



The Significance of Cyberlearning in Economic Education

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ABSTRACT

We analyze the potentials of web-based and mobile-based digital technology to disseminate, inform, transmit, instruct, and exchange course content in the teaching of economics. Cyberlearning is the use of networked computer technology to enhance the mode of educational content delivery to learners, and involves personal, social, and distributed learning that is mediated by a variety of rapidly evolving computational devices such as computers, tablets, and smart phones, and involving other media such as the Web, and the Cloud. Yet cyberlearning is not only about learning to use computers or to think computationally; social networking has made it clear that the need is much more encompassing, including new modes of collaborating and learning for the full variety of human experiences mediated by networked computing and communications technologies. Educators have continued to search for answers about how new digital tools and environments can be utilized to enhance learning among students of our contemporary “New Age” generation. In the present paper we examine the potentials of cyberlearning and the opportunities it offers for promoting and assessing learning, made possible by new technologies; and how it can help learners to capitalize on those opportunities and the new practices that are made possible by these learning technologies. In particular, we examine ways of using technology for economics education to promote effective learning that result in deep rooted grasping of content, practices, and skills that will ultimately shape attitudes and contribute to enhanced policy and progress in economic matters of society.

Keywords: Information technology, International competitiveness, Cyberlearning, Globalization, Economic education

INTRODUCTION

This paper analyses the transformational potentials of the integration of modern technological advances with the delivery of learning in general and economics education in particular. It seeks to examine how students can learn economics with the help of technology, and how the application of technology can be harnessed productively to help students learn through individual and collaborative mediations within the technological milieu. We analyze the potentials of web-based and mobile-based digital technology to disseminate, inform, transmit, instruct, and exchange course content in economics. The work is motivated by at least two prominent studies on how cyberlearning can massively impact educational achievements: a study by Monfort and Brown (2012) that thoroughly examined the meaning of cyberlearning and how the term is construed and applied by the various agencies at the center of educational policy making and policy implementations; and also a call made from an NSF (2008) report on the potentials of cyber technology in the delivery of education -- a report that calls for the

cyberlearning community to incorporate the additional expertise of disciplines such as social and organizational sciences, political science, economics, and others that have not traditionally engaged with learning. We examine how students' learning potentials can be better fulfilled through the use of technology to facilitate such learning activities as accessing and collecting economic data, analysing and sharing economic theory and literature, and the interactive and collaborative study of these materials to advance learning.

Cyberlearning is the use of networked computer technology to enhance the mode of educational content delivery to learners; it involves personal, social, and distributed learning that is mediated by a variety of rapidly evolving computational devices, (computers, tablets, smart phones), and others such as Web, and Cloud. But cyberlearning is not only about learning to use computers or to think computationally; social networking has made it clear that the need is much more encompassing, including new modes of collaborating and learning for the full variety of human experiences mediated by networked computing and communications technologies.

Educators have continued to search for answers about how new digital tools and environments can be utilized to enhance learning among students of our contemporary "New Age" generation. Montfort and Brown (2013), while stressing that there is little agreement as to a precise meaning of the term "cyberlearnig", have defined it as the interactions of technology and education, especially with respect to the use of networking and information technologies.¹ It is proposed that cyberlearning can facilitate how and under what circumstances learning phenomena happen. For economic education, cyberlearning can not only access and promote learning, but also can have the potential to significantly advance opportunities for learning, amplify, expand, and transform opportunities for learning, and can better draw in, motivate, and engage learners. Much interest has been expressed in the application of technological advances that can help promote greater personalized learning initiatives and experiences (Morisy, 2012; Things, 2011). This will particularly be of immense help to individuals and/or groups in society who have not been well served and continues to not be well served by the traditional methods and delivery practices that dominate the current educational system. Cyberlearning allows for access to learning and learning resources anytime and anywhere that can help students better tap their innate capabilities that would otherwise tend to be dormant. Such a new form of educational practice introduces a means of renewed interest in the learner that result in the awakening of a more actively engaged and productive individual.

Central in the design of economics education is the awareness of the society's central challenges that are the amplifying, expanding, and transforming of the opportunities people have for learning and more effectively drawing in, motivating, and engaging young learners (NSF Taskforce on Cyberlearning, 2008; Navarro and Shoemaker, 1999). Educating for economics knowledge, and subsequently for engaging actively as a citizen and productively in the workforce, requires understanding the broad variety of concepts in economic theory and analyses, and possessing the ability to collaborate, learn, solve problems, and apply those skills to make informed and relevant decisions.

In the present paper we examine the potentials of Cyberlearning and the opportunities it offers for promoting and assessing learning made possible by new technologies; and how it can help learners to capitalize on those opportunities and the new practices that are made possible by

these learning technologies. We examine ways of using technology for economics education to promote effective learning that result in deep rooted grasping of content, practices, and skills that will ultimately shape attitudes and contribute to enhanced policy and progress in economic matters of society.

CYBERLEARNING: SOME PREVIOUS LITERATURE

The increasing interest and widespread utilization of cyberlearning is a reflection of not only the increasing prominence of this approach in the delivery of educational services, but also reflects an important shift in approaches to educational technology. Dede et al (2005) as well as Donovan and Bradford (2005), have observed that whether learning is facilitated in school or out of school, and whether learners are youngsters or adults, to develop such knowledge and capabilities, learners must be motivated to learn, actively engage over the long term in learning activities, and put forth sustained cognitive and social effort. The National Science Foundation (NSF) Taskforce on Cyberlearning published a report in 2008 that is often described as the origin of the term, and provides an insightful and thorough meta-analysis of the literature and general movements in educational technology that led to the authors' adoption of the term (NSF, 2008). The Taskforce defined cyberlearning as "...the use of networked computing and communications technologies to support learning" (p. 5). The authors explained that although the prefix "cyber" has come to be associated with computer technology, there is also a sense in which it can be used in its original connotation, which was "...built etymologically on the Greek term for 'steering'." They state that although the focus is clearly on the networking technologies that are defining the modern age of information technology, (such as cloud computing and social media), the authors deliberately left the term open in order to refer to any form of future technology that mediates the human interactions that are at the heart of education. They argue that there is need to steer the inevitable changes that technological developments bring to education and learning in the positive direction; noting that cyberlearning fundamentally brings changes to how people seek knowledge and skills, and should be used as a lifelong learning resource that can provide access to disadvantaged or disconnected individuals, thus addressing society's need for full workforce inclusion.

An earlier NSF study had declared Cyberinfrastructure as the medium for Continuous Collaborative Computational Cloud (C4) environment, which supports the preparation of professional careers that require high level and interactive thinking (NSF, 2001). The report's authors presented their vision for how the concept of an integrated C4 environment could potentially transform our educational systems to more seamlessly blend the formal and informal learning worlds. They noted that the tools and technology of the C4 environment would seamlessly connect networks, servers, personal devices (such as laptops, tablets, smart phones, and others) and super-computers; and that they would help provide just-in-time access to the personalized knowledge individuals need, and could replace textbooks with dynamic learning environments better suited to the continuous advances that will confront the Net Generation workforce. Thus, cyberlearning fundamentally changes how people seek new knowledge and skills, and could reduce barriers for those who are disadvantaged or disconnected.

Dede et al. (2005) suggested that cyberlearning research introduced the processes by which people learn with advances in information and communications technologies to advance understanding of how to cultivate a citizenry that engages productively in learning, both in and

out of school and throughout a lifetime. Such progress provided the knowledge and capabilities to make informed decisions and judgments about the multifarious problems of life. They observe that cyberlearning innovations will not effect transformations unless they are substantively integrated into authentic learning environments; and that integration of technologies into learning environments may change those environments, prompting a need to understand, predict, and design for those changes. The expectation is held that some technology designs and some ways of integrating technology into learning environments may challenge conventional educational practices.

CYBER-ECONOMIC EDUCATION IN THE CLASSROOM: DISSEMINATING ECONOMIC THEORY AND GLOBAL AWARENESS

Economic education is about training students for success in the business world. Business success is often measured in terms of the bottom line, namely, continued business efficiency and sustained business profitability. These criteria of business success and equipping students with the proficiency to pursue and attain the skills needed for them, is the central focus of economic education and training. The new world of the era of global competitiveness challenge calls for continuous pursuit of the business bottom line, and this challenge calls for the need for creating and disseminating a culture of global awareness within the body frame of students in the economics classroom. And nothing facilitates the creation, development, and continuous dissemination of this culture of global awareness more than the cyberlearning infrastructure. Yet there is the need to raise the importance of connecting the classroom activities to the realities of the outside world in which students will live and work. The void should be filled between the new cyber infrastructure and cyberlearning and education strategies to achieve a workforce that is technologically competent and competitive.

Through cyber technology, students are able to immediately engage the real world instantly to delve into practical economic and business procedures and practice. Key economic and business data such as the growth rates of the Gross Domestic Product (GDP), income distribution, relative prices, employment and unemployment rates, and just about any State and national level micro and macro data as needed, can be promptly accessed and downloaded and analyzed for more effective study and applications. The main benefit here is the efficiency and effectiveness of delivery of the lesson and procedure one wishes to direct to the students. Thus the major facilitating properties of the cyberlearning mechanism include:

The Interactive Format of Cyberlearning

Cyberlearning provides an innovative learning tool and methodology that can foster students' interest in collaborative and interactive learning needed to improve the effectiveness of teaching. It uses communication methodologies of personalized just-in-time learning modes as compared to conventional teaching modes of fixed learning systems, as well as life-long education instead of the system of one time front-ended delivery; and the emphasis would be on results oriented learning rather than the conventional classroom teaching mode. The students using the techniques of cyberlearning are held to a unique interactive level of consciousness, which presents an additional personal challenge to uphold an expected level of standard of learning achievement because the platform of distance online network does not present the opportunities to interact physically with the teachers and other classmates. This means that it would be essential for students of cyberlearning to quickly rise to knowing and

mastering the basics of subject in order to meet the individual challenges of maintaining the level of expectation.

The Promptness of Interaction

Cyberlearning provides an infrastructure where the educator and students can engage in instant network of contacts through response and feedback exchanges that occur in interactive learning. Time is saved within and between the processes of content delivery, response, feedback, evaluation, and assessment. Such a mode can only quicken the pace of learning and result in greater student achievement. And this approach can be complemented with an interactive class videoconferencing between multiple locations, something that mimics the conventional classroom experience, but only delivered under the setting of cyberlearning. This setting enables learners to experience things that simply would not be possible under the conventional setting, for example, by providing learning scaffolding that helps students do things they could not otherwise, and grow in their capabilities through it. It allows for rich, timely, and personalized feedback during the learning process; and enables learners to connect and network with each other and with communities in ways that would otherwise no be feasible in dialogue and shared learning. And with regard to students' assessment and evaluation, cyberlearning enables individual student competencies to be automatically recorded and tracked, thereby negating the requirement to conduct laborious and time consuming manual assessments along with the collation and reporting of results.

The Perpetuation Factor

The ability of students to reach the professor, and vice versa, at anytime without the confines of the limited classroom time and space perpetuates the learning process. And more significantly, unlike the traditional classroom setting, the use of cyberlearning enables students learn at their own pace -- a conventional classroom environment often contains a variety and range of learner competency levels which means that the teaching tends to be either conducted too quickly (in regard to slower and/or less advanced learners), or too slowly (in regard to faster and/or more advanced learners). It provides students with unlimited sources of information and a cost-effective way of providing individualized instruction that accommodates different and diverse learning styles. The self-paced learning environment that is cyberlearning to the student is one of the strongest assets of this infrastructure.

The Low Cost Factor

The kind of network environment that cyberlearning provides for a course promotes learning by "spreading" information and course content more extensively across the student population of the class, with significant reduction if not total elimination of any course related travel, accommodation, and other related logistics costs. The instructor is enabled to interact with very large group of students across hundreds and thousands of miles, and different time zones, at virtually zero *marginal cost*. This low cost aspect of it results in reaching a lot larger and more diverse student population than otherwise would be affordable; thus cyberlearning enables students who would probably never have been reached and interacted with to be reached and interacted with, by simply lowering the cost of reaching and interacting with them over hundreds and thousands of miles and across various time zones. Moreover, by lowering the costs of interaction, cyberlearning is able to greatly increase the volume of content that is delivered, which, in economics facilitates the ability to use data to analyze and illustrate theoretical and empirical models to students.

As the economy becomes increasingly knowledge-based and more dependent on technology, our economic thinkers need to be equally versatile and competent in the use of cyber technology to avoid a mismatch between education and curricula, and the workforce needs of the economy. The current educational system was designed with a view to providing all students with a standard and common set of educational skills and knowledge -- the 4R's (reading, writing, arithmetic, and rote learning) notwithstanding. But such standardization of learned skills was relevant and suitable when the economy was comprised of occupations in industrial mass production in which workers needed to be trained initially and then needed to remain in performance of similar tasks over their life careers. The present age, however, is different from such. The new knowledge-based economy needs new and changing sets of skills continually, and standardized skills may not properly fit the needs of students under such a system. This requires an educational approach and paradigm shift that promotes individual learning for people throughout their lives as they continually need new skills and knowledge. The paradigm shift needs to address the new need -- to upgrade skills through individualize learning -- that is created by a pervasive C4 environment.

GLOBALIZATION AND THE BUSINESS BOTTOM LINE

Globalization is the unrestricted mobility of products and resources (capital and labor) across countries, prompted, enabled, and driven by the onset and permeation of Communication and Information Technology (CIT). This phenomenon has led to the internationalization of most economic and business activities that used to be typical domestic activities, and meant that every modern economy today is heavily impacted by its international trade sector. This has given rise to the New Trade Theory (termed the Strategic Trade Theory), to the effect that, due to globalization, a country can only benefit from international trade if and only if it adopts strong trade strategies, namely, the strategies of sustained (1) Competitive Advantage, and (2) International Competitiveness.

Due to globalization, the gains from trade no longer depends on *comparative advantage* of nations, but rather on the *competitive advantage* of nations. Therefore, international trade no longer yields a *win-win* outcome between trading partners; but rather, results in *zero-sum* outcomes between trading partners. A zero-sum outcome means that there must be winners and losers, whereby the winner's gain (positive) and the loser's loss (negative) add up to zero. Domestic firms can no longer count on continued loyalty and patronage of traditional local markets and consumers; that is, foreign firms are able to dominate the market supply of products within a country.

The critical factor in disseminating (in the classroom) and practicalizing (in the real world) these strategic trade initiatives is none else than the cyberlearning infrastructure.

Cyberlearning is an inevitable *catalyst* needed to prepare a country to successfully participate as a player in the global business bottom line, within our present day knowledge-based global economy. For example, cyberlearning prepares and exposes us to the reality that countries have become more interdependent in economic, business, social, cultural, and even political activities such as human rights, democracy, labor standards, etc. Also, cyberlearning can prepare us for the realities of such events as international outsourcing -- key business strategies required for firms to pursue lower production costs to achieve competitive advantage --

whereby a domestic firm engages a foreign firm to supply its service needs at lower costs in order to achieve competitive advantage.

THE DRAG EFFECTS OF CYBER-EDUCATION

Despite the massive advantages of Cyberlearning in bringing the business bottom line to the classroom, there are certain pitfalls that must be watched also, and we must seek for ways to address them in order to minimize their drawbacks on the achievements that Cyberlearning can provide.

The Entertainment Trap

There could be a tendency for students to gravitate toward the entertainment aspect of cyber technology, without entering into the intellectual realm of it and grasping the core content of the material. Cyberlearning creates the danger of unusual emphasis being placed on the fancies of technology and away from the course content.

The Drag on Creativity: The "Robotic" Syndrome

How far do students really acquire and enhance their creative skills through the use of cyber technology in learning? Does cyber technology merely prompt students to just follow promptings like robots without developing their own initiatives toward problem solving skills? There is a concern with the depersonalization of the learning process through cyberlearning.

The Writing Factor

Does the use of cyber technology interfere with students' ability to develop effective thinking and writing skills?

POLICY ANALYSIS AND CONCLUSION

Promoting cyber-based course offerings should not deemphasize the importance of non-cyber based, traditional course offerings. There should be careful pursuit for finding optimal combinations of both cyber-based and non-cyber based course offerings. Contemporary world reality is the era of global competitive challenges in our everyday pursuit of the business and economic life. This challenge calls for the need for creating and disseminating a culture of global awareness within the body frame of students in the economics classroom, and nothing facilitates the creation, development, and continuous dissemination of this culture of global awareness more than the cyberlearning facility. The key facilitating properties of the cyberlearning mechanism include the interactive format of cyberlearning, the promptness of the response and feedback exchanges that occur through cyberlearning, and the "perpetuation factor" of cyberlearning (teaching-learning interaction without limitation of classroom time and space).

Clearly, the kind of "network" environment that cyberlearning provides for a course promotes learning by "spreading" information and course content more extensively across the student population. Globalization has opened every modern economy to be heavily impacted by its international trade sector -- a factor that is prompted, enabled, and driven by the onset and permeation of Communication and Information Technology (CIT) -- leading to internationalization of most economic and business activities that used to be typical domestic activities. This has given rise to the New Trade Theory initiatives (termed the Strategic Trade),

to the effect that owing to globalization, a country can only benefit from international trade if and only if it adopts strong trade strategies.

Further policy implications of this are the strategies of sustained Competitive Advantage, and International Competitiveness. This is because, due to globalization, the gains from trade no longer depends on the Comparative of nations, but rather on the Competitive Advantage of nations. Therefore, international trade no longer yields a win-win outcome between trading partners, but rather results in zero-sum outcomes between trading partners (whereby the winner's gain (positive) and the loser's loss (negative) add up to zero). Moreover, domestic firms can no longer count on continued loyalty and patronage of traditional local markets and consumers, because foreign firms are now able to dominate the market supply of products within a country.

The critical factor in disseminating (in the classroom) and practicalising (in the real world) these Strategic Trade initiatives is none else than the cyberlearning facility; as cyberlearning is an inevitable catalyst needed to prepare a country to successfully participate as a player in the global competitiveness field within our present day knowledge-based global economy. For example, cyberlearning prepares and exposes the student to the reality that countries have become more interdependent in economic, business, social, cultural, and even political relationships. Another example is that cyberlearning can prepare us for the realities of such events as international outsourcing, a strategic business initiative that firms use to pursue lower production costs to achieve and maintain competitive advantage.

NOTES

1. The authors speculated that such disagreements most likely reflect the underlying differences in beliefs about the broad purposes of education itself; and that the disagreements are problematic for anyone interested in evaluating cyberlearning practices. Yet it is important for one to ascertain a view of how practitioners and experts in the field define cyberlearning, and how they implement it and what they believe its purpose to be. But in their study, the authors found very little agreement among the experts and practitioners in terms of their definition of the wide variety of the practices labeled "cyberlearning" (Montfort and Brown, 2013).

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