts so that its organizational structure may be understood.

In order to try to do a quick diagnostic about all of those questions, we prepared a small inquiry (annex1), designed only for our students of Economics. We asked about the main difficulties of a student of Economics Principles. The results were, as we expected, about 74 % of our students refer to the difficulties in using graphs; 76.8% admitted to having difficulties in using statistics tools, a little less number referred to the difficulties in using mathematics tools. Almost 90% of the inquired students responded that have difficulties in Economic analysis and almost 74 % in comprehension of economics. As we may see, our students have a huge problem with Economics in their first semester in school. Another question that I asked my students was the kind of help that they wanted to learn Economics. The students had to choose two of the most important types of help for them. The table below shows the responses:

Type of Help	1 st choice	2 nd choice
To create a space of discussion	12.6%	18.9%
Individual contact with teacher	28.4%	15.8%
Theory suport lesson	10.5%	18.9%

Lecture support lesson	37.9%	22.0%
On-line help	5.3%	16.8%
Organization of the seminary with the invited experts	5.3%	7.4%

Table 1. Results of the inquiry

Our students need in their opinion, the support of lecture lessons, it means, in our school the lessons where they may practice the economics exercises and discuss the economics problems. As I wrote, there is only one lesson a week for practice, and three for theory of economics. A large number of answers point the necessity of individual contact with the teacher. The interesting result is the necessity pointed by the students to create the discussion space. Some of that needs might be solved by the web page.

To help students we have the support of face-to-face lessons (lecture and theory), for students with more difficulties on this discipline. The teachers of Economics arrange a time to help the students individually. Now, in order to respond to those other necessities we've started to think about another way to help our students creating support lessons of Economics by the Internet.

Students Suggestions to the Economics Principles web page:

In this point, open questions were asked. So I will make a qualitative analysis of the answers.

When we ask how the web page should be, the main characteristics were:

- ✓ Simple language;
- ✓ Good organization of the information;
- ✓ Ease of use;
- ✓ Speed in access;
- ✓ Quality of content
- ✓ Updated.

When we talk about the pedagogical issues of the web page, they refers that it is important take in web page:

- ✓ Forum
- ✓ Chat
- ✓ Space for talking with teachers
- ✓ Formative tests
- ✓ Quiz

In this answer we can see that learners, are looking for a “kind” of collaborative learning. Where they discuss, resolve problems in a group, with the help of a tutor (teacher).

They said that they would consult the web page of Economics Principles if they had:

- ✓ PowerPoint of Theorises and practice class;
- ✓ Exams of other years;
- ✓ Exercises and solutions;
- ✓ News;
- ✓ Graphic analysis;
- ✓ Simulations and didactic games;
- ✓ Programme of subject;
- ✓ General information about the Portuguese and the International Economy;
- ✓ Important economics links for searching;
- ✓ Help to study: taking notes in class; reading a text; preparing for exams

It was also important too, to look at the students comments.

Some learners said:

“The creation of a web page is an interesting idea which would get positive results”

“The web page would help to enjoy this subject”

“It’s good, because it’s easier access 24 hours /24 hours, would be very flexible”

“I’ve consulted the internet only in hopeless situations”

“For me, like a worker student the web page will be precious to help my study”

5. EVALUATION OF ECONOMICS PAGE.

It is important to improve this page in order to respond better to the necessities of economic students. To achieve this goal we propose the evaluation questionnaire (annex 2) available in page as the separate link. Sometimes the students didn’t have time to spend on responding the evaluation questionnaire and there is my intent to pass a questionnaire in one of our final lesson. (It

means in January) We ought to commit with our students listening their suggestions in order to improve the page.

6. SOME LOGISTIC QUESTIONS

For our day is clear, that educators need to teach the computer skills, so that is a minimum of learner frustration and confusion. It's important to prepare the computer skills model, Ellsworth suggests that the successful integration of online within traditional curriculum depends upon the "utilization of tiers of developmental teaching and learning" it means "each plane of such learning requires mastery of the previous level [Ellsworth 1995].

In Portugal and in our school doesn't exist that kind of computer skills model needed to the online training.

On online courses it's important to exist a specialist in different area like: educators, which respond on the education contents and administrators whose respond on functional contents of courses. In our reality the teacher of economics will respond on both areas the responsibility. This is the other inconvenient in considering the availability of teaches.

As we said before, in our school every student has an opportunity to entry to Internet. Every student has the Internet password. Only about 20-30 % of our students have the Internet access at home. WE must to assume the risk that eventually some students have not the possibility to join the Internet every time they want to.

Other problem concerns the necessity to prepare, maintain and to guarantee the accompaniment of the Internet student's problems. There is a lack of knowledge of computer skills by our teachers too. With the scarcity of recourses it's important to invest in order to develop on teacher's skills and to invest in technical accompaniments. There exists a great resistant on some teachers to use the Internet technology.

In the studies done in University of Illinois on 48 faculties, and present at the College Board Conference Chicago, IL – March 29, 2001, proved that:

- a) A time to develop an online course as compared with a comparable face to face section in 85% of responds was considerate up to twice and more;
- b) A time to administration activities for online course as compared with a comparable face-to-face section in 82% of responds was considerate up to twice and more;
- c) The amount of interaction in online class compared with a comparable face-to-face section in 65 % of responds was considerate up to twice and more;

Of course we've been talking about an online course and not about a support economic page, but considering this results we must expect to increase the work for our economics teachers. Considering that in our school every teacher has a

maximum low permitted number of teaching hours it means a most demanding situation.

7. CONCLUSIONS

What we are trying to do is to increase the economic literacy of our students. We may define the economics literacy as the capacity to understand the economic principles.

” Without a basic understanding of how the economy works, what the essential terms and concepts are, the average citizen is likely to feel completely left out of any conversation, whatever in the media or around the water cooler, about what is happening in the economy and what to do about it.” Says Alice Rivlin Vice Chair Board of Governors of the Federal Reserve System. In our school, which have to prepare the future managers of our enterprises, this is the most important question ought to be solved very quickly, in order to increase our competitiveness level. A free market economy work is healthy only when the participants-producers, consumers, etc, - have the information they need to make the right decisions. Most important, participants in the economy need to know how to think about the economic choices that they face and how to get what they need to make intelligent decisions.

The majority of respondents’ suggestions for improving the pedagogical goal of the web page of economics Principles were that it is important to have a timely feedback by the teachers when they call for help.

Our research indicates that students perceive that this possibility can be an advantage to complement traditional methodologies. These advantages include saving them time, better management of their schedules, more flexibility and ease of access for worker students.

Future research should include all the students who attend Principles of Economics.

In future it would be interesting to create distance online courses (on the web page or through a platform), and connect the university with enterprises, promoting courses to basic skills and literacy and workers skills, enlargement the number of the “clients” who want “buy” our service.

The web pages analysed showed that the arrangement of the information and its adaptation to the needs of the learners is important.

Distance and online learning appear to be the teaching methodologies of the future.

8. REFERENCES

- Adelaide University available in: <http://www.gsm.Adelaide.edu.au/e-learn1.htm>
- Barks O., "E-Learning: The Impact of the Internet on Higher Education", (2001), Presentation at the College Board Conference Chicago, IL – March 29; Available in: http://www.online.uillinois.edu/oakley/presentation/CollegePark_30Mar01.html
- Brookfield, S. D. Discussion. In M. W. Galbraith (Ed), *Adult learning method: A guide for effective instruction* (1990). (pp. 197-204). Malabar, FL: Krieger Publishing Company.
- Bucknell University available in <http://www.departments.bucknell.edu/economics/courweb.shtm>
- Chizmar J. Walbert M. Web- Based Learning Environment Guided by Principles of Good Teaching Practice, (1999), *In, Journal of Economics Education* V. 30 n° 3 – Summer /1999; p. 248-259
- Colorado State University available in: <http://www.learn.colostate.edu/courses/courseslist.asp?ID=ISCCE>
- Daniel J. I. – Computer-Aided Instruction on the World Wide Web: The Third Generation *in Journal of Economics Education* V. 30 n° 3 – Summer /1999; p. 163-174.
- Douglas College Faculty available in <http://www.douglas.bc.ca/business/econ/econ.html>
- Downes, S. Essay - The future of Online Learning –(1998). Assiniboine Community College .
- McEarchern W. The Teaching Economist Issue in: http://www.swcollege.com/bef/mcearchern/teaching_Economist/wam8.html
- Mississippi State University available in: <http://www.agecon.msstate.edu/gradprogram/gradstudents.asp>
- Mogab J. De Jonson, "Learning Economics : Impossible or Imposing " , (2002), Southwest Texas State University , Available In: <http://www.utexas.edu/students/utcl/handouts/1409.html>
- Ontario, "Literacy Ontario – Literacy and Basic Skills Program" Literacy and Basic Skills section, (2000), Workplace preparation Branch; Ministry of Training, Colleges and Universities
- Pietermaritzburg Campus Faculty available in: http://www.cba.uiuc.edu/economics/faculty_webpages.html

Reed College, available in :
<http://academic.reed.edu/economics/courses/webpages.html>

Rice University available in:
http://www.ruf.rice.edu/~econ/under/course_web.html

Rivlin A., “On Economic literacy”; (1999) The Economic Literacy Project,
Available in <http://minneapolisfed.org/sylloge/econlit/rivlin.html>

Simpson L.; Casa Study : Using Resource- Based Learning in Teaching First
Year Economics, (1999) Heriot-Watt University, Edinburgh, Available in
<http://www.economics.ltsn.ac.uk.html>

Student Designed Web Page Rubric, In:
<http://www.essdack.org/tips/webpagerubric.html>

Texas Tech University available in:
www.utexas.edu/student.html

University of Illinois available in :
http://www.cba.uiuc.edu/economics/faculty_webpages.html

University of Manitoba available in:
<http://www.umanitoba.ca/faculties/arts/economics/>

University of Winconsin available in:
<http://academics.uww.edu/BUSINESS/body.htm>

9. ANNEX

Annex 1

1. INQUIRY - THE FIRS YEAR STUDENTS OF PRINCIPLES OF ECONOMICS.

Objective: To identify the most important difficulties felt during the learning of economics-

1. For every indicate question identify your level of difficulty:

- | | | | |
|--------------------------------------|------|--------|-----|
| • Graph analyses: | high | medium | low |
| • Statistic analyses: | high | medium | low |
| • Comprehension of matter: | high | medium | low |
| • Economics analyses: | high | medium | low |
| • The knowledge of mathematic tools: | high | medium | low |
| • The knowledge of English: | high | medium | low |
| • Other | | | |
- What? _____

2. From the above kind of support identify the most pertinent to you (1° e 2° level) :

- To create the space of discussion
- Individual contact with teacher
- Theory suport lesson
- Support lecture lesson
- Help on-line
- Organization of the seminary with the invited persons
- Other.

What? _____

3. What are the main characteristics you would expect from a web page of principles of economics?

- a) _____
- b) _____
- c) _____

4. How I would like to see on Principles of Economics Web page....

Thanks.

Annex 2

2. Evaluation questionnaire – Support page of principles of economics

Customary data

1. Course _____
2. Age _____
3. Gender
4. Earner-learner
5. Where are you consulting the page?
 - a. Home
 - b. School
 - c. Work
 - d. Other, were _____
6. How many times do you consult this page?
 - a. More than one a week
 - b. One a week
 - c. 1 –3 times a month
 - d. 3 times in semester
 - e. Less than 3 times in semester
 - f. Never

7. Which link do you consult more:
- a. The graph link
 - b. The statistic link
 - c. The analyses link
 - d. The mathematic link
 - e. The curricula link
 - f. The humour link
 - g. The bibliography link

The evaluation part

The rating system is one of one to five stars:

- 1 Star – Very bad quality;
- 2. Stars – Has some limited value;
- 3. Stars – Has medium value;
- 4. Stars - Has a very good value;
- 5. Stars – Has an excelled value.

1. The quality of Layout /Design (organization of page; easy reading; background; enhance of page ;)



2. The quality of graphics (creativity of icons and clip art)



3. The quality of information (is information relevant, timely, complete, accurate, appropriate)



4. The navigation/ links problem (links easy to find and creative)



5. Strength points of page:

a.

b.

c.

6. Weakness of page:

a.

b.

c.
