A Framework for Developing an Information Policy for Promoting WBLS Adoption and Continuous Use by Experienced and Technical Instructors in Thai Universities

Patravadee Vongsumedh and Nattapong Sanchan
School of Information Technology and Innovation, Bangkok University,
Pathumthani, Thailand
Corresponding Author, E-mail: patravadee.v@bu.ac.th

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Abstracts

This qualitative research aims to establish the framework for developing an information policy for promoting the WBLS adoption and increasing the continuous use by experienced and technical instructors in Thai universities. According to the findings of a previous quantitative research which collected survey data from 295 Computer and IT (CIT) instructors in Thai universities, the 8 identified factors affecting the WBLS adoption by experienced and technical instructors (e.g., intention to use, system quality, information quality, perceived usefulness, perceived ease of use, compatibility, service quality, and computer self-efficacy) were used as the guidelines for establishing the framework for developing an information policy for promoting the WBLS adoption and continuous use in Thai universities. The population of this qualitative research are the information policy makers and the WBLS stakeholders in Thai universities. 12 representatives (i.e., the information policy makers, the instructors, and the software developers or technical supporters) from national universities, state universities, private universities, and software development organizations were purposively sampled to join the focus group discussions. A semi-structured interview form, which was developed and validated by 3 experts from the area of educational technology and software development, was used during the focus group discussions.

The results of this qualitative research were summarized into two-key frameworks: 1) the framework for supporting the positive-effect factors and 2) the framework for decreasing the negative impacts of the negative-effect factors. In order to promote the WBLS adoption and continuous use, a variety of actions can be performed by the different stakeholders along with the different phases of the systems development life cycle. The purposes of these actions are to support the positive-effect factors and to decrease or to prevent the negative impacts of the negative-effect factor. Additionally, the factors with the great statistical effects (e.g., intention to use, system quality, and information quality) or the actions found to support several factors simultaneously (e.g., manpower development and planning, instruction compatibility, and instructors' involvement during system implementation) should be concerned in order to effectively promote the WBLS adoption and continuous use.

Keywords: WBLS Adoption; Information Policy; Experienced and Technical Users of WBLS; E-learning; Learning Management System

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Introduction

In the digital era, the Web-based Learning System (WBLS), an e-learning system working through web-based components, enables flexible and effective communication, collaboration, learning, and knowledge transfer. This system is currently being used not only to support traditional teaching (Addah, 2012 : 2; Krevskiy, Bershadsky, & Glotova, 2018 : 3) but also to enhance distance learning (Iqbal & Ahmad, 2010; Krevskiy et al., 2018 : 3; Mkrttchian et al., 2019 : 4; Zakharova & Yudintseva, 2019 : 2; Zawacki-Richter et al., 2015 : 6), which is necessary for the teaching-learning situations during the spread of the COVID-19 pandemic. Before the COVID-19 pandemic in 2020, although the WBLSs were widely used in many Thai institutions during the past few decades, the main problems which the institutions are currently facing are the slow growth of complete e-learning courses and dropping out of the system use (Laohajaratsang, 2010 : 5; Ngampornchai & Adams, 2016 : 5; Saekow & Samson, 2011 : 4). The success of WBLS depends not only on the technologies but also on the effective strategic plans made by the policy makers during system implementation. The policy makers must concern about how to promote the WBLS adoption and how to promote the system's continuous use until the situation of the COVID-19 pandemic is unfolded. In Thai higher education, Computer and IT (CIT) instructors are the users who extensively use the WBLS. Consequently, the identified factors affecting the WBLS adoption of CIT instructors in Thai universities (Vongsumedh, 2018 : 2) were used as the guidelines to establish the strategies for promoting the WBLS adoption and WBLS continuous use in Thai institutions.

In this paper, we propose a framework for developing an information policy for promoting the WBLS adoption and increasing the WBLS continuous use by experienced and technical instructors in Thai universities. We conducted two rounds of focus group discussion, during the first quarter of 2021 and the last quarter of 2021. The aim of the interview was primarily to establish and review the framework for developing an information policy for supporting and promoting WBLS adoption in accordance with the situation of online teaching and learning during the COVID-19 pandemic. The WBLS stakeholders (i.e., the information policy makers, the instructors, the software developers, and the technical supporters) from 7 universities and 3 software development organizations were purposively invited to join the focus group discussion. The findings from the focus group discussion were summarized into 2 categories: 1) the framework for supporting the positive-effect factors and 2) the framework for decreasing the negative impacts of the negative-effect factors. Additionally, the factors with great statistical effect and the guidelines or plans which support several factors simultaneously were pointed out urgently.

Literature Review

Information policy is a combination of policies and actions created at a regional or institutional level to meet people's information requirements and achieve development goals (Mêgnigbêto, 2010 : 5). Information policy plays important roles in several areas to guideline actions and responsibilities and makes information a resource that everyone can access through information services and systems. To ensure that the information services and systems are implemented, deployed, and used the most efficiently, a variety of information policies must be well defined. For instance, an information policy matrix is proposed to shape the transmission of economical information within and outside China. The matrix covers the consideration of human resources, laws, information technology, information markets, and information engineering which each is considered under the industrial, organizational, and

social levels (Moore, 1993 : 9). Additionally, in public health, policy makers need to consider regulations for the security, privacy, and confidentiality of medical records (Pasquale, 2014 : 8). As well as for government, especially in the big data era, information policy should be carefully defined for the information production such as document conduction (write), public sectors' activity reports (publish), internal information use (manage), information statistics creation (research), and information disclosure regulation (regulate) (Washington, 2014 : 7). Moreover, in the educational perspective, where this paper focuses on, information policies can have an impact on how instruction is designed and delivered. For example, the teaching materials should be designed and created with respect to copyright policies, intellectual properties, academic freedom, and library guidelines. In the view of learners, information policy can affect students by the choice of the learning management systems used in the universities enforced by the institutional policy (Walster, 2018 : 1). Additionally, an information policy can be defined to assist distance-learning students who are unable to access the library's learning resources, content in an online database, and library service and cost remedy (Heron & Dugan, 1997 : 5).

As the aforementioned, the definition of information policy depends on persons, stakeholders' responsibilities, roles, and situations which the policy is applied to. In general, information policy refers to a formal or informal set of rules which controls or supports the flow of information (Walster, 2018 : 6). Its definition also includes laws, regulations, and guidelines that have an impact on how persons and organizations gather, create, access, distribute, transmit, or demolish the information while operating within the organizations or departments. In addition, information policy definitions differ depending on the organization that creates them as well as the functions or situations in which they will be employed (Walster, 2018 : 6). Regarding the education which this paper focuses on, such information policy is defined as that relating to the management of the e-learning environment, including the preparation and distributed WBLS (or e-learning system), the individual's private information, educational contents and materials shared through the environment, the data occurred as the consequence of the e-learning process, the work or intellectual property accessed through e-learning systems, and the readiness of system infrastructure.

To develop an information policy for educational institutions, four types of information policy are important concern including 1) the information policy developed by external agencies (i.e., public sectors) that have the authority to define regulations for e-learning in organizations; 2) the policy developed by organizations themselves aiming to internally administer the e-learning environment; 3) the policy developed on behalf of business entities who provide WBLS access and services and 4) the personal information policy which is defined by an individual aiming to share personal data or intellectual properties to others (Walster, 2018 : 3).

However, this research focuses on the second type of information policy where the educational institutions develop the policy for themselves. The development of the information policy within the institutions needs to consider different factors which can advocate the online teaching and learning process, promote WBLS adoption, and increase WBLS continuous use in Thai universities. Note that we exclude the consideration of the learners' roles in the development of the information policy since the learners significantly play minor roles in the choices of WBLS, the development of the policy, and the enforcement of the policies in the institutions. Furthermore, recent studies demonstrate that instructors are the key users of the

WBLS. If the instructors adopt and decide to use the WBLS for supporting the teaching-learning process, the learners must use it (Deerajviset & Harbon, 2014 : 8; Selim, 2007 : 2).

Research Objective

The objective of this qualitative research is to establish the framework for developing an information policy for promoting the WBLS adoption and continuous use by experienced and technical instructors in Thai universities.

Research Methodology

1. The Quantitative Research

Before explaining the methodology of this qualitative research, background and results of the previous quantitative research must be clearly stated. By incorporating 4 existing models and theories (e.g., Technology Acceptance Model – TAM (Davis, Bagozzi, & Warshaw, 1989 : 3), Diffusion of Innovations Theory – DOI (Rogers, 2003 : 1), Delone and Mclean IS success model – D & M IS Success Model (DeLone & McLean, 2003), and theory of planned behavior – TPB (Motaghian, Hassanzadeh, & Moghadam, 2013 : 8; Wang & Wang 2009 : 4), the research model was proposed. The questionnaire, a quantitative research instrument, was validated by 5 domain experts in the areas of educational technologies and ICT, and then, pilot tested. The overall Cronbach's alpha coefficient is 0.991. This result confirmed that all items were highly reliable (Pallant, 2020). Afterward, the process of data collection started. The validated questionnaires were sent to Computer and IT instructors, the experienced and technical instructors, of 24 Thai universities. These universities were categorized into 3 groups, which are national or autonomous university, state university, and private university. 295 questionnaires were, then, collected. Afterward, all statistical criteria (e.g., correlation coefficient, and multicollinearity) were analyzed before examining the research model by using Structural Equation Model (SEM). The model examination results indicated 8 factors affecting the WBLS adoption by CIT instructors, experienced and technical instructors, in Thai universities (Figure 1). These factors are intended to use (IU), system quality (SQ), information quality (IQ), perceived usefulness (PU), perceived ease of use (PEOU), compatibility (COM), service quality (SeQ), and computer self-efficacy (CSE). By considering the effect direction (Table 1), the factors were grouped into 2 categories which are 1) the factors positively influenced the WBLS use (i.e., IU, SQ, IQ, PU, PEOU, COM, and CSE) and 2) the factor negatively influenced the WBLS use (i.e., SeQ). Based on the total effect sizes shown in Table 1, the most three important factors affecting the WBLS adoption were intention to use (IU), system quality (SQ), information quality (IQ). The following subsections discuss the conceptual framework of qualitative research, research instrument, and research population and sampling used in detail.

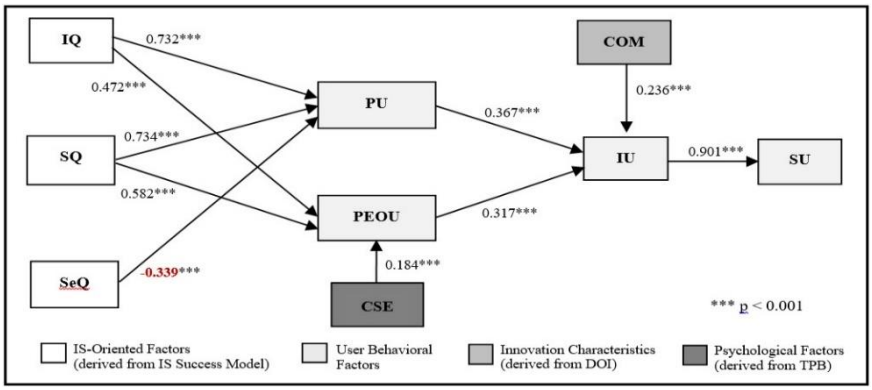

Figure 1 The parsimonious model of WBLS adoption by experienced and technical instructors in Thai universities.

Table 1 Factors affecting the WBLS adoption by experienced and technical instructors in Thai universities.

Factors Affecting WBLS Adoption	Total Effect Size	Types of Effect		Directions of Effect		Mediators
		Direct	Indirect	Positive	Negative	
IU	0.901	✓		✓		-
SQ	0.409		✓	✓		PEOU, PU, IU
IQ	0.377		✓	✓		PEOU, PU, IU
PU	0.331		✓	✓		IU
PEOU	0.286		✓	✓		IU
COM	0.212		✓	✓		IU
SeQ	0.142		✓		✓	PU, IU
CSE	0.053		✓	✓		PEOU, IU

2. Research Instrument

The instrument of this qualitative research is a semi-structured interview form, which was developed and validated by 3 experts from the area of educational technology and software development. The validated research instrument was, then, used for gathering information and opinions from 12 domain experts, who are the WBLS stakeholders, in the 2 rounds of the focus group discussion (i.e., round 1: Quarter 1 of 2021, and round 2: Quarter 4 of 2021). The questions in a semi-structured interview form were classified into to two groups: 1) What are the directions or suggestions for supporting the positive-effect factors? And 2) What are the directions or suggestions for decreasing the dramatic negative impacts of the negative-effect factor?

3. Research Population and Sampling

As aforedmentioned, the development of information policy was unable to be succeeded by only one party. Thus, the population of this qualitative research are the information policy makers and the WBLS stakeholders in Thai universities. 5 CIT instructors,

2 educational instructors, 2 information policy makers, and 3 software developers or technical supporters from 3 software development organizations, were purposively sampled to participate in the focus group discussions. These invited participants had over 15 years of working experience in the related fields. Additionally, instructors and information policy makers are the representatives from national universities, state universities, and private universities in Thailand. Afterward, the list of interview questions was sent to the target participants one month before the start of the focus group discussion.

Research Conceptual Framework

Based on the quantitative research results as shown in Table 1, the conceptual framework of this qualitative research was illustrated as in Figure 2.

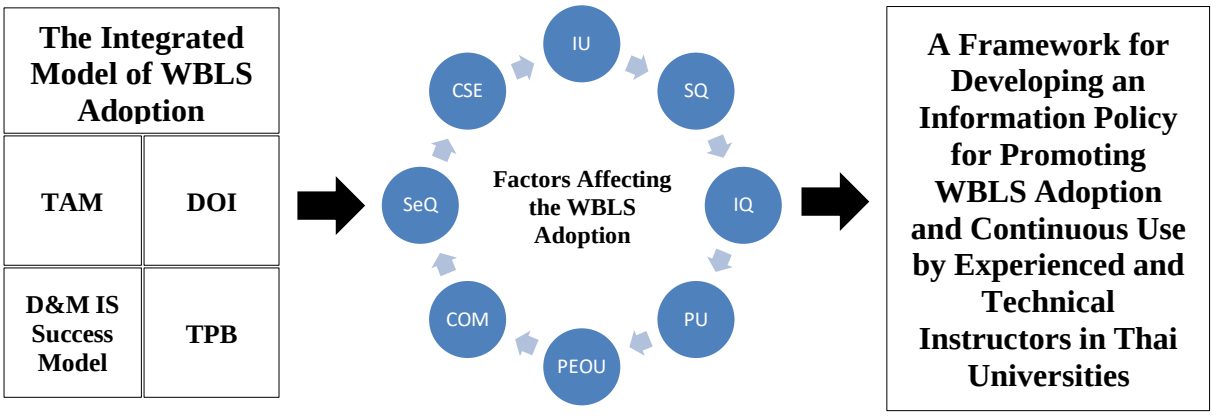

Figure 2: The Conceptual Framework

Research Results

According to effect directions (i.e., positive and negative) of the factors affecting the WBLS adoption, the results of the focus group discussion were summarized into 2 categories. The frameworks for supporting the positive-effect factors and decreasing the impacts of the negative-effect factor affecting WBLS adoption and continuous use are as follows.

1. The framework or supporting the positive-effect factors of WBLS adoption and continuous use:

- **Intention to Use (IU):** The instructors should be encouraged in using WBLS by pointing out how effective and efficient the teaching-learning process through the web is. The technical supporters, who oversee the WBLS implementation, may offer the training courses in accordance with the instructors' requirements. A survey of training requirements can be launched in this process. Additionally, the clear directions or plans of WBLS use, financial and technical support, and incentives to use WBLS should be clarified in the institutional policies.
- **System Quality (SQ):** The team in charge of system development and support must ensure the WBLS security and effectiveness. Both of personal data and courses' contents, which are the intellectual properties of the instructors, must be protected and published carefully. Furthermore, the system infrastructure must be checked periodically to ensure that

the WBLS is available anytime and anywhere. Thus, sufficient technical staff must be well prepared for this process.

- **Information Quality (IQ):** During the WBLS analysis and design phase, the instructors, as the target users of WBLS, should be involved with the system development team. The user involvement guarantees that the WBLS operations and the information provided by the system are consistent with the teaching processes of instructors. Moreover, before the launch of WBLS, the User Acceptance Test (UAT) and the system training are required. The system developers (or technical supporters), additionally, should inform the instructors about the system limitations to avoid unexpected results.
- **Perceived Usefulness (PU):** The related departments in charge of WBLS implementation (e.g., faculty, computer center, and educational technology department) should provide useful information of the WBLS use to the instructors. The identified benefits of WBLS use, and the system capabilities (or features), which enable a more effective teaching process and learning outcome, may increase the instructors' perception of the system's usefulness. The qualified and sufficient technical staff must be prepared for this activity.
- **Perceived Ease of Use (PEOU):** To properly reveal the instructors' requirements and effectively design the system components, the involvement of instructors, as the WBLS target users, is still significant throughout the WBLS development processes. The instructor involvement leads to a clear direction on how to design or to customize the user interfaces proper to various technical skills of the users. This is an important concern that the WBLS should provide a multi-level user interface to support not only the technical users but the novice users as well. Additionally, the technical service department must prepare enough skillful staff to provide quality technical support when assistance is required. Furthermore, various communication channels (e.g., help desk, hotline, or online assistance) for requesting technical support should be provided to the instructors.
- **Compatibility (COM):** During the system analysis and design phase, the requirements of all groups of instructors must be pointed out. The clarified teaching-learning-grading procedures and instructors' requirements lead to the properly designed system scopes and operations in accordance with the instructor's requirements. Before the WBLS launching, the instructors should be invited to test working with the system in order to allow the system developers to get early feedback. The feedback allows the system developers to customize the WBLS to be more suitable for the instructors' requirements. More importantly, during the system operation and support phase, the system operations should be evaluated periodically to ensure that they still work properly and consistently on the instructors' requirements.
- **Computer Self-Efficacy (CSE):** During the WBLS implementation phase, the capability of the system control, and the instructors' satisfaction of working with the WBLS must be significantly concerned. Offering the specific WBLS training corresponding to the requirements and technical skills of the instructor leads to the increasing perception of controlling the WBLS. The training should be set up periodically. Moreover, the instructors are allowed to identify what training topics they want to be trained in.

2. The framework for decreasing the negative impacts of the negative-effect factor of WBLS adoption and continuous use:

Service quality (SeQ): The results represented in Table 1 indicated that SeQ was the only IS-oriented factor that had the indirect negative effect on the intention to WBLS use (IU) through perceived usefulness (PU). And, finally, the perceived usefulness (PU) and the intention to use (IU) acted as mediators between service quality (SeQ) and WBLS use (SU).

This situation concludes that the CIT instructors, as the experienced and technical users of WBLS, believed that the quality of technical support was important to the WBLS adoption of the users. Nevertheless, at the present, the technical services and supports offered by the office in charge failed to satisfy the CIT instructors. The causes of this problem are: (1) the unclear service directions of the office/department in charge, (2) the unqualified technical supporters, and (3) the duplication of instructors' work procedures caused by scattered functions across academic information systems. In such a case, the guidelines for reducing negative impacts of the service quality are: (1) to identify the cleared direction and responsibility for the technical service department in order to provide the proper and right-in-time technical support to the instructors, (2) to offer the up-to-date training to the technical supporters in order to boost up their technical skills, and (3) to integrate the WBLS to the other academic systems (e.g., student's record system, course enrollment system, and grading system) in order to reduce the duplicated tasks occurred during teaching-learning-grading processes.

In summary, the framework for promoting the WBLS adoption and continuous use by experienced and technical instructors in Thai universities were depicted in Figure 3. The factors affecting WBLS adoption were sorted descendingly by the total effect size, and the guiding activities/actions for supporting each factor were listed. To promote WBLS use and continuous use, the information policy makers of the institution should pay more attention to factors found to have the greater statistical effect (e.g., intention to use, system quality, and information quality) as well as guidelines found to support more than one factor simultaneously.

Based on Figure 3, the proposed framework for handling each factor was rearranged to easily point out the related stakeholders, phases of software development, and the actions were found to support several factors simultaneously (as shown in Table 2).

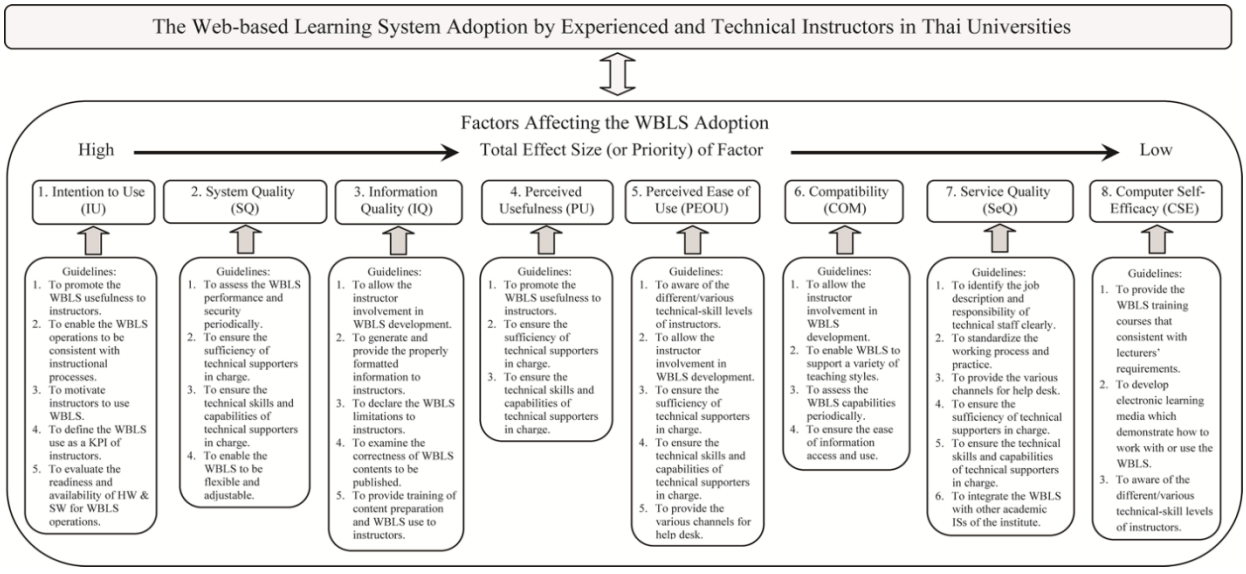

Figure 3: The framework for promoting the WBLS adoption by experienced and technical instructors in Thai universities.

Table 2: The related stakeholders, phases of software development, and actions on how to support factors affecting the WBLS adoption and continuous use by experienced and technical instructors in Thai universities.

Actions	Phases of System Development Life Cycle				Related Stakeholders					Factors Affecting WBLS Adoption & Continuous Use							
	Planning	Analysis & Design	Implementation	Operation & Support	Faculty / Department	Software Developer	Technical Supporter	Educational Tech. Dept.	Information Policy Maker	IU	SQ	IQ	PU	PEOU	COM	SeQ	CSE
1. To promote the WBLS usefulness to instructors (IU.1, PU.1)	✓			✓	✓	✓	✓	✓		✓			✓				
2. To enable the WBLS operations to be consistent with instructional processes. The system functions could be flexible and adjustable in order to support a variety of teaching styles. (IU.2, SQ.3, COM.2)		✓	✓	✓		✓	✓			✓	✓				✓		
3. To motivate instructors to use WBLS. The special training courses of WBLS may be offered to the instructors who plan/intend to use it. (IU.3)	✓			✓	✓				✓	✓							
4. To define the WBLS use as a KPI of instructors. (IU.4)	✓				✓				✓	✓							
5. To evaluate the readiness and availability of HW & SW for WBLS operations. (IU.5)	✓					✓	✓			✓							
6. To assess the WBLS performance and security periodically in order to guarantee the system quality. (SQ.1)				✓		✓	✓				✓						
7. To provide sufficient technical supporters and to develop the technical skills of the technical supporters in charge in order to be consistent with the deliverable innovations. (SQ.2, SQ.3, PU.2, PU.3, PEOU.3, PEOU.4, SeQ.4, SeQ.5)	✓			✓			✓				✓		✓	✓		✓	
8. To allow instructor involvement in WBLS development. In the fact-finding process, instructors are interviewed to gather systems' requirements. Moreover, they are invited to evaluate the user interface design and to test the WBLS		✓	✓			✓						✓		✓	✓		

Actions	Phases of System Development Life Cycle				Related Stakeholders					Factors Affecting WBLS Adoption & Continuous Use							
	Planning	Analysis & Design	Implementation	Operation & Support	Faculty / Department	Software Developer	Technical Supporter	Educational Tech. Dept.	Information Policy Maker	IU	SQ	IQ	PU	PEOU	COM	SeQ	CSE
before launching. (IQ.1, PEOU.2, COM.1)																	
9. To prepare the WBLS for generating and providing properly formatted information to instructors. The deliverable information can be suddenly used to support teaching-learning processes. Moreover, the system must ensure ease of information access and use. (IQ.2, COM.4)		✓	✓			✓						✓			✓		
10. The software developer and technical supporter have to inform the capabilities and limitations (both hardware and software) of the WBLS to instructors. (IQ.3)			✓	✓		✓	✓					✓					
11. To examine the correctness of WBLS contents to be published. The copyrights of all WBLS contents must be concerned. (IQ.4)				✓			✓	✓				✓					
12. To provide training of course contents preparation, educational media development, and WBLS use to instructors. (IQ.5)				✓			✓	✓				✓					
13. The software developers/ designers must be aware of the different/various technical-skill levels of instructors. System usability must be concerned. (PEOU.1, CSE.3)		✓	✓			✓								✓			✓
14. The technical support department or computer center must provide various channels for the help desk to instructors. These channels must enable instructors to access and to submit their technical requests easily. (PEOU.5, SeQ.3)				✓			✓							✓		✓	
15. To avoid the ambiguity in the job responsibility of the technical supporter in charge, the related stakeholders have to	✓			✓	✓		✓	✓	✓							✓	

Actions	Phases of System Development Life Cycle				Related Stakeholders					Factors Affecting WBLS Adoption & Continuous Use							
	Planning	Analysis & Design	Implementation	Operation & Support	Faculty / Department	Software Developer	Technical Supporter	Educational Tech. Dept.	Information Policy Maker	IU	SQ	IQ	PU	PEOU	COM	SeQ	CSE
identify the job description, responsibility, and practical procedures of the technical staff in charge clearly. The problem scope of hardware, software, and network infrastructure must be identified and discussed. (SeQ.1)																	
16. The computer center/department, which oversees software development and technical support, must standardize the working process and practice. The ISO or CMMI can be used. (SeQ.2)		✓	✓	✓		✓	✓									✓	
17. To avoid duplication of working processes done by instructors, the WBLS has to integrate with other existing academic information systems of the institute (e.g., grading system, student records system). The integrated system enables instructors to access and transfer the necessary information across the distributed systems easily. (SeQ.6)		✓	✓			✓	✓									✓	
18. To develop the skills of instructors by offering the WBLS training courses that are consistent with lecturers' requirements. The instructors can be allowed to identify the required training topics and preferred training time by themselves. (CSE.1)				✓		✓	✓	✓									✓
19. To develop electronic learning media or user manuals which demonstrate how to work with or use the proposed WBLS. (CSE.2)			✓			✓	✓	✓									✓

Note: The value in ( ) depicts an abbreviation of the factor affecting the WBLS adoption and continuous use and the sequence number of guideline supporting it.

In order to promote the WBLS adoption and continuous use, it can be concluded that a variety of actions can be performed by the different stakeholders along with the different phases of the WBLS development life cycle. The purposes of these actions are to support the positive-effect factors and to decrease or to prevent the negative impacts of the negative-effect factor. Additionally, the factors with the great statistical effects (e.g., intention to use, system quality, and information quality) or the actions found to support several factors simultaneously (e.g., manpower development and planning, instruction compatibility, and instructors' involvement during system implementation) should be concerned in order to effectively promote the WBLS adoption and continuous use.

Discussion

The framework proposed in this study emphasized supporting the positive-effect factors and decreasing impacts of the negative-effect factor of the WBLS adoption by the experienced and technical instructors in Thai universities. According to the findings of the previous studies (Almaiah, Al-Khasawneh, & Althunibat, 2020 : 3; Boondao, Komlayut, & Punnakan, 2009 : 4 ; Saekow & Samson, 2011 : 6; Walster, 2018 : 6), the framework for developing an information policy indicated that the successful WBLS implementation requires the cooperation of several stakeholders (i.e., instructors, faculties, WBLS developers, technical service department, and educational technology department). Moreover, to develop an effective and efficient information policy, the strategies for promoting adoption and use must be concerned in all dimensions from creation to use (Namdarian, Alidousti, & Rasuli, 2021; Pasek, 2015 : 6). Consequently, after identifying the institutional goal of WBLS implementation, the institutional policy makers must clearly identify the dramatic plans, stakeholders' responsibilities, and directions on how each stakeholder deals with each stage of WBLS implementation. In order to support the WBLS adoption and continuous use by the experienced and technical instructors, the information policy makers should pay more attention to the framework which supports the high-statistical level factors (i.e., intention to use (IU), system quality (SQ), and information quality (IQ)) (Vongsumedh, 2018 : 6). In addition, the practical guidelines found to support several factors simultaneously (i.e., practical guideline number 2, 7, and 8 shown in Table 2) should be concerned first. For example, the manpower planning and development (the guideline number 7) which supports the system quality, the service quality, and the instructors' perception of system usefulness and ease of use should be early considered. The user involvement, moreover, must be performed throughout the WBLS development process to guarantee the instructors' satisfaction, and to ensure that the implemented system provides the right information with the right operations at the right time to the instructors.

Recommendation

Before the year 2020, in Thai universities, the WBLSs were used as supplementary tools for supporting classes. However, the spread of the COVID-19 pandemic causes the change of WBLS use's context. All institutions were forced by the pandemic situation to use the WBLS highly and urgently for the fulfillment of online classes. Although the findings of this research were the framework for promoting the WBLS adoption and continuous use which covered the normal situation of WBLS use, during the spread of the COVID-19 pandemic, the policy makers can focus urgently on the actions which relate to the phase of system implementation, and system operation and support in order to satisfy instructors, and to prepare

them for handling the full online-classes effectively. When the situation is unfolded, all proposed actions can be revised and re-applied for developing an information policy for promoting the WBLS adoption and continuous use. After launching the policy, the instructors' satisfaction, and the factors influencing WBLS adoption and continuous use would be evaluated again. Moreover, both organization-level adoption and individual-level adoption (e.g., WBLS adoption of instructors, and WBLS adoption of learners) must be considered at this stage. This evaluation may lead to adjusting more appropriate strategies for promoting WBLS adoption and increasing continuous use.

References

Addah, J. (2012). Computer literacy and E-learning: Attitudes among first year students in a Ghanaian medical school. *International Journal of Computer Applications*, 51 (22), 21-25.

Almaiah, M. A., Al-Khasawneh, A., & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Education and Information Technologies*, 25, 5261-5280.

Boondao, S., Komlayut, S., & Punnakan, W. (2009). Factors in e-Learning in Universities in Thailand. *Special Issue of the International Journal of the Computer, the Internet and Management*, 17 (SP1), 31.1-31.4.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology – A comparison of two theoretical models. *Management Science*, 35 (8), 982-1003.

Deerajviset, P., & Harbon, L. (2014). E-learning in EFL education in Thailand's higher education: The role for lecturers making it work. *University of Sydney Papers in TESOL*, 9, 37-63.

DeLone, W. H. , & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A 10-year update. *Journal of Management Information S*ystems, 19 (4), 9-30.

Fish, W. W., & Gill, P. B. (2009). Perceptions of Online Instruction. *Turkish Online Journal of Educational Technology*, 8 (1), 53-64.

Heron, P., & Dugan, R. E. (1997). Information Policy--Distance Education: Provider and Victim Libraries. *Journal of Academic Librarianship*, 23 (4), 315-318.

Iqbal, M. J., & Ahmad, M. (2010). Enhancing quality of education through e-learning: the case study of Allama Iqbal Open University. *The Turkish Online Journal of Distance Education*, 11 (1), 84-97.

Krevskiy, I. G., Bershadsky, A., & Glotova, T. (2018). *Research Competence for Development of Distance Education in Russian Universities*. In Handbook of Research on Students' Research Competence in Modern Educational Contexts (pp. 385-408): IGI Global.

Laohajaratsang, T. (2010). e-Education in Thailand: Equity, quality and sensitivity for learners and teachers. *Global Learn Asia Pacific 2010.* 17-20 May 2010. Penang, Malaysia, 694-700.

Mêgnigbêto, E. (2010). Information policy: Content and challenges for an effective knowledge society. *International Information & Library Review*, 42 (3), 144-148.

Mkrttchian, V., Krevskiy, I., Bershadsky, A., Glotova, T., Gamidullaeva, L., & Vasin, S. (2019). Web-Based Learning and Development of University's Electronic Informational Educational Environment. *International Journal of Web-Based Learning and Teaching Technologies (IJWLTT)*, 14 (1), 32-53.

Moore, N. (1993). Information policy and strategic development: a framework for the analysis of policy objectives. *Aslib Proceedings*, 45 (11), 281-285.

Motaghian, H., Hassanzadeh, A., & Moghadam, D. K. (2013). Factors affecting university instructors' adoption of web-based learning systems: Case study of Iran. *Computers and Education*, 61 (1), 158-167.

Namdarian, L., Alidousti, S., & Rasuli, B. (2021). Developing a comprehensive framework for analyzing national scientific and technical information policy: application of HeLICAM in Iran. *Online Information Review*, 45 (7), 1381-1403.

Ngampornchai, A., & Adams, J. (2016). Students' acceptance and readiness for E-learning in Northeastern Thailand. *International Journal of Educational Technology in Higher Education*, 13 (1), 1-13.

Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. (7th ed.). London: McGraw Hill Education.

Pasek, J. E. (2015). Defining of information policy: relating issues to the information cycle. *New Review of Academic Librarianship*, 21 (3), 286-303.

Pasquale, F. (2014). Redescribing health privacy: the importance of information policy. *Houston Journal of Health Law and Policy*, 14, 95-128.

Rogers, E. M. (2003). *Diffusion of innovations*. (5th ed.). New York: Free Press.

Saekow, A., & Samson, D. (2011). E-learning Readiness of Thailand's Universities Comparing to the USA's Cases. *International Journal of e-Education, e-Business, e-Management and e-Learning*, 1 (2), 126-131.

Selim, H. M. (2007). Critical success factors for e-learning acceptance: Confirmatory factor models. *Computers & Education*, 49 (2), 396-413.

Vongsumedh, P. (2018). The Web-based Learning System Adoption by Computer and Information Technology Instructors in Thai Universities. *SNRU Journal of Science and Technology*, 10 (3), 138-147.

Walster, D. (2018). *Information policy and e-Learning*. In Leading and Managing e-Learning (pp. 141-154): Springer.

Wang, W., & Wang, C. (2009). An empirical study of instructor adoption of web-based learning systems. *Computers & Education*, 53 (3), 761-774.

Washington, A. L. (2014). Government information policy in the era of big data. *Review of Policy Research*, 31 (4), 319-325.

Zakharova, N. A., & Yudintseva, A. F. (2019). Online education: Prospects of development in Russia. *Universal Journal of Educational Research*, 7 (10B), 11-15.

Zawacki-Richter, O., Kondakci, Y., Bedenlier, S., Alturki, U., Aldraiweesh, A., & Püplichhuysen, D. (2015). The Development of Distance Education Systems in Turkey, the Russian Federation and Saudi Arabia. *European Journal of Open, Distance and E-learning*, 18 (2), 112-128.