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FEATURE

Strengthening Education and Workplace Linkages: The E-Learning Challenge

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Abstract: *Globalization and technology have changed the role and function of today's educational institutions. Educators need to understand the changes and adapt to them in order to provide students with the needed skills for today's workplace. New demands and competencies as well as the prevalence of cross-border education have challenged the quality and relevance of education. One way to improve the relevance of education is through linkage with the workplace. E-learning provides opportunities to strengthen such linkage by using workplaces as learning contexts, creating social networks, and participating in communities of practice.*

It has become an accepted fact that we are living in a globalized world. Interdependence on goods and services is now a reality in the majority of countries around the world. Indeed, the lyrics of the song "No man is an island" are now being felt as countries recognize the value of relating with one another. Each country has its own strengths and weaknesses. Developing complementary relationships with one another has been proven beneficial for the parties involved.

The role of technological developments in making such relationships possible cannot be ignored. At no time in the past has there ever been greater speed and availability in the transmission of information as now. Barriers of time and place have been overcome as communication technologies allow people to access the world of information at the click of a button. This has resulted in a "knowledge boom," fulfilling the Biblical prophecy of the last days when "knowledge shall be increased" and "many shall run to and fro" (Daniel

12:4), which could refer to the speed of communication on the information highway.

The ease of the transmission of knowledge has paved the way to more discoveries and better understanding, fueling economic development in many countries. Compared to other inputs of production, knowledge is now considered a commodity that is of primary importance to development. This reliance on knowledge in the development process has resulted in the emergence of the "knowledge society" (Tullao, 2003). The purpose of this paper is to discuss how these developments impact the role and function of institutions of higher education.

Challenges Facing Higher Educational Institutions Today

Educators still believe that the central role of educational institutions is "to create, preserve and communicate knowledge and contribute to the cultural, social and economic well-being of society through education, research and scholarship" (Irish Federation of University Teachers, 2000). The greater importance accorded to knowledge in today's globalized society has placed educational institutions in a more strategic role in the human quest for development. Thus, it can no longer be denied that educational institutions, particularly colleges and universities, are now being affected by the globalization that has characterized the world since the 14th century (Uvalic-Trumbic, 2004).

What are the challenges facing institutions of higher education today? The new status of knowledge and the effects of globalization have expanded the reach of higher education beyond its geographic limits. New market demands require changes in the way we teach. We need to adjust to competition coming from non-traditional means of education, and to take advantage of different teaching methods that are now available. Constructivist approaches and e-learning opportunities have mushroomed, bringing parallel concerns for quality assurance, networking, and meeting workplace needs. These are some of the challenges that will be discussed in this section.

Globalization and the Internationalization of Higher Education

Political and economic globalization and the accompanying rise of the knowledge society have led to globalization of higher education. The strong demand for knowledge has opened up the horizons of educational institutions beyond their geographical limits, making them one of the earning sectors in society. The World Trade Organization (WTO), through the General Agreement on Trade and Services (GATS), has included educational services in its tradable services, causing business people to engage in the delivery of education. This

commercialization has resulted in a certain loss of control by a country over the kind of education its citizens receive and even the weakening of the academic community's power over decision-making in education (Tullao, 2003).

Globalization and internationalization of education however, are not being met by most countries with open arms. During the Asia and Pacific Regional Conference on National Strategies and Regional Co-operation for the 21st Century, for example, it was declared that:

> support for these concepts should not lead to dominance or new forms of imperialism by major cultures and value systems from outside the region; rather, it is of vital importance that every effort should be taken to protect and promote the strengths of local cultures and intellectual and scholarly traditions (UNESCO, 1998, Declaration about Higher Education in Asia and the Pacific, p. 58).

Changing Market Demands

As the knowledge economy advanced, the skills and educational demands for the workforce have changed rapidly. The high turnover of new information and skills has made new graduates almost unprepared for the workplace. In a few years after graduation, they almost become obsolete, especially if they do not keep abreast of new information. Hence, employers nowadays are no longer looking for employees with mastery in just one field, but rather they focus on the flexibility and adaptability of their workers (Scharffenberger, 2006).

Skilled specialists in particular fields are still needed, but they are expected to possess additional skills such as "languages, ICT [Information and Communications Technology] knowledge, (especially bi- or multicultural experiences) and 'soft skills'" (Valiulis, 2003 p. 2). Lynch and Barger (2006) add the following skills that are also needed for today's workforce:

> [To be] able to identify and organize resources, acquire and interpret information, and work with others . . . effective communication, critical thinking and analytical skills, as well as ethical awareness. In a nutshell, employees' ability to learn has emerged as a strategic advantage for companies. (¶ 4)

It is not just the nature of skills that has changed--the nature of work is also changing. It is estimated that a young person in the US will have an average of 10.2 different jobs during his/her entire career. US corporations spend billions annually on "educating" their new employees (Scharffenberger, 2006). The workplace is also focused much more on teams, rather than individuals (Gardner, as cited in Lynch & Barger, 2006). Learning is now open to partnership with experts of other organizations.

Increasing Number of Borderless Education Providers

The Organization for Economic Cooperation and Development (OECD, 2006) reports that cross-border education is now being considered a tool for economic development. As communication technologies develop, more and more educational institutions are now offering educational programs in other countries. The OECD reports that the internationalization of education among its member countries has caused a 70% increase in the number of foreign students between 1998 and 2004 (OECD, 2006). Starting in January 2000, the World Trade Organization has included education services in the General Agreement on Trade and Services (GATS), resulting in the "commodification" of education (World Trade Organization, 2007).

One of the many forms of cross-border education is distance education (sometimes called online learning or e-learning). Before GATS was signed, distance education had already been growing in the United States at a rate of more than 40% annually (Newman, 2003) as a result of advances in communication technology. The liberalization in the delivery of educational services, and the accompanying increased demands for education among the adult population, resulted in the rise of more virtual universities that know no bounds of time and space.

Distance education proved to be an appropriate mode for students who could not come to campus for various reasons. But the difficulty of monitoring such schools became a threat to the validity and legitimacy of credentials presented by graduates of higher education institutions. The lack of control in the use of the web easily made the Internet a fertile ground for the breeding of diploma mills, many of which adopt names that are similar to bona fide universities or colleges (Armour, 2003).

Even if certain virtual schools are known to be legitimate, the quality of their instruction is still questioned because of reasons such as (1) the lack of face-to-face components needed for spontaneous discourse, (2) the lack of experience of the faculty in teaching online, and (3) the dearth of research on the effectiveness of online learning (Garrison & Anderson, 2003). Recent developments in online instructional designs have contributed substantially to the acceptance of this mode of education, but its inherent weaknesses remain as challenges for higher education today.

Implications of Globalization in Education

The challenges brought about by globalization to institutions of higher education have far-reaching implications. The three areas that were affected the most are the required student and teacher competencies, the teaching and learning process, and the quality assurance of education.

Required Student and Teacher Competencies

Changes in the marketplace resulting from globalization have created the need for new competencies from workers who will succeed in the twenty-first century. According to Scharffenberger (2006), the new education model must consist of the following: Thinking and Learning Skills (critical thinking, problem solving, communication, and collaboration), Life or Personal Skills (leadership, ethics, self direction, social responsibility, and accountability), ICT Literacy (computer, Internet skills, information and media literacy), and 21st Century Content (global awareness, financial/entrepreneurial literacy, and health and wellness awareness), in addition to traditional core subject content (language arts, math, science, history, civics, etc.).

Based on this 21st century education model, the competencies of a student today would be (Scharffenberger, 2006):

- Analytic thinker
- Problem solver
- Innovative and creative
- Effective communicator
- Effective collaborator
- Information and media literate
- Globally aware
- Civically engaged
- Financially and economically literate

For students to achieve the above competencies, their teachers must also possess the same. This places a great responsibility on teachers, and on teacher development in educational institutions. Raduan and Naresh (2006) underscore this task in these words:

> To optimize the effort to improve the quality of education, it is necessary to improve the quality of educators in all aspects of their functions. Indeed, it is commonly known that the quality of educators and educational leaders is the main determinant in achieving economic progress in the era of globalization and ICT. The growth of an economy will mean a greater demand for a high-quality workforce that can adapt quickly to industrial and social development. Thus, the role of HEIs may take the form of providing a professional workforce at all levels and playing a wider role in meeting the demands of the constantly changing and fast-paced learning environment of the 21st century. (¶ 2)

Changes in the Teaching and Learning Process

One area that has experienced the biggest transformation as a result of new market demands and the proliferation of cross-border education is the teaching and learning process. Educational institutions continue to shift to newer paradigms of teaching and learning because of advances in knowledge and technology, and in order to cater to the current needs of the workplace. The global view in education popularized social learning/situated learning, collaborative learning, and learning as a community. The high turnover of information and the discovery of new workplace competencies gives importance to learning how to learn, lifelong learning, critical thinking, and problem solving strategies.

The enormity of information available, however, sometimes makes education irrelevant to students. A school's lack of control over the geographic distribution of its students due to cross-border education has also made learning environments detached from the real life contexts of the students. To avoid this pitfall, educational institutions need to contextualize their teaching and emphasize learning as a community, taking advantage of constructivist approaches to learning.

Contextualization of learning means making use of what is familiar to students to learn new things. It makes learning more relevant to students because they can easily apply what they have learned. Content becomes concrete and realistic, thus helping the student understand it more clearly. Cognitive science research has found that embedding the instruction in a familiar context improves both student achievement and attitudes (Morrison, Ross, & Kemp, 2004).

Emphasis on learning as a community underscores the importance of collaboration in learning. A learning community exists when there is a "mutual interdependence among members, a sense of belonging, connectedness, spirit, trust, interactivity, common expectations, shared values and goals, and overlapping histories among members" (Rovai, as cited in Lee, 2006, p. 52). A learning community simultaneously promotes cognitive independence and social interdependence. Garrison and Anderson (2003) capture the essence of the cognitive and social aspects of learning communities:

> It is the juxtaposition of both aspects of this seemingly contradictory relationship that creates the spark that ignites a true educational experience that has personal value and socially redeeming outcomes. . . The learning community is a fusion of individual (subjective) and shared (objective) worlds (p. 23).

The use of constructivist approaches is strongly connected to contextualization and learning communities. Constructivist theory is based on the notion that human beings have an innate drive to make sense of the world. They actively construct knowledge by:

> Integrating new information and experiences into what they have previously come to understand, revising and reinterpreting old knowledge in order to reconcile it with the new. . . The process works most effectively when it is embedded in a context in which new knowledge and skills will be used. . . Although learning is a matter of personal and unique interpretation, it takes place within the social context. (Billett, as cited in Kerka, 1997, ¶ 2, 3)

Quality Assurance in Education

As mentioned earlier, the proliferation of cross-border education has placed the quality of education in question. Quality issues however, do not hinge merely on whether a school is legitimate or not. A school may be legitimate, accredited, or well known, yet the effectiveness of specific online courses may still be in question.

Compounding this problem is the fact that there is no single accreditation standard that is accepted worldwide, even in the more traditional realm of classroom teaching. Regulatory responsibility typically rests within national or regional borders. Who should monitor internationally delivered degrees, especially if they are taught via online modality?

One of the implications of globalization and the rise of knowledge society for institutions of higher education is that there is a need for schools to take a proactive role both in adapting to the changing times and in stemming the tide of negative effects on education. To be effective, education should be made more relevant to the students. Schools need to adjust to the changing competencies expected of graduates (and of their teachers), embrace new ways of teaching and learning to accomplish such, and be sensitive to maintaining the quality of all courses offered.

Education and Workplace Connections

One way of making education more relevant to the needs of students and the workplace is to develop a close connection between the two. Schools will only be able to know the skills and knowledge needed by graduates to be productive members of society if they invest in knowing the nature of the workplace (Fairweather, 1988). New competencies, which experts call 21st century skills, need to be developed, and this calls for contextualizing learning in places where theory can be applied—the workplace.

Clarke (2007) reports that "even the sharpest leading edge companies can no longer survive on their own R&D [research and development] efforts, but must open up their networks and collaborate with others" (¶ 1). Sargent (2000) emphasizes the value of real world experiences:

> Given current emphases on state standards, experienced educators may be inclined to seek "real world" affirmation that their curriculum and teaching strategies are relevant and useful to today's students. . . . Workplace/community learning (WCL) experiences give educators relevant and current information, as well as real-world examples that can enrich curricular content in a wide variety of courses. . . . For education professionals, WCL experiences and the resulting connecting activities provide a crucial link between theory and practice. (pp. 1-2)

Making workplaces into learning environments has both strengths and limitations. It can provide:

(1) authentic, goal-directed activities;
(2) access to guidance--both close assistance from experts and "distant" observing and listening to other workers and the physical environment;
(3) everyday engagement in problem solving, which leads to indexing; and
(4) intrinsic reinforcement.

Workplace settings can also have limitations:

(1) construction of inappropriate knowledge (e.g., racist or sexist attitudes, unsafe work practices);
(2) lack of sufficient or more challenging authentic activities; and
(3) reluctance of experts to participate or restrictions on their assistance. (Kerka, 1997, ¶ 10)

Strengthening Education and Workplace Linkages Through e-Learning

Technology is what enables e-learning to link learning and the workplace. Three possible ways of creating such linkages are: (1) using students' workplaces as learning contexts, (2) encouraging social networking in the class, and (3) creating or participating in communities of practice.

Workplaces as Learning Contexts

How can real world experiences be integrated into the curriculum if students are distant and come from different places? In reality, e-learning or online learning assumes that the learning environment is located mainly on the web. The nature of this environment is dependent on how the teacher designs the

instruction and what kinds of relationships are formed. If students are scattered from around the world, how can the teacher contextualize learning? Whose context will be used?

A graduate level distance education student is different from an ordinary on-campus graduate student in many ways. Research (UIEO, 2003; Dortch, 2003) reveals that online students generally:

- Are older and have jobs and families which they must attend to while studying.
- Have a variety of reasons for taking online courses: to take a degree for job promotion or to qualify for a better job, or merely to enhance knowledge and not interested in completing a degree.
- Are usually isolated, without the motivation that arises from contact or competition with other students, and lack immediate support for probable learning problems due to the absence of faculty and peer group.
- Take longer to establish student-teacher rapport because of the absence of face-to-face contact and the lack of common background and experiences.
- Usually feel inhibited to communicate until after they feel comfortable with technical delivery system.

Since most of these distance education students are working adults, workplaces would be accessible for teachers to use as learning contexts. Practice of skills and application of theory in real life contexts can be done by students if teachers include these in their course design. This will not only engage students in relevant learning experiences but will also improve their professional lives through exposure to their workplace organizations. The teacher must, of course, make sure that students are given enough guidance before they are sent to try new ideas in their workplaces.

Two Adventist International Institute of Advanced Studies (AIIAS) online courses have used workplace applications as a strategy in their classes. A Master of Public Health class required students to develop a course-related seminar and conduct it, preferably in their respective workplaces. Another class in the Master of Arts in Education asked students to practice-teach some acquired teaching strategies in the classes that they currently teach. In both cases, students were able to accomplish course requirements while at the same time experience real-time application of concepts learned in class directly in their workplaces.

Social Networking

Social networking is simply the creation of interconnected links between actors in a social relationship. A social network is created when there are one or more common ties that bind the members of a group together, such as values, vision, ideas, financial exchange, friendship, kinship, conflict, trade, web links, disease transmission (epidemiology), or even airline routes. Social networks exist in many levels, from simple families to complex relationships among countries. They play a critical role in "determining the way problems are solved, organizations are run, and the degree to which individuals succeed in achieving their goals" (Wikipedia, 2007, ¶ 25).

Social networking, in its most formal sense, was first used in the business community (called organizational network analysis) to describe the structure of relationships in an organization for the purpose of identifying the transmission or sharing of information between members of the group (Krebs, 2007). In education, social networking is used in the learning process (called learning networks) where students and teachers share experiences as they explore new areas together and create common ground as a community (Haythornthwaite, 2005).

Social network analysis is the "mapping and measuring of relationships and flows between people, groups, organizations, computers, web sites, and other information/knowledge processing entities" (Krebs, 2007, ¶ 1). Individual actors in the network are called *nodes* while the relationships between the actors are called *ties*. The node with the largest number of ties is called the social capital. The shape of the social network indicates how useful it can be to its members. Smaller, tighter networks mean the members are already sharing the same knowledge and opportunities with each other. More open networks, with many weak ties or loose connections, are more likely to share new ideas because the nodes on the periphery may also have connections to other social worlds. Of course, "it is better for individual success to have connections to a variety of networks rather than many connections within a single network" (Wikipedia, 2007, ¶ 5).

In an e-learning environment, the social networking of students is generally characterized by discussions about workplace experiences. This is especially true if their respective workplace settings are used as the learning contexts of the class. Inviting experts as guests can also enrich the social network. Note that it is easier to invite experts in an online environment because of the connections afforded by technology.

An example of a social network analysis is shown in Figure 1. This is the visual representation of relationships that exist in an online Master of Public Health class at AIIAS. This figure is based on interactions that transpired during

a randomly chosen class discussion period. This gives us an idea of who has greater influence in the group (social capital) and who could be the contributors of additional knowledge from outside the network (weak ties). The nodes in Figure 1 are the 12 students of the class, while the lines are the interactions between them.

The object of an e-learning class is to create an open environment for conversation and sharing, where everyone is heard regardless of strength of their relationship with each other. It can be observed that students O, C, T, E, R, and H are the primary actors of the group. They appear to dominate the conversations. They can be credited with building community in the class, since they talk to almost everyone in the group. Students L, M, S, E, J, and G have weaker ties with the group but this may mean that they are also busy participating in other social networks, which can actually bring to class new contributions and ideas from these networks. Student G may have elicited a lot of messages from classmates but they are one-way conversations, so the tie is weak.

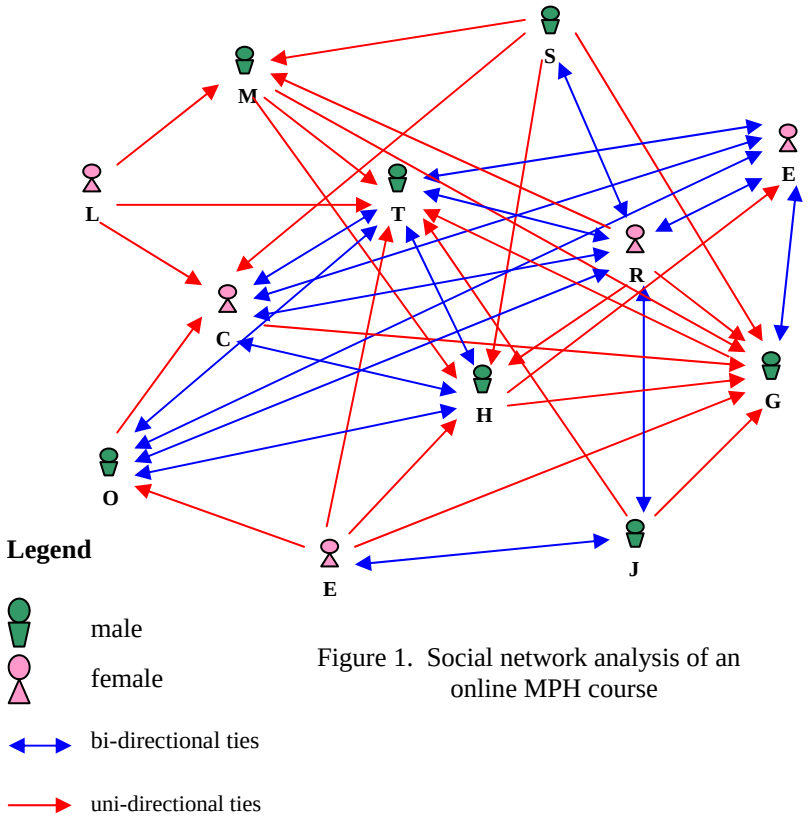

Figure 1. Social network analysis of an online MPH course

Communities of Practice (also called Learning Networks)

Individuals learn not only from books and formal discourse with educators, but also from experiences and interactions in daily life. This social aspect of learning led to the rethinking of learning theories in the late 1980s and early 1990s by Jean Lave and Etienne Wenger. Their model, which they called *situated learning*, emphasizes the importance of engagement in a 'community of practice' in the learning process (Smith, 2007).

Wenger (n.d.) defines communities of practices as "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly." "This definition," he adds, "allows for, but does not assume, intentionality: learning can be the reason the community comes together

or an incidental outcome of member's interactions" (¶ 2). Three essential characteristics need to exist for a community to be called a community of practice:

> ***The domain:*** A community of practice is not merely a club of friends or a network of connections between people. It has an identity defined by a shared domain of interest. Membership implies a commitment to the domain, and therefore a shared competence that distinguishes members from non-members.
>
> ***The community:*** In pursuing their interest in their domain, members engage in joint activities and discussions, help each other, and share information. They build relationships that enable them to learn from each other. A website is not in itself a community of practice. Having the same job or the same title does not make for a community of practice unless members interact and learn together.
>
> ***The practice:*** A community of practice is not merely a community of interest—people who like certain kinds of movies, for instance. Members of a community of practice are practitioners. They develop a shared repertoire of resources: experiences, stories, tools, ways of addressing recurring problems—in short, a shared practice. This takes time and sustained interaction.

The concept of communities of practice is now being applied in various sectors such as business, government, education, professional associations, organizations, international development, and the web. Participation in communities of practice has been discovered to be a key to improving performance (Wenger, 1998). In organizations, Wenger (n.d.) notes that:

- Communities of practice enable practitioners to take collective responsibility for managing the knowledge they need, recognizing that, given the proper structure, they are in the best position to do this.
- Communities among practitioners create a direct link between learning and performance, because the same people participate in communities of practice and in teams and business units.
- Practitioners can address the tacit and dynamic aspects of knowledge creation and sharing, as well as the more explicit aspects.
- Communities are not limited by formal structures: they create connections among people across organizational and geographical boundaries. (para.11)

In educational institutions, communities of practice can influence educational practices in three ways, each of which raises specific questions:

- *Internally*: How to organize educational experiences that ground school learning in practice through participation in communities around subject matter?
- *Externally*: How to connect the experience of students to actual practice through peripheral forms of participation in broader communities beyond the walls of the school?
- *Over the lifetime of students*: How to serve the lifelong learning needs of students by organizing communities of practice focused on topics of continuing interest to students beyond the initial schooling period? (Wenger, n.d., ¶ 14).

Various communication technology tools which are currently being used in e-learning can readily assist the formation of communities of practice around the world today. Distance from fellow professionals, for example, is no longer an issue. I personally owe much of my own knowledge and skills in the area of online learning to the US-based Adventist Virtual Learning Network (AVLN) and the Sloan Consortium listserv. I consider these two groups my communities of practice as they have shared with me rich resources and answered my personal questions. From my experience, I believe that participating in communities of practice could be the strongest link an educational institution can have to the workplace.

There are many other ways of strengthening education and workplace linkages. Forming partnerships could be one, but this could be used merely for corporate training or industry-generated research efforts, which could be biased or limiting. We need to continue to seek new opportunities for learning, and new uses for the opportunities we already have.

Conclusion

The new demands and competencies in education that are brought about by globalization have created challenges that need to be addressed if we are to remain relevant and successful in achieving our mission of educating useful citizens.

Many years ago, White (1913) gave advice that education should be relevant, practical, and connected to real life:

> It is not well to crowd the mind with studies that require intense application, but that are not brought into use in practical life. Such . . .

> studies lessen [the student's] desire and inclination for the studies that would fit him for usefulness and enable him to fulfill his responsibilities. (p. 387)

Our educational system does not have to suffer the downside of globalization. Technology can be used for improving the quality of education, particularly by increasing its relevance in the workplace. Using workplaces as learning contexts, supporting social networking, and participation in communities of practice in an e-learning environment can strengthen education and workplace linkages. This is the essence of preparing useful citizens, who know not only the theory but also its applications as well.

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