

## **Technology Used to Support the Teaching of Economics in the Greek Educational System**

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### **Abstract**

*In this paper we discuss how technology has been used within the Greek educational system in the past and how it is being used at present to support the teaching of economics courses. We begin with an historical account of the instructional methods starting with the traditional “chalk and talk” methods and ultimately reaching more sophisticated technological solutions that engage students more actively in the learning process. Drawing from our research of existing, innovative instructional methods for teaching economics, we attempt to describe and categorize the latest technological solutions. Although it is widely claimed that these platforms have the potential to revolutionize the educational process, there is a lack of documented evidence in educational research to support this claim. Finally, we examine the current situation of economic education in Greece at the secondary and tertiary schools levels, and provide a list of presently available Greek electronic resources and sites offered through the Internet. These can be used both by teachers as well as by learners to recast established notions and structures of teaching and learning and rearrange their relationship in more creative, exciting, and effective ways.*

### **A historical account of economic education**

The last two decades have brought about a dramatic change in instructional methods for general education and particularly for economics education. These methods have challenged the traditional teacher-centred, blackboard-lecture, text and class relationship. After a slow development from the voice and vision broadcasting educational programs technology to the punched card mainframes, photocopiers and overhead projectors there has been a geometric growth of electronics technology with microcomputers, personal computers, interactive and multimedia CD-ROMs, the Internet and Intranets, and the World Wide Web with its online simulations and interactive multimedia Web-based courses and virtual classes. All these innovations claim to have the potential to revolutionize the educational process. Their effectiveness, however, has still to be established in educational research.

The fact that economics education as a discipline relies very heavily on quantitative, graphical and simulation-game type aspects lead to the immediate adoption of these innovations with the USA, UK and French educational systems having the lead in the beginning of the 70s and the Greek educational system slowly following in the mid 80's (Bousiou and Tsopoglou, 2001). Research carried out at the time was basically in the use of mainframes and concluded that positive results were very limited. A large amount of educational software was produced in the 80s to support economic education and economists, introducing the notion of computer aided learning (and teaching) in economic education with three basic types of software: Tutorials, Simulations/Games and Drill and Practice software. Researchers held different views about the effectiveness of computer aided learning software for economic education. Although several research papers pointed to the positive effects of this kind of software (Davies and Crowther 1995), the general belief was that "...they may cover the content but not in the most imaginative way. Students need to be sufficiently motivated and interested to learn economics from the computer screen and this kind of software is unlikely to change the character of the text-dominated courses that have resisted change for 30 years" (Yoho D.L. and Walstad W.B., 1990). Although the effectiveness of the use of micro and personal computers for economic education is still to be proven, it seems that classroom lectures, textbooks and material library referencing continue to resist and constitute the largest part of the learning process.

In the last decade the Internet has emerged as a powerful tool for enhancing the learning process. Particularly for economic education, Agarwal and Day (1998) supported that Internet implementation in economics courses has a positive impact on three crucial areas: a) student learning and retention of concepts, b) student perceptions of instructor effectiveness, and c) attitudes toward economics. The Internet with its multiple services, online simulations, and interactive multimedia Web-based courses is being used both to supplement and enrich the traditional way of teaching economics with distinct applications such as e-mail, ftp, etc. (Manning, 1996) as well as to provide complete learning experiences in the form of virtual classes. Due to its structure, the World Wide Web (and the Internet in general) has been proposed as a powerful environment to support student-centered instruction, facilitating instructional methods that focus on constructivism, active learning, collaborative learning, and individualized learning (Niemi and Gooler, 1987; Massy and Zemsky, 1995; Sell, 1996; Tait, 1997).

Lagging behind the USA and European systems, the Greek educational system experimentally joined this cycle of development in the mid 80's when information technology had already become widespread and relatively inexpensive. Today with the even larger decreases in the costs of using new technologies for students, teachers and institutions, a challenge is offered to state officials, educational institutions, economics educators, private software producers and publishers to provide all those innovative means and methods that will allow both students as well as the general public to become computer and business economics literate while assisting in the study of the discipline of economics (Bousiou and Tsopoglou, 2001).

In spite of language barriers all parties involved are in a better position than ever to develop or adapt state-of-the-art economics-business education technology, at a "principles" level and produce hypertext manuals, problem and data sets, simulation-game material, case studies, role-playing and electronic referencing within local national and international networks. These instructional tools within an electronically networked environment could recast established

notions and structures of learning as "teacher, lecture, group, individual, classroom, home, library" and rearrange their relationship and relative importance in more creative, exciting and effective ways.

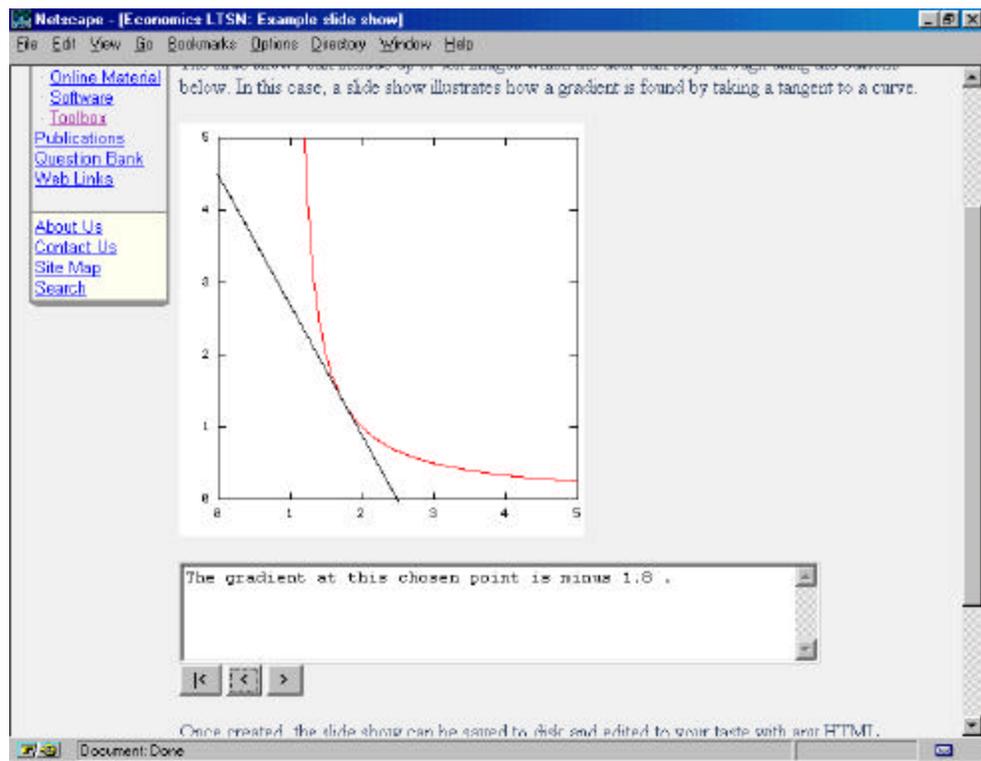
### **Technological solutions for the economics teacher**

Drawing from our research of existing, innovative instructional methods for teaching Economics (Bousiou, Samara, and Tahmatzidou, 2000), we attempt to describe and classify the latest technological solutions. We have separated them into two categories, distinguishing between technologies that need little technical expertise on the part of the teacher and those, which require either particular technical knowledge and skills, server access, and/or the support of an educational institution. While the power of these platforms, compared to more traditional methods of instruction in delivering course content, is largely discussed in literature (Sosin, 1997; Daniel, 1999; Stone, 1999), reports on formal assessments of the effectiveness of electronic education are either rare or are still providing early results (Meyer, Bandaru, and Niessen, 1996; Zywno and Kennedy, 2000). A study carried out by Kadiyala and Crynes provided convincing evidence that new technologies can indeed enhance learning when the pedagogy is sound, and when there is a good match of technology, techniques and objectives (Kadiyala and Crynes, 1998). Their research reported surprisingly few studies stating neutral or negative results. However, there is a need for further research to substantiate claims about the positive impact of new technologies on learning outcomes.

#### **a) Internet based technologies requiring minimal technical knowledge on the part of the economics educator**

1. *Use of distinct Internet services such as e-mail and discussion lists (Manning, 1996; Hannah, 1996):* These services provide asynchronous communication and can be used in many ways to improve teacher-student and student-student relations and to enhance the development of group discussions on economic issues.
2. *Electronic access to up-to-date economic information and resources (publications, journals, etc.):* Probably one of the most significant uses of the Internet by the economics educator is the ability to access an abundance of electronic text archives and databases for the acquisition of up-to-date economic information. Students and teachers may access sources of data such as statistical series and data for their statistical assignments (e.g. <http://nber.harvard.edu>, NBER National Bureau of Economic Research Gopher). They may also access the numerous databases that offer useful information and news related to economic issues (e.g. <http://www.bized.ac.uk>, Biz/ed) or any of the online scientific publications (e.g. <http://www.indiana.edu/~econed>, Journal of Economic Education).
3. *Access to Web sites that provide aids and resources to assist economics teaching and educators:* These sites supply the economics teacher with an abundance of resources for K-12, college, and university economics education (e.g. <http://rfe.wustl.edu/>, Resources for Economists on the Internet containing a rich list of resources such as international journals, online journals, conferences, software, etc., and sponsored by the American Economic Association and <http://econwpa.wustl.edu/EconFAQ/EconFAQ.html>, Bill Goffe's Resources for Economists on the Internet). Some Web sites provide examples, which help the student in comprehending theoretical economic concepts or the capability

of using simulations and online scientific models. Others provide a large number of tools for the economics educator to supplement/enrich the conventional economics class, such as multimedia presentations and exercises, the ability to easily create interactive Web-based presentations, exercises, and quizzes, the ability to create and use an online dictionary of economic terms, etc. The teacher does not need to have specific knowledge or Web skills in order to create exercises or tests since these tools are particularly easy and user-friendly. Many of them make use of a variety of Web technologies such as DHTML, Javascript, Java, Active X, etc. so as to provide additional interactivity and an increased quantity/quality of exercises and tests (e.g. the site <http://econltsn.ilrt.bris.ac.uk/teaching/toolbox.htm>, The Economics Center of the Learning and Teaching Support Network (Economics LTSN, Figure 1) allows the economics educator to create interactive exercises and presentations (including graphs of equations, schematic graphs, graphs of huge databases of economic time series, showing the movement of graphs, etc.) and then save them as HTML pages.



**Figure 1.** LTSN Web page providing directions to the economics teacher for the creation of an interactive online presentation

**b) Internet based technologies requiring either particular technical knowledge, server access and/or the support of an educational institution**

1. *The creation of supplementary material for the enrichment of the conventional economics course offered in class:* This material can be created with the use of Hypertext Mark-Up Language (HTML) or with the use of a Web publishing tool such as FrontPage or DreamWeaver and can take on the form of a simple class homepage comprising the course outline, lecture notes, and additional resource links or may include a wide range of characteristics such as class materials to supplement or even replace a textbook, additional linked sources of information with pictures, maps, audio, video, and bibliographic information, sample tests, assignments, self-tutorials, and actual tests that can be automatically machine scored and recorded. Until recently, educators involved with the creation of such materials were required to have some technical knowledge (i.e. how to write in HTML code or how to use a web authoring tool) regarding the software used, although, the use of the above software was not extremely complicated. More recently, additional features included within current versions of text processors and other software (e.g. MS Word, MS PowerPoint) offer teachers the option to save any work they create as one or more web pages, requiring minimal or even no technical knowledge on the part of the teacher. Regardless of which of the above the teacher decides on for the creation of the web materials, putting up the web pages requires access to a web server. This may mean access to a server at an educational institution or (in the case that such a server is not available) hosting the materials on a free web server (e.g. www.spree.com, www.yahoo.com, etc.). The type of materials created with the above software does not demand a network environment of high bandwidth or additional capabilities (e.g. expensive technology or plug-in software on the client computer) in order to function properly. Overall, these types of materials offer a lower level of interactivity than the ones created with the tools belonging to the next category.
2. *The creation of multimedia presentations including images, video, animation, and audio:* By using HTML, PowerPoint, a Web publishing tool such as DreamWeaver or a multimedia authoring tool such as ToolBook, the economics educator may create slides or multimedia presentations, online tutorials, and interactive exercises for educational content that may be offered to the student on CD or over the Web. Additional interactivity may be incorporated with the use of technologies such as DHTML, JavaScript, Java, Active X, CGI script or ASP files (which offer the web developer methods to interact with databases for an Internet site or Intranet application). This type of material is more difficult to create and may have additional requirements in order to function correctly and efficiently (eg. the need for a specific plug-in software to be downloaded so as to view video). Furthermore, although in many cases greater bandwidth capacity is demanded, it offers a richer and higher quality environment to the learner, which is capable of a greater level of interactivity. In the last couple of years, there has been a steadily increasing use of streaming technology in order to deal with the problem of transferring multimedia content (such as sound and video files) of satisfactory quality efficiently and reliably over the Internet. This technology has made it possible for many educators to place their lectures on the Web and more and more educational institutions are offering these types of presentations to their students.

3. *The creation and management of virtual classes:* These may be used either to supplement the traditional class environment or as independent, self-existent learning environments. Such virtual classes need to be based on server access provided by an educational institution such as a college or university and incorporate multiple Internet services such as e-mail, Usenet News, and FTP. They provide a wide range of facilities to the learner such as electronic lecture notes, the course syllabus, examination material, theoretical economic problems, and exercises in the form of EXCEL spreadsheets. Students can communicate either with each other or with the teacher through the use of synchronic (chat rooms, whiteboard) and asynchronic (e-mail, bulletin boards) communication tools. This makes it possible to engage in discussions (both online and offline) on various economic issues. Teachers also have the ability to assign group projects to be completed through the Web and to keep track of student progress. There are a large number of integrated environments, which provide most of the above (as well as additional) facilities. However, it should be noted that these environments have been questioned in terms of whether they are pedagogically “neutral” or even “agnostic” and as to how “open” they actually are (i.e. how capable they are of supporting reusability of learning content and interacting with data stored in other environments). An extensive list (with their characteristics) and contrastive analysis of the above tools can be found at the following sites:

[http://econltsn.ilrt.bris.ac.uk/software/course\\_management.htm](http://econltsn.ilrt.bris.ac.uk/software/course_management.htm)

<http://www.ctt.bc.ca/landonline/option02.html>

### **The current situation of economic education in Greece: The teaching of Economics at the secondary and tertiary school level**

As in all countries, the Greek educational system is divided into three levels, primary, secondary and higher education. Secondary education is divided into Junior and Senior High School or Lyceum. The latter is distinguished into two types, the Unified Lyceum and the Technical/Vocational Lyceum. Economic knowledge has been traditionally offered to students in two distinct ways, indirectly as part of history, geography or sociology classes and as a discrete subject, which was first introduced in the technical/vocational Lyceum in 1977. The course “Principles of Economics” has been taught in the third year of the Senior Lyceum (18 year old) and only to students who intended to follow social science university studies since 1976. This situation changed drastically with the new reform law, starting in 1998-99, which included changes in the economics education in secondary education. In the first year of the unified senior high school (15-16) the “Principles of Economics” course became compulsory for all students. This is the first time that all senior high school students would be obliged to attend an economics course. The course “Elements of Economic Theory” is also offered as an elective to all students in the third grade of senior high school.

In 1985 there were five university departments offering programs that lead to four-year economics or business degrees. At present there are ten. Additionally, eleven departments that belong to institutes called Technical Educational Institutes offer three-year degrees in accounting and management. Three economic universities also operate MBA programs. It is interesting to note that most of the unofficial, yet operating, private higher education establishments offer graduate and post graduate degrees in the same areas (Tsopoglou, 1997).

Unfortunately, resources for the Greek economics educator have not been plentiful in the past, unless one turned to foreign web sites, educational institutions, private software producers, and publishers. Although this situation has somewhat improved, there is still a lack of tools and resources provided by Greek creators that would be capable of assisting the secondary or tertiary-school teacher to support his/her economics course in ways that would make it more exciting and effective. Most often, the existing Greek sites available are no more than a collection of foreign links and resources. Educational institutes offer their curriculum and syllabus online while some have recently begun to offer a number of their courses online mainly as asynchronous web-based supplements to traditional classes. University professors have begun to create class home pages for the classes they teach and some are publishing their own lectures and papers on the Web<sup>1</sup>. There are several sites that aim at providing resources for secondary school teachers and students primarily by offering databases of university entrance exam questions and useful links<sup>2</sup>. None of the Greek web sites we examined provide information or advice on how a teacher should teach an economics course, i.e. didactics of economics is a topic that still remains untouched on the web.

The Greek ministry of education has been making efforts to accord to the European Commission's e-Learning Action Plan for modernizing and upgrading the educational system. The Plan sets a number of ambitious challenges to European education and training systems such as: to develop the comprehensive integration of Information/Communication Technology into education and training, to create flexible infrastructures that will make e-Learning available to all, to promote universal digital literacy, to create a culture of lifelong learning, to develop high quality European educational content. In this context, the Greek ministry of education has undertaken the task of carrying out several major projects dealing with the development of the Greek school network infrastructure, the promotion of information technology within the school environment, and the training of in-service secondary school teachers. These projects are being funded by the 3<sup>rd</sup> EU WorkPackage and are expected to set the foundations for revolutionising the Greek educational system.

There are many informative sites related to economics such as online newspapers and portals. Although not included in the resources of this paper we should also note that finance and economics sections are also included in other online newspaper of general news. Additionally,

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<sup>1</sup>Indicative are the sites:

- <http://www.econ.uoi.gr/apergis/abstract.html> the personal web page belonging to Professor Nicholas Apergis of the University of Ioannina providing abstracts of all his publications related to economic issues.
- <http://www.soc.uoc.gr/xepapadeas/> this web page belonging to Professor Anastasios Ksepapadeas of the University of Crete offers lecture notes on Economic Growth.
- <http://eco.econ.ucy.ac.cy/Teaching%20Information.htm> the personal web page of Professor Theofanis Mamouneas of the University of Cyprus with syllabus information on macroeconomics in pdf format, links, posting of papers.

<sup>2</sup>Indicative of these types of sites are the following:

- <http://users.otenet.gr/~geodre/> created by George A.Dretas, which provides online information and references for teachers and students related to the course "Principles of Economic Theory" taught in year 3 of senior high school. Also contains a database with exam questions for the university entrance exams.
- <http://www.geocities.com/Athens/Forum/5763/> created by Varouksis Petros, which contains past university entrance exam questions (1994-2000) for the course "Principles of Economic Theory", as well as exercises and questions for the courses "Principles of Economic Theory" and "Principles of Business Administration".

there are a number of economic journals that provide monthly information on accounting, tax legislation, etc. Several institutes and services offer statistical databases and tables related to national data over the Internet that can be used by teachers and students for their exercises and assignments. It is important to note that most of the Greek sites we visited were designed with a focus on user-friendliness and direct access to up-to-date information.

Following is a collection of available Greek economic resources offered through the Internet. They have been separated into four categories: Educational Resources, Institutes and Services, Professional Journals, Online News and Portals.

### **A collection of Greek Economic Resources offered through the Internet**

#### **Education**

##### **1. National and Capodistrian University of Athens (School of Economic Studies)**

<http://www.uoa.gr/>

Digital library (online access of library catalogues, online access to cd-roms, links to Greek and international educational institutes and organizations, links to online academic search engines, Hellenic academic libraries link)

Distance Learning program with online courses at <http://www.finecon.uoa.gr/>

##### **2. Athens University of Economics & Business**

<http://www.aueb.gr/>

Online access of library catalogues, online distance learning courses, links to economic resources (publications, press, journals, banks, etc.), online database of syllabus, educational materials, course notes, and references for all courses taught at the Athens University (not complete yet) at <http://www.aueb.gr/lessons/d1/main.html>

##### **3. Panteion University (Department of economic and regional development)**

<http://www.panteion.gr/gr/tmimata/topa/UK1.html>

Online bibliography of political economy, database links, online access of library catalogues.

##### **4. University of Piraeus (Department of Economics)**

<http://www.unipi.gr/english/departments/economics/index.html>

Bibliographic databases, digital library, book orders for faculty, an extensive list of economics and finance-related sites.

##### **5. Aristotle University of Thessaloniki (Department of Economics)**

<http://www.auth.gr/econ/index.el.html>

Course syllabus, publications, links, posting of conferences.

<http://distance.csd.auth.gr>

A limited number of courses are already being offered online at this site.

<http://isdn.ccf.auth.gr>

Provides statistics about the topic of distance learning and a portal of Greek and foreign sites offering useful information.

##### **6. University of Macedonia**

<http://www.uom.gr/>

Online Access of Library catalogues, links to economic resources (publications, press,

- journals, banks, etc.), online distance learning courses
- **Department of Applied Information Technology, University of Macedonia**  
<http://macedonia.uom.gr/~tahmatz/>  
 Contains useful resources for those who are interested in economic education such as on-line materials, research papers, and discussion lists.
  - **Department of Applied Information Technology, University of Macedonia**  
<http://macedonia.uom.gr/~tsopstav/Econ&BusEd.gr/>  
 The society for the development of economic and business education in Greece. It is an effort to bring together Greek economic educators and link them with the Association of European Economics Education (AEEEE).
  - **Department of Economics**
  - **Department of Business Administration**
  - **Department of International and European, Economic and Social Sciences with two separate majors International and European Studies and Diplomacy**
  - **Department of Accounting and Finance**
  - **Department of Applied Informatics**
7. **Democritus University of Thrace**
- **Department of International Economic Relations and Development)**  
<http://www.duth.gr/adept/ierd.en.html>  
 Online curriculum, course syllabus, links
8. **University of Thessaly in Volos**
- **Department of Economic Studies**  
<http://www.econ.uth.gr/index.html>  
 Online curriculum, syllabus, posting of conferences, downloadable tutorials, useful links for students
9. **University of Ioannina**
- Department of Economic Studies  
<http://www.econ.uoi.gr/ps/>
10. **University Of Crete (Department of Economics)**  
<http://www.soc.uoc.gr/econ/index.html>  
 Online distance learning courses, postings of working papers and seminars, link to the Greek Econometric Institute and other links
11. **The Panhellenic School Network**  
<http://www.edunet.gr>  
<http://www.odysseia.cti.gr>  
 Projects sponsored by the Greek Ministry of Education (<http://www.ypepth.gr>), which are aimed at upgrading the Greek educational system through the promotion of information technology and the development of the Greek school network infrastructure.
13. **Pedagogical Institute of Greece**  
<http://www.pi-schools.gr>  
 Provides resources for secondary school students and teachers such as books, exercises, links, etc.
13. **Center of Educational Research (“Kentro Ekpedeutikis Erevnas”)**  
<http://www.kee.gr>  
 Various resources for the student and teacher of secondary school such as books, links, a

- database of exam questions and discussion board (not yet available for access).
- 14. The Open University of Greece (EAP-“Ellhniko Anoikto Panepistimio”)**  
<http://www.eap.gr>  
 The Greek virtual university for distance learning programs. It is expected to offer online web-based courses in the future.
- 15. Smartbees**  
<http://www.geocities.com/smartbees/>  
 A site that provides links to economic sites, a collection of online tests, online lessons with the use of Java applets, EXCEL spreadsheets, and graph construction tools.
- 16. Agricultural Bank of Greece**  
<http://www.ate.gr/apostasi.shtml>  
 The educational centre of the Agricultural bank offers distance-learning seminars on banking.

### **Institutes and Services**

- 1. Greek Econometric Institute**  
[http://www.soc.uoc.gr/econ/work/gr\\_econometric/Default.htm](http://www.soc.uoc.gr/econ/work/gr_econometric/Default.htm)  
 Contains statistical databases and tables related to national data such as national taxes, imports and exports, consumer information, etc., econometric software, PowerPoint slides, etc.
- 2. National Statistical Service of Greece Data**  
<http://www.statistics.gr/gr/data/index.htm>  
 Contains national statistical data related to the population of Greece, the national accounts, etc.
- 3. General Accounting Office of Greece**  
<http://www.mof-gl.k.gr/gr/home.htm>  
 Gathers, processes and analyzes statistical or other data and information related to the responsibilities and activities of the Ministry of Finance. Edits journals, prepares special publications or reviews in order to publicize the results and conclusions of its research, studies and activities. Posts executive summary of national budget report, and publishes public debt bulletins.
- 4. National Institute of Labor (“Ethniko institouto ergasias”)**  
<http://www.eie.org.gr/>  
 Aiming to fill a gap in the electronic dissemination of labor-market related data, the institute is developing a database containing data on: employment policies, unemployment and family benefits, immigration, expenditures related to passive and active employment, training policies, etc. For the coming year, the Institute is planning to complete the database with information about: training and skills, low-income groups, poverty, unemployment, labor market mobility.
- 5. The Hellenic Center for Investment (“Elliniko kentro ependiseon”)**  
<http://www.elke.gr/bllaw.htm>  
 Seeks, promotes and supports foreign investment in Greece and international alliances with Greek companies. Information about investment opportunities in Greece (also in English)

**6. Economic Chamber of Greece (“Economiko Epimelitirio Elladas”)**

<http://www.oe-e.gr/menu.htm>

The web site of Economic Chamber of Greece. Aims at the promotion of the economic science, carries out researches and studies on economic related matters such as accounting standardization, economic education and training, taxation reform, auditing, economic policy, etc. Posts information about professional rights and membership, publishes and distributes free to all its members the informative and scientific bimonthly magazine "Economika Chronica" (Economic Chronicles). Also publishes various scientific studies in the field of economics, etc.

**7. General Secretariat of Information Systems**

<http://www.gsis.gov.gr/home.html>

Online taxation

**8. Bank of Greece**

<http://www.bankofgreece.gr/>

Statistics, publications, banknotes, euro information, etc.

**Professional Journals****1. Logistis**

<http://www.logist.com/>

Monthly accounting journal and tax accounting review. Requires membership enrollment.

**2. Electronic Tax-accounting Library (“Forologistiki Electroniki Vivliothiki”)**

<http://www.forologistiki.gr/>

Tax legislation and labor insurance issues. Requires membership enrollment.

**3. Bulletin of Labor Legislation (“Deltion Ergatikis Nomothesias”)**

<http://www.den.gr/greek/001.htm>

Information on labor legislation. Requires membership enrollment.

**4. Development (“Anaptiksi”)**

<http://www.acci.gr/anaptixi/>

Monthly journal published by the Commercial and Industrial Chamber of Athens.

**Online news and Portals****1. Economics.gr**

[http://www.economics.gr/AllMedia/\\_gr/](http://www.economics.gr/AllMedia/_gr/)

Contains the database “**The Greek Economy in Figures**” which provides a panorama of the Greek Economy. The user surfing its tables can keep track of recent developments in its various sectors – monthly data highlight short-term developments- as well as of its long-term path in the 2<sup>nd</sup> half of the 20<sup>th</sup> century. The data base is updated daily. Such a collection of data, providing an up to date and complete view of the country’s development, will prove very useful for those interested in Greek economic affairs: in government, banks, industrial and other companies where information is an effective tool of strategic planning and, of course, to those engaged in research on the Greek economy.

The data sources are: National Statistical Service of Greece, Ministry of National Economy, Ministry of Finance, Ministry of Employment and Social Security, The Bank of Greece, Hellenic Telecommunications Organisation, Public Power Corporation, Civil

- Aviation Authority, Olympic Airways, Hellenic Railways, Eurostat, OECD, The World Bank, etc. Contains data about production, employment, consumption, prices, investment, money, exchange rates, etc. Allows its data to be processed in EXCEL spreadsheets.
2. **Daily Online (“Imerisia Online”)**  
<http://www.imerisia.gr/>  
 The online publication of the homonymous financial newspaper. Financial and business news with an emphasis on the stockmarket.
  3. **Reporter.gr**  
<http://www.reporter.gr>  
 Online financial newspaper with articles on a wide variety of economics and business domains. Online stockmarket information. Requires membership enrollment.
  4. **Naftemporiki**  
<http://www.naftemporiki.gr/>  
 The online publication of the homonymous financial newspaper. Financial articles and business news with an emphasis on the stockmarket.
  5. **Credit.gr**  
<http://www.credit.gr/>  
 Greek web site on banking issues. Provides detailed information on deposit and grant products.
  6. **Isotimia weekly edition**  
<http://www.isotimia.gr/314/>  
 Weekly electronic publication of the homonymous newspaper. Focused on the stockmarket.
  7. **Express on line**  
<http://www.kapatel.gr/express/>  
 Electronic publication of the homonymous newspaper
  8. **Economic and Industrial Review (“Ekonomiki Viomixaniki Epitheorisi”)**  
<http://www.oikonomiki.gr/>  
 Articles about the Greek economy and businesses as well as information technology.
  9. **Profit (“Kerdos”)**  
<http://www.kerdos.gr/>  
 The online publication of the homonymous financial newspaper. Financial articles and business news with an emphasis on the stockmarket.
  10. **Money (“Chrima”)**  
[http://www.hrima.gr/content/periodiko\\_12\\_2000/content/index.asp](http://www.hrima.gr/content/periodiko_12_2000/content/index.asp)  
 The electronic version of the homonymous financial magazine.
  11. **Money + Tourism Magazine**  
<http://www.money-tourism.gr/>  
 Monthly tourist, business and finance magazine.
  12. **Financial Postman (“Ekonomikos Tachidromos”)**  
<http://oikonomikos.dolnet.gr/>  
 The electronic version of the homonymous financial magazine. Contents and capability to search through previous versions. Stockmarket. Capability of composing a personal page of selected topics.

**13. Áthenstock.com**

<http://www.athenstock.com/Members/xrhma&agora/140/140.htm>

A stockmarket guide.

**14. The Business Directory**

<http://business.hellasob.com/direct/>

A Greek business-related portal related in English.

### Conclusion

Greece has been slow in integrating new technologies and instructional methods into its educational system. The Computer Technology Institute of Greece (<http://www.cti.gr/>) recently provided statistical data showing that only 18% of the total 3955 Greek secondary schools currently has access to the Internet. However, in accordance to the European e-Learning summit to utilise the power of technology for real social and educational change, the Greek ministry of education has undertaken a number of major projects, which are expected to set the foundations for revolutionising the Greek educational system. These projects will deal with the development of the Greek school network infrastructure, the promotion of information technology within the school environment, and the training of in-service secondary school teachers in order to facilitate educators in their efforts to incorporate new technologies into their work. The situation is currently better in higher education, with many Greek universities and technological institutes making significant efforts to exploit new technologies within their educational systems.

Until recently, resources for the Greek economics educator have been scarce. This situation is slowly and steadily changing as more and more sites and resources are being added to the Web. At present, still lacking in actual course content and sound pedagogical principles, the majority of these sites mainly provide access to information and data resources. Furthermore, none of the Greek sites examined prescribe ways to assist in economics teaching, i.e. they do not include pedagogical or didactic information. Needless to say, there is a severe necessity for such information to be provided to the economics educator. The next step would be to provide adaptive educational material that would take into account the knowledge and learning style of the learner so as to enhance learning outcomes.

The advantages of using new technologies for the instruction of economic courses in contrast to traditional teaching methods remain a controversial issue. This area requires formal assessments to provide documented evidence for the effectiveness of the electronic education of economics. The issue of how the Greek economics educational system will be capable of using innovative technologies is one that will be influenced by progress and experience coming from similar fields in Europe and America. The Greek economic community should, however, use this experience to benefit from the accomplishments and avoid making the mistakes that have already been made elsewhere.

It seems that the timing is right for new efforts to be made in creating and providing pedagogically-sound educational materials that will facilitate the teaching and learning of economic concepts. All stakeholders involved are in a better position than ever to develop or adapt state-of-the-art economics-business education technology. However, the authors strongly believe, as do many other academicians in Greece, that all these efforts can only be effective if

they are driven by pedagogy. Pedagogical principles need to be at the basis of every educational system and new technologies and instructional methods should be used in such a way so as to support and not substitute the educational process. These technologies and methods could recast established notions and structures of teaching and learning and rearrange their relationship and relative importance in more creative, exciting and effective ways.

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