

Equipping Agro-Industrial Entrepreneurs through Open and Distance Learning: Potentials and Issues for Southeast Asia

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ABSTRACT

Globalization has changed and will continue to alter the agro-industrial landscape. Since globalization operates at such a fast pace, the days of looking at enhancing entrepreneurial abilities of the rural entrepreneurs as a one-shot deal done every a decade or so no longer holds true. Acquisition of knowledge and skills becomes a lifelong process. As the agribusiness landscape changes, so do certain practices. The challenge now for the providers of such training (e.g. educators and development agencies) is to impart such knowledge and skills in a form that suits the demands and lifestyles of the entrepreneurs. The paper argues that Internet-mediated open and distance learning should be considered as part of any human resource development programme for this sector. Issues of flexibility, contextualization, interactivity and infrastructure are identified as critical to the offering of online courses in agro-industrial entrepreneurship.

INTRODUCTION

It has long been recognized that the success of any economic development thrust is anchored significantly on the quality of the entrepreneurial factor. With creativity, innovative stance, perseverance and risk-taking attitude, an entrepreneur orchestrates the elements of production into a viable enterprise, the effects of which goes beyond the confines of the business. Within the context of agro-industrial development, the important role that entrepreneurs play becomes heightened. Aside from mobilizing rural savings, generating employment and adding value to local agriculture, rural entrepreneurs also act as wellsprings of managerial knowledge and talent in the communities where they live and operate.

The work of agri-based entrepreneurs is complicated not only by the vagaries of nature but also by the restrictions placed by government regulations and the wide array of participants in the sector which encompasses production of farm inputs, farming, agro processing and up to distribution. With all the developments in the world economy, the agro-industrial sector which "was once primarily domestic or at most regional in scope, [is] rapidly globalizing and industrializing (Cook et al., 2001, p. 278). As these authors argued, this sector has been characterized by "institutional and organizational change ... such as marked increase in vertical coordination and concomitant changes in the

farm sector, [like] changes in product composition, technology, and sector and market structures” (Reardon & Barrett, 2000).

In the past, running an enterprise was much simpler. Price was the primary consideration when selling to a market that was largely undifferentiated. While the agribusiness trade in the country or in the region is largely composed of multi-layered intermediaries, the growing influence of globalization is forcing agro-industrial entrepreneurs to rethink how they conduct their enterprises. Globalization has changed and will continue to alter the agro-industrial landscape. It seems to work like a double-edged sword, providing opportunities for exporters by opening up markets and reducing poverty while threatening locally produced products with the influx of foreign goods. It sets out to establish stability but at the same time causes social unrest by dislocating certain people from their jobs. It is characterized both by “Westernization” of market tastes and by customization of consumer needs. If there is any unifying thread to the concept of globalization is that it is all about change, a massive one at that.

As in other situations of immense changes in the past, the key to survival is adaptation, which in turn, requires learning and unlearning skills and views within the context of the new paradigm. For instance, there is a greater need to rethink the ingredients that go into the production of food products given the growing concern for “greener” and “cleaner” goods. In terms of inter-firm relationships, competition between firms is being replaced by competition between chains as vertical cooperation becomes more appropriate to the times. With all the effects of World Trade Organization (WTO) agreements and agricultural land distribution, individual farmers must now organize themselves into cooperatives to achieve economies of scale and adopt a more “corporate” approach to management along the way. For the agro-industrial enterprises, these translate to adoption of practices that enhance their ability to compete in a globalized marketplace and re-definition of traditionally held beliefs and practices.

Since globalization operates at such a fast pace, the days of looking at enhancing entrepreneurial abilities of the rural entrepreneurs as a one-shot deal done every a decade or so no longer holds true. Acquisition of knowledge and skills becomes a lifelong process. As the agribusiness landscape changes, so do certain practices. The challenge now for the providers of such training (e.g. educators and development agencies) is to impart such knowledge and skills in a form that suits the demands and lifestyles of the entrepreneurs. Given that globalization can either be a boon or a bane depending on one’s competitiveness, the second challenge lies on how such human resource development efforts can be designed so that the rural entrepreneurs can find opportunities out of threats created by globalization. I will argue that distance education (DE) can provide an avenue for training agro-industrial entrepreneurs in a massive way.

In this paper, I will discuss how agro-industrial entrepreneurs can be developed and equipped in ways that are appropriate to their unique business contexts and responsive to the demands brought about by a new world order. I will argue that any human development programme for this sector needs to consider DE as an alternative or complementary mode of education to meet the distinct learning requirements of agro-industrial (AI) entrepreneurs. Before I analyze the critical factors that could shape the implementation of an agro-industrial entrepreneurship development programme via the DE mode, I will discuss in the next section the begging question of whether entrepreneurship can be taught and what aspects of it can be developed in students.

AI ENTREPRENEURSHIP EDUCATION

Entrepreneurship as a field of study is relatively new. Traditionally, entrepreneurs receive no formal training and become successful at what they do through what is called the “school of hard knocks.” When entrepreneurship was introduced as a formal programme of study in the West almost three decades ago, there were debates as to whether entrepreneurship is an “innate ability or an acquired skill” (Klein & Bullock, 2006, p. 1). Hisrich (2000, p. 9) defines entrepreneurship as “the process of creating new value by devoting necessary time and effort, assuming the accompanying financial, psychological, and social risks and receiving the resulting rewards of monetary and personal satisfaction and independence.” Where classical management has emphasized rational decision making and structure, entrepreneurship supposedly gives more emphasis to creativity, adaptability and innovation (Manimala, 1999). Citing the Ewing Marion Kauffman Foundation which is the largest private foundation devoted to entrepreneurship research and teaching, Klein and Bullock (2006, p. 10) define the entrepreneur as “one who takes advantage of knowledge and resources to identify and pursue opportunities that initiate change and create value in one’s life and those of others.” Given that it involves solution of pressing problems and formation of actual enterprises, entrepreneurship spans opportunity recognition, resource acquisition and innovation. All these behaviours take place under conditions of uncertainty which is quite different from the secure conditions of a classroom. For instance, there are questions whether opportunity identification can be taught by formal instruction. Some authors argue that entrepreneurs have an “entrepreneurial mindset” that allows them to identify and screen opportunities that are normally overlooked by other people (Klein & Bullock, 2006; McGrath & MacMillan, 2000). Boldness, daring, imagination or creativity (Begley & Boyd, 1987; Chandler & Jansen, 1992) – characteristics that the literature says define entrepreneurs – are supposedly best developed through actual experience, suggesting that opportunities for developing skills like entrepreneurial “alertness” through traditional classroom instruction may be limited (Klein & Bullock, 2006).

While many concede that an entrepreneurship class cannot turn a student with no business acumen into an opportunity-spotting entrepreneur, Gray and Field (2006) argue that there is “plenty of anecdotal evidence [to] suggest that the classes can speed the learning curve for those with the right stuff.” Task-oriented courses such as managing finances or writing a business plan can provide students with enough structure to guide them in pursuing their goals (Gray & Field, 2006). Given that entrepreneurs learn from mistakes, the same authors argue that classrooms can provide the relatively “cozy” environment to commit such mistakes.

In recent years though, there has been an explosion of educational institutions in the West offering various programmes in entrepreneurship, indicating the growing acceptability of the discipline. In the Philippines, entrepreneurship has been largely offered as a training programme by various educational institutions (e.g. University of the Philippines’ Institute of Small Scale Industries; University of the Philippines Open University’s Faculty of Management and Development Studies), government agencies (e.g. Department of Trade and Industry) and non-governmental organizations (e.g. Centre for Agrarian Reform and Rural Development). The University of Asia and the Pacific as well as the Asian Institute of Management offer formal programmes in entrepreneurship at the undergraduate and graduate levels, respectively. The University of the Philippines in Los Baños offers one course in small business management under

its bachelor's degree in agribusiness but does not have a specific programme on entrepreneurship for agro-based businesses.

In most formal institutions both local and abroad, entrepreneurship curricula tend to focus on new venture formation and the mechanics of small-business management (e.g. financing, product development, marketing, etc.) as well as the personal psychological characteristics of entrepreneurs (Klein & Bullock, 2006). In addition to these skills though, agro-industrial businesses have to deal with agricultural production, which is not only exposed to the fluctuations of the natural environment but also highly influenced by regulatory policies and laws both at the local and international levels. In addition to usual business concerns like financing, production and marketing, AI entrepreneurs have to contend with industry specific-concerns like post-harvest and phytosanitary requirements. Trade agreements arising from the globalization of the world economy also require AI entrepreneurs to be adept in managing cross-border concerns like food safety and environmental regulations. Any human resource development programme for these people needs to take these aspects into consideration.

OPEN AND DISTANCE LEARNING: A VIABLE ALTERNATIVE?

Agro-industrial (AI) entrepreneurs, just like other businessmen, are busy people. The demand to constantly monitor their businesses is so great that they find it difficult to leave their enterprises and enrol in a time-bound and highly structured training programme. For many agro-industrial entrepreneurs, the situation is compounded by the fact that they are based in distant rural areas where there is a dearth of educational institutions that provide quality training programmes in agribusiness.

If indeed most agro-industrial entrepreneurs do not have the luxury of attending time-bound and location-specific training programmes, then the other approach would be to design them around the needs and lifestyles of the entrepreneurs. Open and distance learning (ODL), with a system that allows students to learn programmes of their choice at their own time, pace and place whatever their circumstances, provides such an alternative. As Bolton (1986) mentioned, the "opportunities of distance" are a means of overcoming the "tyranny of educational distances" (Armstrong & Namsoo, 2001, p. 210). Citing Race (1994), Lockwood (1998, p. 25) points out that ODL adopts a learner-centred approach by "accommodating directly the ways in which people learn naturally, opening up various choices and degrees of control to learners, employing learning materials that are accessible to learners; assisting learners to take control of their learning, developing a positive feeling of ownership of their success, and helping conserve human skills for things that really need human presence and feedback."

In the past, distance education has relied primarily on print learning materials with tutors and students communicating with each other either through telephone or occasional face-to-face tutorial sessions. With the recent advancements in telecommunications technology, students and teachers can now be linked faster and easier. The web has allowed large numbers of people to interact with one another and access vast amounts of information made available in the form of texts, sounds and visuals. Discussions can now be conducted via online forums, chats and other online facilities. While the Internet has been associated with more formal academic settings, it has now permeated the world of business, making it an important source of information for both buyers and sellers (Salmon, 2000). It has changed the way businesses promote and sell their

products and services and allows people from various geographical areas who are united by common interests to communicate and work together (Richards, 1997). With the increased adoption of communications technology in business comes a heightened appreciation and use of a computer-mediated approach in the training of business managers. There is realization that the development of managers is a continuous process and has to be designed around the managers' activities, professional requirements and organizational goals, and industrial context. Many companies have invested in information technologies for the conduct of company-specific training programmes that are "portable, visual, interactive and participative" (Salmon, 2000, p. 492). The increasing use of communications technology for both business operations as well as management training point to the potential of using computer-mediated communication as an approach to teaching AI entrepreneurs. The challenge now lies in creating programmes that make use of these technologies not for their own sake but to support the learning needs of this often overlooked sector.

CRITICAL ISSUES

While open and distance learning provides vast opportunities for the continuous upgrading of AI entrepreneurs, there are some issues that need to be addressed if educational institutions and development agencies were to incorporate this mode of learning into their programmes.

Flexibility

As mentioned earlier, the offering of a human resource development programme via ODL is justified on the flexibility it affords both in terms of content and delivery structure. In terms of content, there is a widespread recognition that management (or entrepreneurial) knowledge is often "informal, tacit and continuously developing" (Salmon, 2000). AI courses should therefore be designed not as a means to transmit entrepreneurial knowledge but as a means to engage students and teachers alike in conversations that lead to the construction of localized and meaningful knowledge. Content must be relevant to the specific context of the AI entrepreneurs as well as allow students to choose areas of interest and experience feelings of competency (Kinzie & Berdel, 1990; Reushle et al., 1999). Considering that most AI entrepreneurs are considered to be mature students, there is an expectation that they have enough skills and experiences to direct their own studies (Dorman et al 2000). However, not all students have the same level of capacity for self-directed learning. This is why the courses have to allow enough structure for novice learners to adjust but at the same time allow other students to pursue different pathways in pursuing their learning. AI entrepreneurs also vary in terms of educational background. This has implications on the way the learning materials and activities are designed. Training providers will also have to consider the language in which they will conduct their online courses.

Second, there is a need to identify how flexible the delivery structure would be in terms of course duration and scheduling. AI entrepreneurs, given the nature of their work and location, would probably prefer a very flexible schedule. There are some institutions that fix course duration over a period of time. There are also those who give full autonomy to students as to when they would like to start and end their course. Since tutors are paid throughout the time the students are enrolled, the degree of flexibility in terms of the delivery structure bears some cost implications, which educational administrators cannot afford to ignore.

Contextualization

The 1990s saw the rush of education providers to develop online courses for mass audiences. Unfortunately, a lot of these programmes failed. One of the reasons cited was the lack of sensitivity of these courses to the local conditions of their students (Marginson, 2004). Although globalization attempts to standardize certain agro-industrial practices and requirements, it cannot be denied that there would be peculiarities in each area in terms of culture, agricultural resources, agro-climatic conditions, level of industrialization, entrepreneurial practices, etc. Moreover, AI entrepreneurs are a diverse lot. They could either be a corporate executive, a cottage enterprise owner, a manufacturer, a small commodity trader or a simple farmer. Situated in different contexts, these entrepreneurs would have different training needs. There is a need for course content to reflect those local contexts to prevent it from replicating inappropriate Western business practices that tend to reify the hegemonic tendencies of globalization (Armstrong & Namsoo, 2001). Differences in cultural values, historical experience, and economic structure across societies mean that some entrepreneurial programmes will emphasize certain topics more than others (Dana, 2001; de Faoite, Henry, Johnston, & van der Sijde, 2003; Kalantaridis & Bika, 2006). Providers of entrepreneurial training will have to find a balance between the importance of contextualizing knowledge and addressing the specific learning needs of the students and the need to package learning materials to make them more universal in appeal or to avoid the proliferation of separate but overlapping courses.

Translating the entrepreneurship lessons normally delivered in a traditional classroom setting into a form suitable for distance learning requires specialist knowledge. Uploading lecture materials to the Internet does not constitute online teaching. The competencies required for running an enterprise are diverse. On one end, there are the procedural skills like bookkeeping and quality assurance, and on the other hand, there are the more social skills like employee motivation and conceptual skills such as strategic management. Courses must effectively translate such ideas into something understandable, relevant and applicable to AI entrepreneurs-distance learners. Even if the courses are designed properly, there is also a tendency for education providers to make use of foreign materials, cases and examples as references, which defeats the ability of online teaching and learning to facilitate the construction of localized knowledge. In addition, teachers who are used to traditional classroom instruction should also be trained not only in terms of using online technologies but also on the craft of facilitating discussions, designing appropriate but interesting learning activities, and building online learning communities. Teachers must not only contextualize AI course content to local conditions but also to the online teaching environment (Willis, 1994; Lee, 2005). All these have implications on the preparedness of the institutions that would adopt this mode of teaching for equipping AI entrepreneurs.

Interactivity

Another concern that needs some discussion is the issue of interaction. AI entrepreneurs or would-be entrepreneurs are adult learners who have vast experience in their own work. Sharing of these experiences and the tacit knowledge that goes with such experiences is a great source of learning for most of them and a good venue to establish business networks. Considering how geographically dispersed these entrepreneurs are, the idea of meeting face-to-face with their tutors and fellow students may not be that realistic for many students. Students and tutors can conduct their

discussions either synchronously or asynchronously via web-based technology. While the absence of social cues in a technology-mediated environment may lead to occasional misunderstanding, this is compensated by the quality of student inputs as they have a longer time to compose and write their ideas (Brown, 1997; Garcia, 2002). The fact that the distance learners come from diverse backgrounds and locations also contributes to a more multi-perspective discussion. This is quite important especially in the context of developing a more open outlook as needed in a global environment where cross-cultural interactions are bound to happen.

It is also important to recognize that different students have different ways of learning. It has been said that the teacher is considered a “sage” in Asia. Compared to their Western counterparts, Liang & McQuen (1999) report, Asian students tend to seek a lot of direction from their teachers even in online classes (Kim & Bonk, 2002). Several researchers also showed that the quality and nature of student participation in online learning environments is also affected by gender differences (Arbaugh, 2000; Gefen & Straub, 1997; Herring, 1996); peer pressure (Yang, Li, Tan, & Teo, 2007), and instructors' willingness to participate in DE (Lee & Busch, 2005; Willis, 1994). Online technology has allowed people to engage in collaborative learning activities and yet research also shows that in some cases, learner-instructor interaction was more significantly associated with increased perceived learning than learner-learner interaction (Arbaugh, 2000) and that students are likely to be “more inclined to make decisions based on their personal needs” (Yang et al., 2007, p. 464). While intensive interaction between learners may enhance collaborative learning (Zhang, 1998) and facilitate a sense of community (Johnson, 1999; Wang & Newlin, 2000), one must also recognize the possibility that the work environment of mature students like AI entrepreneurs may inhibit them from participating in all the interactive activities.

Infrastructure

Lastly, the success of any online training programme rests significantly on information and communications technology (ICT). Although there have been significant improvements in the ICT infrastructure in the region, most of the rural region still has low access to the Internet. An economically diverse area, the Southeast Asian region has varied levels of Internet usage ranging from as low as just over 1% of the population in Indonesia and as high as 20% in Malaysia. Singapore has a high rate of usage with 61% of the population connected to the Internet (UN ESCAP, 2006). The Internet emerging economies of Cambodia, the Lao People's Democratic Republic, Myanmar and Vietnam are said to be the “latest adopters of the Internet in Asia and still have the greatest hurdles to overcome with regard to infrastructure” (UN ESCAP, 2006, p. 63).

Despite these limitations, the ICT infrastructure and usage in Southeast Asia is also improving. Various governments in the regions have initiated national broadband programmes, actively pursued e-business and e-government, and allowed foreign investments in the telecommunications sector to spur the development of ICT infrastructure (UN ESCAP, 2006). There is also an upsurge in cyber or Internet cafes even in rural areas. A survey of Internet usage conducted by Digital Philippines among small and medium enterprises (SMEs) in the Philippines showed that 71% of the 352 respondents use the Internet and spend an average of 15 hours per month for e-mailing and 9 hours for web surfing. The same survey showed that more than a third of schools in the country now have Internet access. It must be noted though that developments in

ICT physical infrastructure development should be accompanied by similar efforts in human infrastructure to train would-be students of any agro-industrial entrepreneurial development programme on the use of these online technologies for distance teaching and learning. Developers of online courses in AI entrepreneurship have to determine the extent to which online technology will figure in their programmes depending on the ICT access of their target students.

CONCLUSION

Equipping small-scale agro-industrial entrepreneurs in the midst of the competitive forces brought about by increasing globalization is becoming an important concern. Distance education provides an avenue for providing lifelong training to these entrepreneurs. Educators and development agencies alike must look at issues of flexibility, contextualization, interactivity and infrastructure so that the benefits of DE can be maximized. Putting up an ODL infrastructure and system requires specialist knowledge and resources particularly in the initial stages. At a time when resources for such efforts are dwindling, a multi-institutional approach is the most viable approach to undertake such a task. The success of such an endeavour therefore relies on the commitment of the institutions involved.

REFERENCES

- Arbaugh, J. B. (2000). An exploratory study of the effects of gender on student learning and class participation in an internet-based MBA course. *Management Learning*, 31(4), 503–519.
- Armstrong, D., & Namsoo, A. C. (2001). *New markets or new alliances? Distance education, globalization, and postcolonial challenges*. Paper presented at the Distance Education in Small States 2000 Conference, Ocho Rios, Jamaica. Retrieved June 22, 2009 from http://www.col.org/SiteCollectionDocuments/2_conf_proc_Armstrong.pdf
- Begley, T., & Boyd, D. (1987). Psychological characteristics associated with performance in entrepreneurial firms and smaller businesses. *Journal of Business Venturing*, 2(1), 79–93.
- Bolton, G. (1986). The opportunity of distance. *Distance Education*, 7(2), 5–22.
- Brown, A. (1997). Designing for learning: What are the essential features of an effective online course. *Australian Journal of Education Technology*, 13(20), 115–126.
- Chandler, G. N., & Jansen, E. (1992). The founder's self-assessed competence and venture performance. *Journal of Business Venturing*, 7(3), 223–236.
- Cook, M. L., Reardon, T., Barrett, C., & Cacho, J. (2001). Agroindustrialization in emerging markets: Overview and strategic context. *International Food and Agribusiness Management Review*, 2(3/4), 277–288.
- Dana, L. (2001). The education and training of entrepreneurs in Asia. *Education + Training*, 43(8/9), 405–416.

- de Faoite, D., Henry, C., Johnston, K., & van der Sijde, P. (2003). Education and training for entrepreneurs: A consideration of initiatives in Ireland and the Netherlands. *Education + Training*, 45(8/9), 430–438.
- Digital Philippines. (n. d.). ICT usage in the Philippines, Indonesia, and Thailand. San Juan, Philippines; Philippine Communications Centrum. Retrieved June 22, 2009 from <http://www.aijc.com.ph/pccf/observatory/pfd%20files/papers%20&%20Publications/e-commerce/ICT%20Usage%20in%20the%20Phil%20Indo%20and%20Thai.pdf>
- Garcia, P. G. (2002). *Tutoring R&D management: A case in e-Learning*. Paper presented at the 1st National E-Learning Conference.
- Gefen, D., & Straub, D. W. (1997). Gender differences in the perception and use of e-mail: An extension of the technology acceptance model. *MIS Quarterly*, 21(4), 389–400.
- Gray, P. B., & Field, A. (2006). Can entrepreneurship be taught? *Fortune Small Business*, 16(2/3), 34–51.
- Herring, S. (1996). Bringing familiar baggage to the new frontier: Gender differences in computer mediated communication. In V. J. Vitanza (Ed.), *Cyber Reader* (pp. 144–154). Needham Heights, MA.: Allyn and Bacon.
- Hisrich, R. D. (2000). *Entrepreneurship*. Singapore: McGraw Hill.
- Johnson, J. L. (1999). Distance education and technology: What are the choices for higher education. *Journal of Educational Computing Research*, 21, 165–181.
- Kalantaridis, C., & Bika, Z. (2006). Local embeddedness and rural entrepreneurship: case-study evidence from Cumbria, England. *Environment and Planning A*, 38(8), 1561–1579.
- Kim, K., & Bonk, C. J. (2002). Cross-cultural comparisons of online collaboration. *Journal of Computer-Mediated Communication*. 8(1). Retrieved June 23, 2009 from <http://jcmc.indiana.edu/vol8/issue1/kimandbonk.html>
- Kinzie, M. B., & Berdel, R. L. (1990). Design and use of hypermedia systems. *Educational Technology Research & Development*, 38(3), 61–68.
- Klein, P. G., & Bullock, J. B. (2006). Can entrepreneurship be taught? Retrieved June 22, 2009 from <http://web.missouri.edu/~kleinp/papers/06012.pdf>
- Lee, J. A., & Busch, P. A. (2005). Factors related to instructors' willingness to participate in distance education. *Journal of Education Research*, 99(2), 109–115.
- Liang, A., & McQueen, R. J. (1999). Computer assisted adult interactive learning in a multi-cultural environment. *Adult Learning*, 11(1), 26–29.

- Lockwood, F. (1998). *The design and production of self-instructional materials*. London: Kogan Page.
- Manimala, M. J. (1999). *Entrepreneurial policies and strategies: The innovator's choice*. New Delhi: Sage.
- Marginson, M. (2004). Don't leave me hanging on the Anglophone: The potential for online distance higher education in the Asia-Pacific region. *Higher Education Quarterly*, 58(2/3), 74–113.
- McGrath, R. G., & MacMillan, I. (2000). *The entrepreneurial mindset*. Cambridge, Mass: Harvard Business School Press.
- Race, P. (1994). *The open learning handbook*. London: Kogan Page.
- Reushle, S., Dorman, M., Evans, P., Kirkwood, J., McDonald, J., & Worden, J. (1999). *Critical elements: Designing for online teaching*. Paper presented at the Ascilite 1999 Conference Proceedings, Brisbane, Australia. Retrieved June 22, 2009 from <http://www.ascilite.org.au/conferences/brisbane99/papers/reushledorman.pdf>
- Reardon, T., and C. Barrett. (2000). "Agroindustrialization, globalization, and international development: An overview of issues, patterns, and determinants." *Agriculture Economics*, 23(3), 195–205.
- Richards, D. (1997). Developing cross-cultural management skills. *Management Learning*, 28(4), 16–17.
- Salmon, G. (2000). Computer mediated conferencing for management learning at the Open University. *Management Learning*, 31(4), 491–502.
- UN ESCAP. (2006). Information and communications technology infrastructure. Bangkok, Thailand: United Nations Economic and Social Commission for Asia and Pacific. Retrieved June 22, 2009 from http://www.unescap.org/pdd/publications/themestudy2006/10_ch4.pdf
- Wang, A. Y., & Newlin, M. H. (2000). Characteristics of students who enroll and succeed in psychology Web-based classes. *Journal of Educational Psychology*, 92(1), 137–143.
- Willis, B. (1994). *Distance education: Strategies and tools*. Englewood Cliffs, NJ: Educational Technology.
- Yang, X., Li, Y., Tan, C., & Teo, H. (2007). Students' participation intention in an online discussion forum: Why is computer-mediated interaction attractive? *Information & Management*, 44 (5), 456–466.
- Zhang, P. (1998). A case study on technology use in distance learning. *Journal of Research on Computing in Education*, 30(4), 398–420.