THE CHALLENGE TO THE FOUR-STATUS E-LEARNING MODEL FOR HEALTHCARE PROFESSIONALS: A CRITIQUE ON A DEVELOPING WORLD CASE STUDY

N. Turnbull[1], G. Bean Wills[2], M. Gobbi[3]

University of Southampton (UNITED KINGDOM)
nt08r@ecs.soton.ac.uk, gbw@ecs.soton.ac.uk, m.o.gobbi@soton.ac.uk

Abstract

This paper presents the critical reviews of the advantages and disadvantages of eLearning for health professionals. The impact of eLearning on healthcare professionals is explored; the focus is on health professionals in rural Thailand. Literature suggests that there are four main topics related to the drivers and barriers in eLearning, they are: Infrastructure; Finance; Policies; and Culture (IFPC). Because of the reports of online learning success and the growing use in all areas of higher education, understanding of successful implantation is limited, especially for healthcare professionals in developing countries. The model of barriers and drivers is being adopted as a template for the design of all eLearning, to the exclusion of other ideas. An evaluation of the adoption of e-learning in Thailand is presented along with a discussion on the findings. This paper suggested that the four-status model would help understand how to successfully implement an eLearning course. This has interesting consequences for the implementation of e-learning especially in developing countries.

Keywords: e-learning, Online Learning, Healthcare professionals, e-learning model, technology enhance learning, higher education.

1 INTRODUCTION

Since the turn of the 21st century technology for eLearning has been generally available in Thailand. There have been many technological challenges due to globalization and a technological revolution especially in the educational sector. For example, advances in Information Technology (IT), hardware process subsystems and telecommunications make it possible to share information in an integrated way within the learning environment. The learning process generally covers a range of topics, involves communication between people, and uses many types of media to engage the students. That was the beginning of 'eLearning'. Learning with technologies such as eLearning has spread widely including in the healthcare sphere.

E-Learning can meet the needs of a knowledge based society which is one of the aims of Thailand for the year 2010 (Suanpang et al., 2004). ELearning is nothing new today in Thailand. Previously most people at all levels were not aware of it, but are now rapidly becoming familiar with eLearning. Some of the universities in Thailand such as Rhamkhamhaeng University, Sukhothai Thammatirat University, Rajabhat Suan Dusit University, Assumption University, Mahidol University, Suan-sunandha Rajabhat University and Asian Institute of Technology of Thailand, have developed some courses in online learning. Fortunately, technology has become much more accessible to people and electronic communications have suddenly become a saviour in terms of bridging the gap between knowledge and the public. Moreover, the government in Thailand embarked upon substantial education reform with the 1999 National Education Act (NEA) (Suanpang et al., 2004). The key aspects of this reform focussed on improving efficiency and effectiveness of learning. Students were encouraged to become critical and creative thinkers, to acquire the facility of information technologies, and to develop their learning and individual potential base on the philosophy of 'student-centred' learning. In 2002, the Thai government announced plans to install computers connected to the internet in all high schools, and to make the internet and 'ELearning' or 'Online learning' the technology of choice for the Thai higher education system (Suanpang et al., 2004). 'The era of ELearning has started' (Sirinaruemitr, 2004).

However, Thailand is quite slow in deploying the eLearning service including the necessary infrastructure, and transformation in the ways of using technologies for learning, especially in the rural areas. Thai students shown a significant lack of self-motivation and independence of learning and of creative and critical thinking, this result found from Tetiwat and Huff (2003) that reading is not a common habit of Thai students. Rote learning and learning by example are common ways of learning

in Thai culture. ELearning, on the other hand, requires a high level of discipline from the learner which is often simply not the case for Thai students as Thai students have less of a sense of participation as an attitude toward learning. Face-to-face interaction between academics is the preferred method of learning and teaching rather than virtual interaction (Tetiwat & Huff, 2003). Therefore, the eLearning system for Thai students has to take these differences into account and offer appropriate help and support.

Like many forms of education, healthcare professional education is increasingly competency-based (Hersh et al., 2006a). A growing concern among healthcare professionals is the need to continually update knowledge and skills in order to enhance clinical practice. In some cases, to maintain the professional requirements, eLearning in particular can help with registered healthcare professionals who have to keep up-to-date with the knowledge base of their professions (NHS Executive, 2004). It is recognized that there are major concerns about recruitment and retention of staff within health care, and an increasing need for greater emphasis on valuing the existing workforce (Gill, 2007). At the same time, there is growing use of eLearning technologies, which can be linked to competencies via emerging eLearning standards (Hersh et al., 2006b).

Several studies have found both advantages and disadvantages to implementing eLearning in healthcare organisation. Tse and Lo (2008) found that the nursing students were able to understand, rather than memorize, the subject content, develop their problem solving and critical thinking abilities when using a Web-based eLearning course, entitled Integration of Pathophysiology into Pharmacology in Hong Kong. Furthermore, when a US study changed the traditional 2-day nursing classroom 'Dysrhythmia' course to an eLearning platform, they found that nursing staff development and the clinical nurse specialists proved to be driving forces for the transformation of the course, reinforcement of learning, and promotion of future educational technology see Elkind et al (2008). Moreover, Gill (2007) contributed to the debate about the role of eLearning in conjunction with continuing professional development (CPD) and personal professional development. He described how healthcare professionals utilized an innovative, self-managed, pick-up and put-down distance learning module delivered online or by CD-ROM. The results indicate that participants showed some improvement in all categories (Gill, 2007).

Indeed, eLearning is an interesting method for hospital staff who works on shift patterns that cover seven days a week, 24 hours a day. E-Learning helps to solve the different time and different place clash typically encountered by healthcare professional (Rutkowski and Spanjers, 2007). Also, it enables the heath care professionals to maintain core skills including the ability to use electronic libraries, critically appraise evidence for healthcare, and provide health information for service users (Wilkinson et al., 2009).

Rural communities in Thailand are dispersed over large areas with limited transport and technology infrastructure. For healthcare professionals from such rural communities it is very difficult to attend training courses at a University and to keep up to date with current healthcare practice. When a rural healthcare professional does attend training courses it usually involves much time and expense in travelling as well as depriving the community of healthcare support by that professional, and for some communities that will be the only support. One solution being adopted is to make use of eLearning facilities as used in other parts of the world. There are challenges in running and attending eLearning courses in rural communities with limited technology infrastructure.

The study aimed to determine the factors of impact of information for healthcare professional students within e-Learning environment in Thailand. This present the background of MSU (Faculty of Public Health) eLearning module with the history of the module, the methodologies to be used in the paper which mixed both qualitative and quantitative methods, and the research finding and discussion, the paper also includes the model of four main areas which influences eLearning environment calling IFPC model as shown in the figure of discussion.

2 BACKGROUND

2.1 The MSU eLearning Module

The Faculty of Public Health at Maha Sarakham University Thailand has obtained its full Faculty status under the motto "*Learning at the Workplace and Lifelong Learning*". It has set its mission on the development of well-trained public health personnel and promotion of well being among the Northeast community in Thailand (http://www4.msu.ac.th/public_health/web2/index.asp). At the same time, the

Faculty has a commitment to increase the numbers of high quality graduates and post graduates as healthcare professionals. Thus, teaching and training courses should be within high technology environments. This mission includes the goal to fulfil the new trends of teaching curricula. This includes consideration to use Information Communication and Technologies (ICT) to utilize their ability. Students, trainees and educators should be able to access new modern technologies anytime and anywhere (http://www4.msu.ac.th/public_health/web2/index.asp).

The Faculty has about 200 healthcare students annually needing to take the eLearning course. While the course is based at the main campus in the Maha Sarakham province, students come from all parts of Thailand. There are also satellite campuses around Northeast of Thailand, such as, Nakhonpranom, Nakhonratchasrima, Sisaket, Burirum, Udonthani, and Surin. By offering the courses for healthcare professionals in the Northeast part of Thailand, it will provide a means by which they can engage with advanced knowledge and information which should help them to improve their professional competency.

These initial experimentations with online provisions of learning materials and learning activities can be considered as a tentative step in the direction of learning object paradigm. The main aims of the MSU eLearning project is that students could access available materials repeatedly and opportunities to work beyond the basic requirement of the module, where online material supports this.

2.2 The Co-Operative between the University and the Ministry of Public Health

As stated earlier, learning at the work place and lifelong learning is the motto of the Faculty, the program of MSU eLearning course was developed in 2002 through collaboration between the Ministry of Public Health and the Faculty of Public Health at Maha Sarakham University. The course was first established on two university campuses which were at Nakhorachasrima province and at the main campus, Maha Sarakham province. This was first introduced into a few modules which were: Health and Management, Applied Epidemiology, Public Health Research Methodology, Applied Statistics to Public Health Research and Public Health Policy. These modules offer the MSU courses through a blended eLearning mode.

3 METHODOLOGY

This study was conducted utilizing a case study research design. The study was a mixed method design employing both quantitative and qualitative approaches in two phases; phase 1 used a survey and phase 2 used in-depth interviews, group discussions, and observation. The study was located in the Maha Sarakham University in the North-eastern region of Thailand which has selected two campuses to take part in the study. There were Maha Sarakham main campus and Saraburee campus. This study utilised the purposive sampling strategy to recruit 23 healthcare professional students to participate on both in quantitative and qualitative methods.

4 RESULTS

The ‘Maha Sarakham University eLearning (MSU)’ course was an ambitious effort to use eLearning to reach the underserved healthcare professional students in Thailand with quality accredited educational opportunities in a health career. Over the period of 9 months, project partners unfortunately failed to deliver at the second semester. The online Masters degree for Public Health courses in Maha Sarakham University, was stopped.

Key factors associated with these results were that the courses met a number of different problems. At the first phase of study, the result of survey questions showed from information application that most students were accessing the Internet from their office by use of a modem both for checking email and for online learning. In particular the result illustrated that accessing the internet from a telephone land-line is an extremely slow connection, and the main problem was to access to the internet. The results illustrate the details as two topics as follows;

4.1 The Survey

With the Perceived Usefulness and Perceived Ease of Use survey section, it was found that electronic information was useful for the healthcare professional and also that information was easy to use. Interestingly, most results of PU are significant, having regard to the expected results, such as ‘Using electronic information improves the quality of the work they do, ‘Using electronic information increases

their job performance', 'Electronic information supports critical aspects of their job', 'Using electronic information increases their productivity', 'Using electronic information enhances their effectiveness on the job', 'Using electronic information gives them greater control over their work', 'Using electronic information allows them to accomplish more work than would otherwise be possible', and overall, they found electronic information useful in their job'. The addition of the statistics test (*t-test*) ($p<0.05$) found four results significant to PEU, they include; Interacting with electronic information requires a lot of mental effort, they find electronic information cumbersome to use, the interaction with electronic information is clear and stable, and Interacting with electronic information is often frustrating.

4.2 Understanding the structures and factors

The second phase study has shown profound factors; these include the interviews, group discussion, and observations which were from the facilities and policies that they have at their work place. The lack of facilities shown, such as few or no computers in their offices to access the internet to search for information, no landline to access the internet, this also included, in particular, a lack of time to search for, or use information.

4.2.1 The results from the interviews found:

1) Students do not have time to search for information;

2) Student found hard to find out some information which included;

- Live too far from source;

- Didn't know how to search their topics;

- Lack of data especially for public health or some special topic e.g. Bird Flu;

- The books or journals are too expensive for them;

3) Cannot access to the internet e.g. no computer, no landline, not many computers in their office, they have to wait their turn in a queue.

4) The quality of content in the eLearning module added no new data, it was hard to download and the content could not be read (Blur)

5) The chat room and web-board were not updated. The following comments are illustrative of their experiences.

Student A: said '*I live too far from the source of information such as the library and the book shop so I have to take time travelling to go there.*'

Student B: commented '*My place does not have IT at all, so sometime if I need to search from the internet, I have to go to the town to find the internet café for searching and I have to pay for it.'*

Student D said *'I don't find it easy at all, because I feel uncomfortable while I use the computer, and I have never tried to search electronic information.*'

Student E: commented '*Sometimes it's hard to access the cyber-class (MSU eLearning), the video tuition is quite slow, and also the information from the subject is inadequate e.g. few links to search, not many websites to find more information on that content.'*

4.2.2 The Group Discussion

The one group discussion was under taken with three open topic questions: the facilities for access to the internet; the design and content in eLearning module; and the communication of the course e.g. chat room, web-board. Three healthcare professional students gave their opinions as follows.

Student A: commented '*we are interested in this program (MSU eLearning) which enables us to find out more information, but the problem is that some courses have no content at all, also some contents are not updated, and when we access some courses, we cannot find anything, also when we have a problem we cannot find anyone who can help us to resolve it there is no communication from the web-board or chat room, or even a contact address.'*

Student B: said '*The contents in the course should contain; 1) a practice test, 2) related links to help students find out more information about the course, and 3) accessing, logging into and downloading eLearning courses should be made easier, and easier links made to the library.'*

Student C: commented '*One problem is we have never met the tutors or teachers in the communication room on the MSU eLearning courses such as on a web-board or chat room, thus the Faculty should make a policy to ensure they (tutors or teachers) are ready to teach in the visual learning courses.'*

4.2.3 The Observation

At the beginning of the eLearning course, some students worry about '*how they can learn? How can they be successful on this course*'? Learning from the internet is a new concept for them. At the beginning, when we gave them the questionnaire and asked: *'Are they ready to learn online?*' another student said '*they should have chance to choose whether they would like to learn online or by traditional class room. They should not be pushed into studying this course just to follow the new policy'*. However, some of them were excited to learn the new technology, they said '*it is a good chance to learn, we can use internet a lot, and why shouldn't we get the benefits from it*'. Before the class started we gave the healthcare students two days training on how to use the MSU eLearning Module. This training included basics of computers, accessing the Internet, and searching for information from the Internet. During the term time course, healthcare professional students were prevented from using the MSU eLearning course because no lecturers participated with them online. They only accessed the online courses when they needed to print some documents e.g. power point.

As well as in the initial implementation of eLearning courses, the administrator decided policies that gave the opportunity for healthcare professional to study by eLearning. He therefore met the designers and then implemented changes in the eLearning course on the Masters Public Health degree. His policy included funding for the lecturers to translate courses into the MSU eLearning module, and to support on-line learning. This seems to create more opportunities for healthcare professional people, especially those living too far from the campus, and who do not want to leave their work to attend the university. Unfortunately, this policy did not go well because of a change in the administration of the course. Thus when a person (who supported this policy) left, it seemed that nobody wanted to continue this policy, therefore, the program stopped.

Furthermore, five lecturers had been chosen to teach online because their subjects were compulsory for the course. We then gave a training course for those lecturers, showing them how to manage their online courses. During the term time we spoke with some lecturers who were responsible for the course. Some of them did not seem to like to use the internet for teaching. They do not have time to discuss with students in the chat room or web-board room. They have many other classes to teach, too many other things to do. It was not only teaching, but also research, and so on. Thus online students could not gain much from the online course. Thus, some topics in the eLearning course were taught in the traditional classroom.

Beside that we asked a librarian to connect the library's website for students when they are off the campus which means they can access online facilities such as journals, online books, and some documents in the digital library. Unfortunately, it seemed to be hard to manage. Therefore online students have to do the same as traditional students, they cannot access information from these areas. The reason for this being there is not enough staff to manage the library computer servers, and most of them do not know how to manage them. The pedagogies or curriculum was observed; we looked at pedagogies in five courses which are already in the MSU eLearning module. Most of contents were scanned from books which were *pdf* files (old version, very large files). Furthermore, some of them could not be read because they were too dark and blurred. Some topics were put on to a video clip in the module, however, they seemed to be hard to download, and most of the videos were only introductions to the course. The rest of the contents are PowerPoint presentations from their lectures. Unfortunately there were no useful links that related to the topics, no assignments for students, or messages from the lecturers or tutors who are responsible for the topic.

5 DISCUSSION

The aim of this study was to explore the factors impact of information for healthcare professional students within e-Learning environment in Thailand. This presents the background of MSU eLearning module with the history of the module. The major conclusion is that the MSU eLearning programme had terminated. The finding indicate that some student opinions showed the module needed to be developed, and continued, and the Faculty of Public Health needs to have courses like this for the whole curriculum of the master Public Health courses. Moreover, the results from the MSU eLearning environment had shown that they thought the instructors and tutors were good, and that the

discussion facilities, copyright coordinator, and guest were fair. The healthcare professional student thought that the support model, which included technical support, library support, and counseling service were fair.

In the motivation section, they were highly motivated to use new technology, but they neither agree nor disagree on time/location flexibility, personal interaction, and ease of use of the course. In addition from the researcher's observations of five groups of people within MSU-eLearning, such as 1) healthcare professional students, 2) administrators, 3) tutors or lecturers, 4) librarians , and 5) pedagogies or curriculum, revealed similar results as those from the questionnaires, interviews, and group discussions. Particularly, administrative' policy changes affected the funding in the eLearning course, for tutors and lecturers, and so on. It appeared that when the administrator changed, so did the funding policy towards the MSU eLearning course.

Additionally the cooperation with the university's staff, such as tutors, lecturers, librarians was essential and fundamental to the discussion. The results illustrated that some lecturers did not seem to want to be online teachers; their opinions showed they were too busy to sit at the computer and too much time was needed to manage the course. Teaching face-to-face seemed easier than being than online, and they needed IT training before starting online courses. A librarian suggested they needed specialist staff for managing the MSU eLearning course, especially for the help-desk or web-master.

However, these factors are different from what makes eLearning work anywhere else in the world, especially for developing countries such as Thailand. While there are still major difficulties to overcome and much work to be done, it is maintained that the results of this project provide strong evidence that eLearning can be a powerful approach for reaching particular healthcare professionals. The summary discussion of the results shows at table 2 and drawing in figure 1.

Table 2 The summary discussions of the impacts from the main results

Main factors	*Discussions*
1. Infrastructure variables	Problems with accessing to information technologies' facilities: 1) not many computer to support, 2) not many data in their career (e.g. health sciences), 3) not many internet accessing points, and 4) accessing the internet from telephone landline is an extremely slow connection These will be impacted to perceive of the usefulness information that they need to update their knowledge.
2. Finance	Students live far from information sources such as accessing the Internet points which had cost to receive information (e.g. travels and cost for internet café), particularly the cost of time and human of implementation.
3. Policies	The observation results indicate that policies main concerns for the strategies on missions and visions to investment for information technologies, for instant 1) have strategies for encouraging the teachers to have ambitions to develop eLearning courses, and 2) have the policies with cooperation among teachers, staff and the others (e.g. library).
4. Culture	The motivation show the per cent of opinions on the MSU eLearning courses are mostly neither agree nor disagree all parts of the questions which will be carefulness within eLearning environment, especially, the people within eLearning system must have high self-efficacy and the appropriate behavioural skills such

Main factors	*Discussions*
	as taking responsibility for learning (e.g. policy makers, lecturers, students and staff).

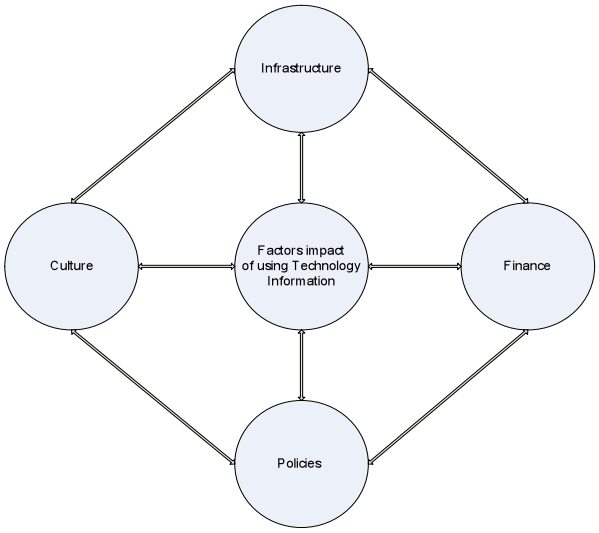

Figure 1.The main factors impact of using Technology Information for Healthcare professionals

Consequently, the result of a successful implementation of eLearning is one that engages all the stakeholders, especially the students and the teachers. For this research, the drivers and barriers for eLearning are therefore listed in four domains: infrastructure, finance, policies, and culture, the model is called IFPC (see the details in figure 2). The IFPC model is to ensure that the essential factors in each domain are made clear when planning and managing online learning and that the domains are connected to each other, for example:

1) *Infrastructure*: in order to establish the online courses, infrastructure for running the programme, such as, computers, telephone, and the Internet connections are necessary;

2) *Finance:* having sufficient funding to cover the cost for planning, implementing, and managing the programme is essential;

3) *Policy*: the strategies to support and encourage the people to engage with the courses such as teachers, students, staff, and policy makers;

4) *Culture*: needs consideration with regard to awareness when employing the courses in a different part of the world, such as, in developed countries or developing countries, particularly in the case of gender, age, caste, class, ethnicity, belief and behaviour, and educational attainment. These need to be fully understood.

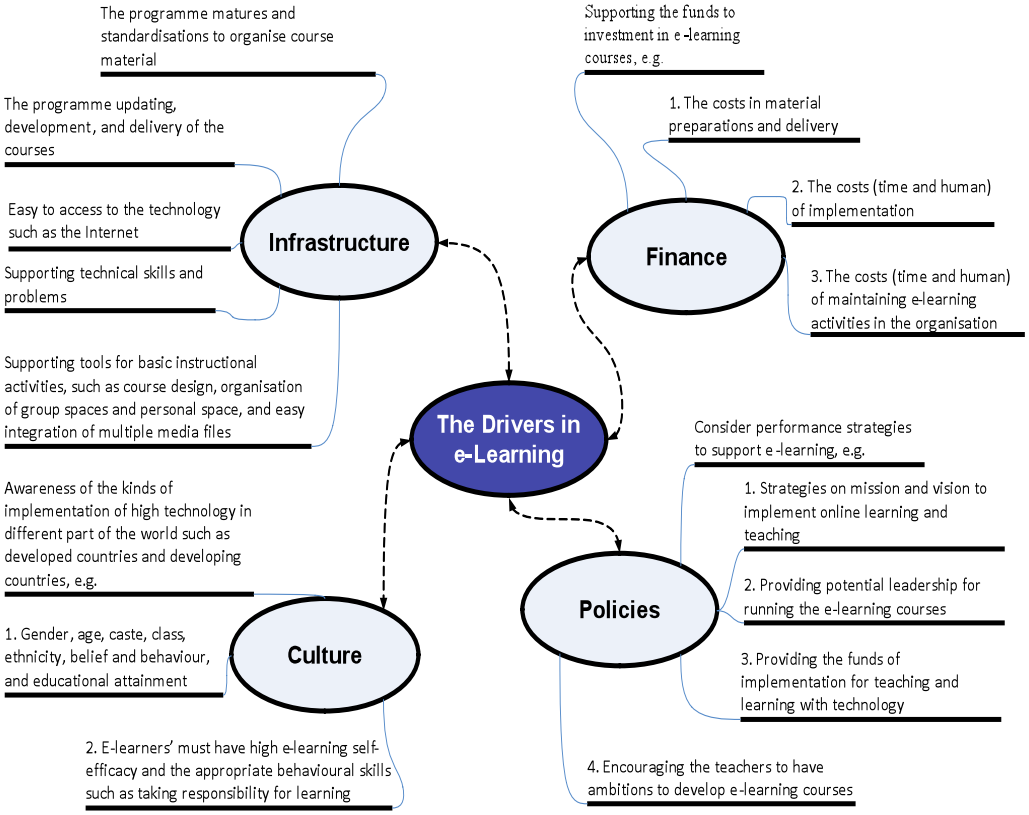

Figure 2 The four main drivers (IFPC) for implementation of e-learning

This finding tends to confirm the ideas of Sharma (2003) who notes that, the barriers to the growth of communication technologies in developing countries discussed one infrastructure, policy planning by the government, political factors, economic factors, and cultural factors. As we have seen, the discussion is on going and there is a particular emphasis on the impacts on barriers and drivers in eLearning environments (see for example:(Arami et al., 2006), (Barton, 2006), (Brown et al., 2007), (Conole et al., 2007), (Booth et al., 2005), (Childs et al., 2005), (Dyson, 2004), (De Freitas and Oliver, 2005), and (Clarke et al., 2005)). They contributed those factors influence whether eLearning initiative is successful.

6 CONCLUSION

The results showed that in order to achieve the goal to be successful with implementation of eLearning especially for healthcare professions. There is a need to concentrate on, and investigate the drivers and the barriers in eLearning. It is important to analyse the specific field of healthcare, especially the learners. The drivers and barriers not only occur in the eLearning process, but also in the development of more sophisticated programmes and tools especially designed for eLearning courses which will enhance the eLearning process.

However, understanding the drivers and barriers in eLearning will help to encourage those people to engage with the implementation of eLearning courses, such as, students, teachers, and policy makers. Furthermore, a new model has been proposed to assist planners in this research, the IFPC model included essential concepts that are believed to be important when implementing eLearning in developing countries, especially Thailand.

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