C 3 Redesigning E-Learning Development in Indonesia

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REDESIGNING E-LEARNING DEVELOPMENT IN INDONESIA

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Abstract

E-learning is one of many delivery methods in teaching-learning. E-learning can be used as synchronous learning or asynchronous learning. In Indonesia e-learning development has been around for ten years; but there have been no indications of satisfactory results. This is shown from the rank of e-learning readiness of Indonesia that is at the position of being 52nd of 60 countries in 2003 and 60th of 60 countries in 2005. The questions to be raised are: what factors hindered the implementation of e-learning in Indonesia and what factors should be considered in e-learning development? For a reference to this study, the following factors were considered: resources, education, and environment. Resources include technology availability (hardware and software) (technological readiness), teachers and students' capability (human resources) and funding availability (economic readiness). The educational aspect includes learning content availability (content readiness) and availability of regulation on e-learning and digital pedagogy standardisation (educational readiness). The environment aspect includes recognition and appreciation of superior (leadership readiness) and cultural readiness as represented by the fact that e-learning should be part of everyday working activities and organisation should provide an environment that encourages people to use the technology. Empirical and literature studies show that educational and environmental factors represent the main hindrance in developing e-learning in Indonesia. Therefore, e-learning development in Indonesia should be redesigned, not only by considering resources factors, but also by integrating both factors, educational and environmental, in a convergent way.

Keywords: Delivery methods, synchronous and asynchronous e-learning, education, Indonesia.

Introduction

Digital technology igniting and promoting explosive growth of Information and Communication Technology (ICT) has made a significant contribution in various walks of life, including education. ICT in education has various roles: (1) ICT as an object, the object to learn, (2) ICT as an 'assisting tool', as a tool for documentation, communicating, and conducting research, (3) ICT as a medium for teaching and learning, and (4) ICT as a tool for organisation and management in schools.

Electronic learning (e-learning) utilises electronic media for the delivery method in learning. Electronic media could be: (1) a broadcast system (Radio & television); (2)

teleconference; (3) digital technology (CD) and Internet (Davidson et. al., 2006). Thus, Internet is one delivery method from various methods of electronic delivery. In this paper, ICT refers to computer or computer and the Internet.

In Indonesia, e-learning development has been around for ten years, but there have been no satisfactory results. The situation is reflected in the rank of e-learning readiness of Indonesia's 52nd position in 60 countries in 2003 (EIU, 2003) and decreased during the following years. The questions to be raised therefore are: 1.What factors hindered the implementation of e-learning in Indonesia? 2. And what factors should be considered in e-learning development?

The Scope of E-Learning Implementation

In learning, two terms are well known, i. e., not distance learning and distance learning. Both methods relate to synchronisation of time and space (Davidson & Rasmussen 2006, p. 10), Figure 1. Distance learning can be carried out at the same time (synchronous) or at different time (asynchronous). E-learning can be used for both methods.

		LOCATION	
		Same	Different
TIME	Same	Not Distance Learning	Distance Learning
	Different	Distance Learning	Distance Learning

Figure 1. Synchronous and Asynchronous Learning
Source: "Web Based Learning," by Davidson & Rasmussen (2006).

Synchronous learning involves an immediate, real-time dialogue between the instructor and participants, whether it is in a physical or virtual classroom. Synchronous learning, by definition, is instructor-led training. The advantage of the synchronous learning method is that participants can immediately have their questions answered, collaborate with others in the class, and learn from each other's experience.

Asynchronous learning is a learning exchange in which communication between teacher and students are separated in time. Participants can receive asynchronous learning using computer-based learning or web-based learning programs. The advantage of asynchronous learning is that it can be done anywhere and anytime because it does not involve a live instructor. Often, this is referred to as "24x7 learning" because of the ability of students to choose the time they wish to participate. The disadvantage of asynchronous learning is that, because there is no interactivity with an instructor or other students, participants are not able to get immediate answers to their questions, nor are they able to discuss or collaborate with other students.

E-learning and its Implementation: Case Studies from Yogyakarta, Indonesia

In 2001, in Yogyakarta province, there were 70 schools (Junior and Senior General High Schools/SMP and SMA) receiving grants of 10 PCs, local area network, and teacher training, from which two cases were taken.

The First Case

From surveying 40 SMP in DIY province during 2001-2003, although the schools received computer grant and teacher training, the result has not been satisfying yet. There were only eight percent of the schools utilising e-learning. From eight percent of the schools, there were only a small part of the teachers, ten percent using e-learning. In these schools, computer use was still dominated by the idea that a computer is an object to learn (learning about ICT).

The Second Case

During 2003-2004, the school number was minimised to 25 schools, consisting of two groups. In the first group, 20 schools were taken from 40 (assigned) schools. In the second group, five schools did not obtain computer grant but were selected based on development proposal (demand side). From the study, there were five schools from the first group and three schools from the second group utilising e-learning, although there were only ten percent of the teachers who used it. As a note, the schools not obtaining a computer grant had similar performance to those that received computer grant. Both cases showed that computer grants (technology infrastructure) and teacher training had a significant impact on e-learning development.

Relatively good e-learning use in the schools occurs at the schools in which the teachers maintain computer laboratory or teach both ICT and their subject matter. These teachers got full support or delegation from school leaders. Meanwhile other teachers did not use e-learning for various reasons, such as: (1) no encouragement and support from the leaders; and (2) no reward difference between teachers who developed e-learning and those who did not as a result teachers preferred using e-learning for out of school activities (at private lesson mentoring institutions).

The Third Case

From interviewing teachers of Secondary Vocational High School 4 (SMK 4) Sleman, there were only ten percent of them using e-learning. This is in contrary to the fact that this SMK is categorised as among the best SMK in DIY province. This clearly strengthens the assumption that the use of e-learning is still very low. These factors mentioned above remain as the leading reasons of the teachers for not using e-learning.

The three cases show that computer grants (technology infrastructure) and teacher training have not given significant impact on e-learning development. School culture and leadership factors have a great influence on e-learning development. This situation is in line with the view of Riddy (2004) that in developing e-learning, factors to consider do not only include technological and human resources issues, but also issues on learning effectiveness, organisational culture, and interest of the organisation staff.

E-learning in fact gives benefits in learning as published by many authors, among others, including Shiung (2005) stating that e-learning in vocational education has many benefits. (1) increasing the mastery of student comprehension; (2) giving equal learning opportunity to every student based on his/her capability; (3) improving learning motivation; (4) supporting individual learning; (5) creating engaging learning situation; (6) enabling students to carry out otherwise difficult, expensive, and dangerous experiments (7) improving creativity and imagination of learners and teachers; and (8) enabling learners to comprehend learning materials with minimal guidance.

There are many advantages, but why are there still many teachers reluctant in using e-learning for their learning? The result of this field survey noted above is supported by the view of Sutjiono (2005) stating that there are at least five reasons why teachers are reluctant to use learning media: (1) using e-learning is difficult and need preparation; (2) they do not know how to use it; (3) e-learning is an entertainment, whereas studying is serious; (4) they are accustomed to lecturing method (high speech culture); and (5) e-learning users lack rewards from their superiors. The fourth reason is supported by the finding of Wahyono (2006) that low utilisation of e-learning is caused by a low reading culture and high speaking culture.

The five reasons above can be categorised into some factors: content preparation (reason 1), cultural and resistance to change (reasons 2, 3, 4), reward and leadership (reason 5). Cultural change, reward, and guarantee to develop real e-learning should be supported by regulations related to e-learning, at least at school level. However, to date, it is only in the stage of normative recommendation. Thus, e-learning development is still a choice (freedom to choose or not to choose).

Similar to the field finding, Kareal (2006) identifies that there are several types of e-learning barriers:

- **Personal Barriers** (attitude towards e-learning and learning style or preferences)
- **Organisational Barriers** (lack of time for study, interpersonal barriers, and registration system problems)
- **Technological Barriers** (course management systems quality and limitations of technical support)
- **Content-Suitability Barriers** (content not audience-specific, poor content duality and limited rigor, and poorly constructed assessments)
- **Instructional Barriers** (lack of progress reports and feedback, limited learner engagement, poor instructional design, limited reference materials, access and navigation problems, limited use of multimedia, unclear or inconsistent instructions, inability to save work, information overload, lack of instructor presence/interaction).

Mungania (2003) identifies that there are seven e-learning barriers: (1) Personal barriers, (2) Learning style barriers, (3) Instructional barriers, (4) Organizational barriers; (5) Situational barriers, (6) Content suitability barriers, and (7) Technological barriers.

Subsequently, the Australian Institute for Social Research (2006) identified e-learning barriers that include: (1) attitudes by teaching staff, particularly fear of replacing people with computers; (2) broader faculty culture; (3) resistance to change; (4) inadequate timeframes provided to develop and implement online courses; (5) individual learners' capacity for independent study; (6) access to library resources; (7) the cost of materials and infrastructure; (8) lack of policy leadership; and (9) failure to provide technological assistance and other supports to learners.

The above narration suggests that ICT in e-learning is only summing factors in learning, but it is an enabling factor that transforms the paradigm and culture in learning. E-learning is not merely uploading learning material to the Internet or transferring a book into a digital format, as stated by Pandhe (CSDMS, 2005), "e-learning is a paradigm shift in education," it is recontextualisation and reconceptualisation of learning process into a new paradigm in pedagogy, i.e., a digital pedagogy referring and answering a reality in ICT advances. Therefore, e-learning development should consider all barrier factors above.

The assumption in this paper is that e-learning development in Indonesia refers to schools with technological (hardware and software) grant, human resources training in creating learning content, and learning content aids. From the three views, barrier points do not only focus on technology, human resources, and economy, but they also include: (1) organisational culture; (2) instructional paradigm; and (3) leader policy. It is these three factors that have never been touched in e-learning development in Indonesia.

The reason why the researcher used the cases from Yogyakarta is that Yogyakarta received the highest rank in ICT use. Based on a study by Wahyono (2006), from Internet user data in big cities in Indonesia in 2004, the highest rank was Yogyakarta (24%), Jakarta (16%), and the lowest was Palembang (8%).

Development Strategy and E-Learning Readiness

Before implementing e-learning programs, an organisation should conduct needs assessment by creating required documents that include: (1) objectives (macro organisational objectives and micro target learner population objectives); (2) an e-learning readiness score; (3) a list of advantages and potential obstacles to e-learning adoption; and (4) a list of possible e-learning configurations (Chapnick, 2000). Chapnick designed a model for measuring the e-learning readiness of an organisation. His proposed model groups different factors into seven categories:

- **Psychological readiness.** This factor considers the individual's state of mind as it impacts on the outcome of the e-learning initiative. This is considered one of the most important factors and has the highest possibility of sabotaging the implementation process.
- **Sociological readiness.** This factor considers the interpersonal aspects of the environment in which the program will be implemented.

- **Environmental readiness.** This factor considers the large-scale forces operating on the stakeholders both inside and outside the organisation.

- **Human resource readiness.** This factor considers the availability and design of the human-support system.

- **Financial readiness.** This factor considers the budget size and allocation process.

- **Technological skill (aptitude) readiness.** This factor considers observable and measurable technical competencies.

- **Equipment readiness.** This factor considers the question of the proper equipment possession.

Views similar to Chapnick's are those published by Economist Intelligence Unit (2003), Rosenberg (2000), Broadbent (2002), Worknowledge (2004), and Borotis and Poulymenakou (2004). The six views, by Psycharis (2005), are categorised into three major categories that constitute the components of every organisation (Figure 2).

- **Resources:** including the technological readiness, which investigates the access to the Internet or/and the intranet provided, the available technological systems and the way they are used as far as e-learning is concerned, the economic readiness, which examines the willingness of the organisation to invest in e-learning and the readiness of the human resources, examining the knowledge and the skills possessed by the ones involved in e-learning.

- **Education:** it includes the readiness of content, which examines the availability of the educational content, its form, its characteristics, the degree of its reuse and its adequacy for the enhancement of personalised teaching; it also includes the educational readiness, which examines the ability of an organisation to organise, analyse, design, implement and evaluate an educational program.

- **Environment:** it includes the entrepreneurial readiness, which examines the structure and the practices of the organisation that affect e-learning, the readiness of culture, which examines the organisation's, as well as the staff's behavior and attitudes in relation to e-learning, and the leadership's readiness which examines the support provided by the administration.

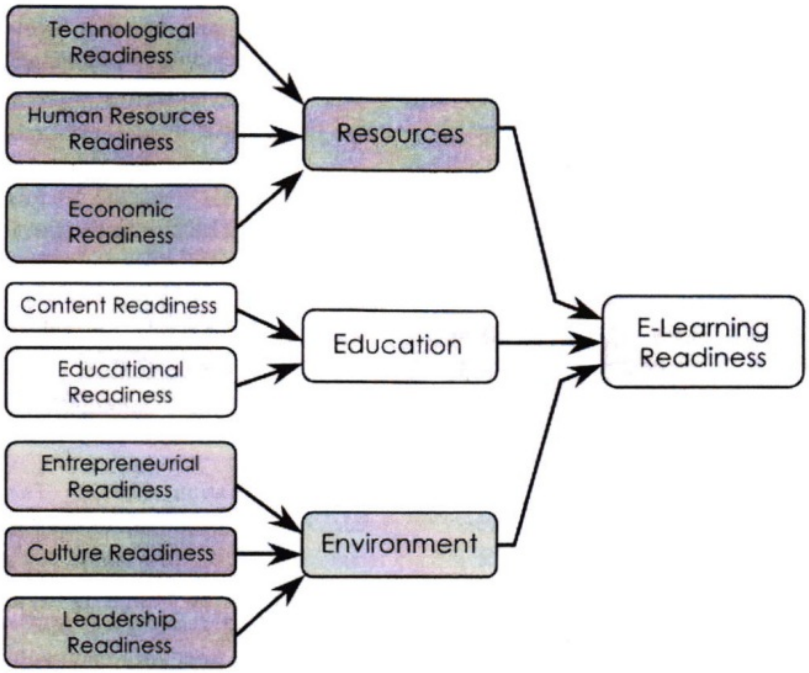

Figure 2. Criteria of e-learning readiness.
Source: Pycharis, (2005).

From *Figure 2,* it is suggested that e-learning readiness is influenced by three key factors: resources, education, and environment. Thus, Chapnic's view is very reasonable if one of strategies in developing e-learning should consider e-learning readiness score, because e-learning readiness measures the readiness of every aspect in an organization. Disregarding one of these key factors will decrease the score of e-learning readiness as marked by low level of e-learning utilisation at school.

Conclusion

E-learning is not merely a summing factor in the learning process, but it is an enabler of learning paradigm transformation process to increase effectiveness and efficiency of learning process. E-learning development in Indonesia has not considered existing barriers and e-learning readiness. Barriers in using e-learning in Indonesia are not only caused by resources, but also by the obstacle in that there has not been any attention on educational readiness: unavailability of regulation on e-learning, the school culture, and an unsupportive leadership.

E-learning development in Indonesia should give more attention to two very influential key factors. The first, education factor, should pay attention to educational readiness. The

ability of an organisation to organise, analyse, design, implement and evaluate an educational program. The second is the environment factor, including entrepreneurial involvement, culture, and leadership readiness. Paying attention to and developing resources, education, and environment factors in a convergent way are imperatives in e-learning development in Indonesia.

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