JOURNAL OF SCIENCE OF HNUE
Educational Sci., 2016, Vol. 61, No. 11, pp. 57-65 This paper is available online at http://stdb.hnue.edu.vn
DOI: 10.18173/2354-1075.2016-0216

B-LEARNING ISSUES: A SUGGESTION FOR DEVELOPING THE FRAMEWORK

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Abstract. Modelling a dynamic process is not an easy task, especially for the complex learning as b-learning. By studying the issues of b-learning, the paper addresses a small review of models. Two frameworks for teacher b-learning were developed in term of the controlled process which much concerned about the principles of instruction and authentic learning. The detailed explanations for the frameworks show that they can apply for flexible learning.
Keywords: b-learning, framework, model, learning modality.

1. Introduction

Because of the surge in growth of the Internet in the decade 1990s, e-learning and blended-learning (b-learning) has drawn much attention. They become the focus of education research throughout the world. The various modes of instruction have been studied. A great number of studies have been published to explore the best practices, effectiveness, satisfaction, and challenges of teaching and learning online and in blended learning environments. For example, an extensive search of databases and citations for a meta-analysis project, returned 1,132 abstracts on student results in online and blended learning for the years 1996 to 2008 [13]. The findings showed the learning results of students were highest in b-learning in comparison with other modalities as face-to-face and fully-online, but not much different. The attitudes of faculties and administrators also were surveyed. In general, they had positive senses toward the modality. However, this study argued that b-learning might be attributed to more time on task than in fully-online or face-to-face instruction and it needed being researched further.

Issues of b-learning are concerned by scholars. They might come from various reasons, as a controversy about models and frameworks applied to b-learning [6], or the complex in redesigning courses to meet different requirements [1] etc.

The purpose of this paper is: (i) to analyze the issues of b-learning in systematic perspective; (ii) to suggest the development of the framework.

2. Content

2.1. Methodology

The authors use the theoretical method to synthesise the results of other studies, then do an analysis according to the systematic view. With the concern of the principles in learning and the

Received date: 16/10/2016. Published date: 10/12/2016.
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analysed data, the authors develop the frameworks for teacher in b-learning which try to cover the dynamic process of learning.

2.2. B-learning and issues

According to Colis and Moonen [3], b-learning is a hybrid of traditional face-to-face and online learning so that instruction occurs both in the classroom and online, and where the online component becomes a natural extension of traditional classroom learning. B-learning is thus a flexible approach to course design that supports the blending of different times and places for learning. B-learning is also supposed to offer some of the conveniences of fully online courses without the complete loss of face-to-face contact.

This view is supported by Graham [8] based on the systematic perspective. Grahamargued that b-learning systems combine face-to-face instruction with computer-mediated instruction. However, designing a b-learning environment is not as simple as combining an online environment with a face-to-face course.

The difficulties come from choosing the right model for b-learning or developing a suitable model for that modality. In another work of the author, modeling and simulation were confirmed as an essential methodology for educational research [11]. Gibbons and Bunderson [5] further identified three important knowledge-producing enterprises: explore, explain, and design which can be distinguished in terms of the functions and purposes. For example, the "explore" type for the science and technology is used to make definition and categorization. The usage of the "explain" type for the science is looking for causality and correlation, working with variables and relationships between them. And the last type is the design reserved for the technology, which describes interventions for reaching targeted outcomes.

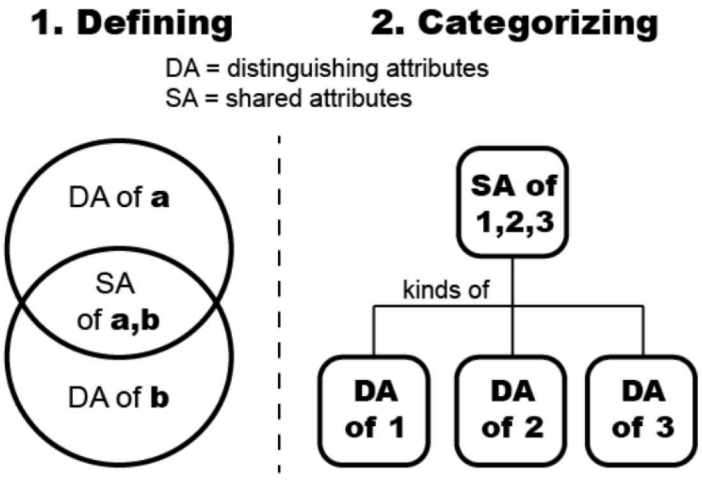

Figure 1. Visual representation of two kinds of "explore" models (Fig 2.1 in [6])

In the domain of b-learning, Graham et al. [6] argued that the "explore" models focused on the physical structuring not pedagogical structuring of b-learning systems, as delivering documents, for example. Some models (like the flipped classroom) may imply a particular kind of pedagogy (e.g., individual feedback, lecture, collaboration, etc.), but do not impose pedagogy or quality criteria. The shortage of pedagogy in general, accounts for the difficulties in design and implementation, in the authors view.

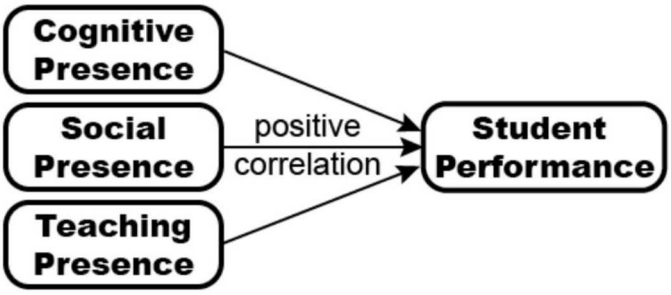

Figure 2. Simplified visual illustration of "explain" model using the Community of Inquiry Framework (Fig 2.3 in [6])

The study also revealed the limitation of developing the explanation models. For those models, the theoretical frameworks only briefly explained to provide background for the research or establish an argument for the studies blended approach. Otherwise, variables were identified to study, as "social, teaching, and cognitive presence from COI (Community of Inquiry)", or "satisfaction, learning effectiveness, cost effectiveness, etc.", or "sense of community" [6]. According to Graham, the findings of those researches in the specific aspect of the theory for the models were uncommon. They focused old theories in the new context of b-learning domain which was not properly expected.

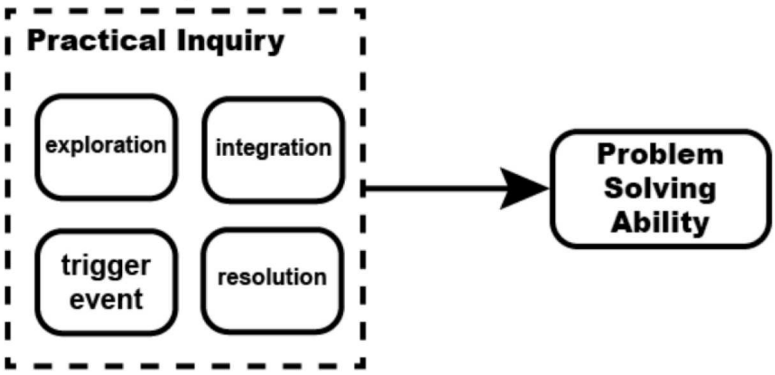

Figure 3. Simplified visual illustration of an instructional design model using the "practicalinquiry model" (Fig 2.5 in [6])

The design models were identified in three patterns: model articulation, model comparison, and model iteration. A b-learning model and its outcomes were articulated by the research in the model articulation. For example, the Flex model was developed to provide greater flexibility to students in class participation options and course selection. For that reason, a number of problems to the course design should be concerned as alternative participation modes, equivalency in activities, reuse of learning objects or artifacts between modalities, and accessibility to technology and participation modes. The model comparison, otherwise, was used to compares with a b-learning model to either a different type of b-learning or a non-b-learning model (performance or satisfaction of students, for example). The model iteration was invented to articulate a b-learning model intended to achieve particular outcomes and systematically tested and improved over time. Much of the design research was comprised of comparison studies attempting to test the effectiveness of a blended course design or activity against a face-to-face or online counterpart. Nevertheless, two limitations of many of the b-learning design studies were pointed out as (1)

that core attributes of the interventions affecting student performance or student satisfaction were neither well known nor clearly articulated and (2) that identified differences in models typically focused on physical aspects of the course (e.g., online versus face-to-face activities).

2.3. First principles of instruction and authentic learning

First principles of instruction were developed by Merrill [9], [10]. The principles for instructional design as follows (pp. 44-45 in [9]):

- Learning is promoted when learners are engaged in solving real-world problems

- Learning is promoted when existing knowledge is activated as a foundation for new knowledge

- Learning is promoted when new knowledge is demonstrated to the learner

- Learning is promoted when new knowledge is applied by the learner

- Learning is promoted when new knowledge is integrated into the learner's world.

Analyzed in term of the "explain" model, the framework is divided into five stages (pp. 63-64 in [10]):

- [problem]: the student is shown a problem, taught the components, and then shown how the components areused to solve the problem or do the whole task

- [activation]: the instruction directs learners to recall, relate, describe, or apply knowledge from relevant past experience that can be used as a foundation for the new knowledge

- [demonstration]: the next activity in a learning cycle demonstrates the new knowledge to be learned, rather thanmerely telling information about the new learning

- [application]: the third activity in a learning cycle provides opportunity for learners to apply the newknowledge to new specific situations

- [integration]: the instruction provides an opportunity for learners to publicly demonstrate their newly acquired knowledge and skill; . . . to reflect on, discuss, or defend their new knowledge, and . . . to create, invent, or explore new and personal ways to use their new knowledge and skill

The principles and framework supported the authentic learning which immerse learners in thecognitive demands of a real environment and witha meaningful learning context [7],[12]. Those are also guidelines for b-learning design.

2.4. A suggestion for developing the framework

In order to avoid the defect of models criticized by Burkhardt and Shoenfeld [2] as they were broad and lack of the specificity that helps to guide design, to take good ideas and make sure that they work in practice, the b-learning framework is analyzedin systematic perspective. The authors suggest a BLC (b-learning controller) framework for teacher as depicted in Figure 4. The procedure is presented as the controlled process which consists of five steps. Each step has two components: action depicted by arrow and result expressed in the dash box.

2.4.1. The BLC framework for teacher

(1) Input: all information about b-learning must be collected as objects, content, context, learner and technology.These are requirements for the next step: analysis.

(2) Analysis: the learning information provided in step 1 has been fragmented. Learning objects are analyzed to determine the target requirements of competencies and virtue (or knowledge taxonomy). The content is clarified to settle resources for learning, e.g.: documents

(text books and multimedia, simulation etc.). The context must be studied to find out what can be applied into learning. The context includes features of local culture, social, production or business, environment etc.

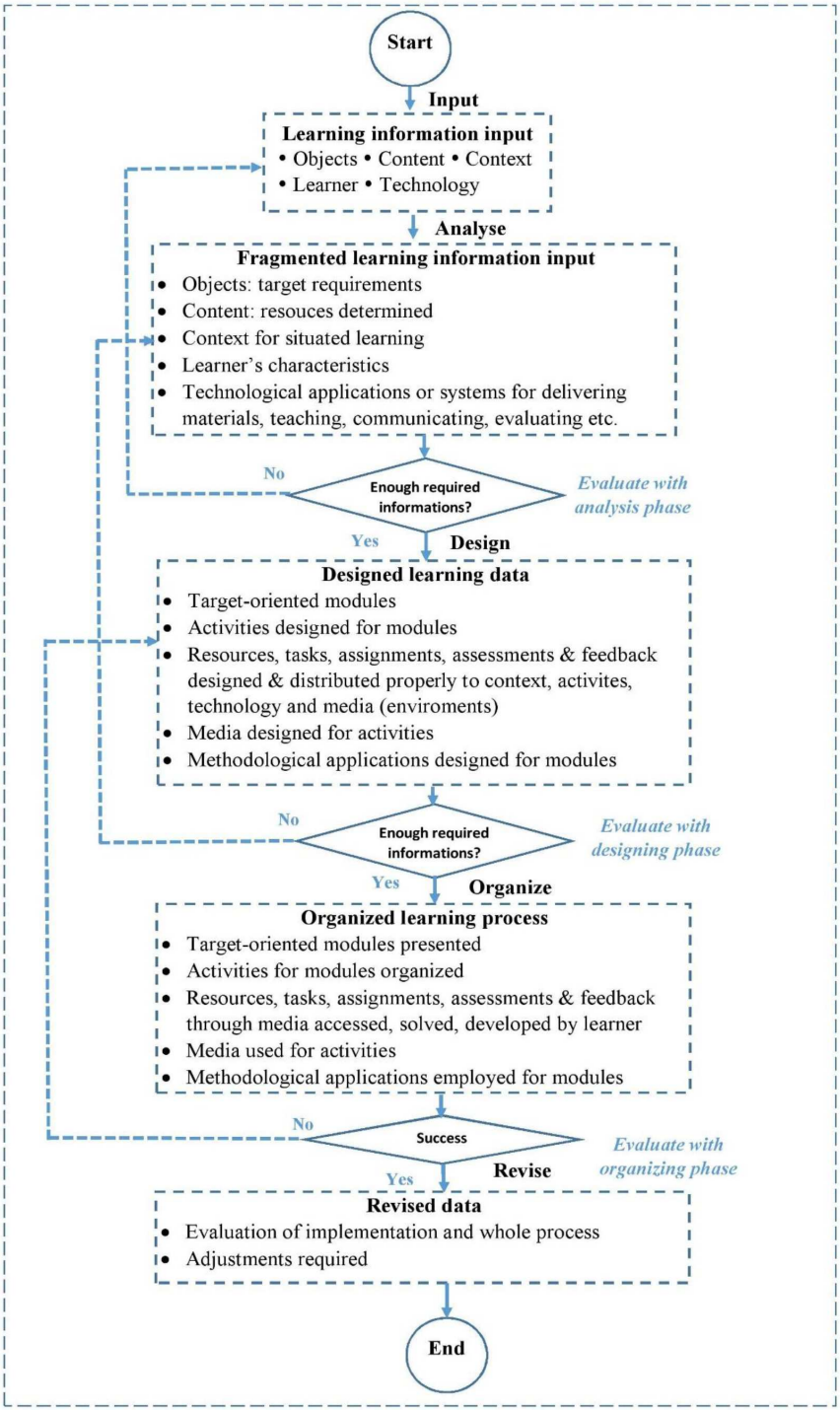

Figure 4. BLC (b-learning controller) framework for teacher

Characters of learners are also evaluated to understand their current capabilities which related to the new knowledge or using technology (using IT (information technology) application in exploring Internet or communicating, for example).

In this phase, technology information is made clear to decide what technological applications or system will be chosen for delivering materials and other activities as teaching, commutating, supporting, evaluating etc.

At the end of this stage, the teacher should examine if there is enough required information for analyzing? If not, he/she needs to return to the stage 1 to seek more data. If right, he/she goes to the next step. This action on the diagram is called “evaluate with analysis phase”.

(3) Designing:the target requirements are converted into the target-oriented modules which were designed to develop the learners’ competencies. A module consists of the tailored content and activities.

The content includes resources, tasks, assignments, assessment and feedback designedand distributed properly to context, activities, technology and media (environments). In this phase, teacher must decide what modality (online, face-to-face or b-learning) suited for activity or set of activities working with the content. The features of context analyzed in the phase 2 should be integrated in the content which makes situated learning. Technological literacy of teacher provides solutions with the help of ITC (information technology and communication). However, these ought to be accordance with learners’ technological literacy.

Depending on the difficulty of knowledge covered by content, the set of activities designed to help the learner go through to reach a destination. Those are the verbs or requirements to accomplish a task, or a suggestion/instructionfor learner doing solely or in pairs or in groups.

The most confused feelings for the designer may be choosing the proper modality for activities and methodological application. This is rather complex than designing in a pure environment. There might be several selections which can be optimized by the experience of the teacher. Nevertheless, the suggested solution may come from the analytical data. For examples, a rich meta-data as video should be divided into small pieces with questions which attached to the online resources for learner studying at home or in class. Meanwhile, observing and instructing may be activities for the teacher. . .

A question may still rise by dividing phases in b-learning. What is a good strategy for that? It had better to put the complex problems for newbie to solve in the medium of face-to-face or mixture instead of online if which seem overloaded/difficult to newbie doing solely or in a virtual cyberspace. The teacher might choose the same conventional medium for designing materials and activities to warm-up or observe practical works.

What more concerned are assessment and examination. One may argue that those need a separated session. In the authors view, those belong to teaching activities. Moreover, formative assessments are preferred to evaluate the improvement of the learner. For that reason, it was taken into the designing phase.

At the end of this stage, the teacher should examine if there is enough required information for designing? If not, he/she needs to return to the stage 2 to seek more analytical data. If right, he/she goes to the next step. This action on the diagram is called “evaluate with designing phase”.

(4) Organizing: in this phase, the teacher organizes teaching/learning based on the designed scenario. The target-oriented modules are presented in the warm-up step of the face-to-face modality (Figure 5) or in the introduction of the online course. All designed activities become realistic.

In contradiction to the 3rd phase, the teachers’ activities are not confined to doing solely but

communicating with learners and observing intercourse between students. The activities are not stuck on the static plan but various lively in different circumstance. Therefore, it needs a flexibility of using methodologies and pedagogy.

During this phase, learners deal with the scenario under the observation of the teacher. They do tasks, assessments etc. solely or in pairs or in groups. They may communicate, collaborate, discuss, disclose, criticize, evaluate… in the modality of convention or online or mixture of them. The learning problems are not solved but developed by students, because they can create resources for the course by applying various methodologies as doing a project, or making a production etc.

The same questions may be awake as the previous phase. The answers are the same. Depending on the difficulties of theoretical and practical knowledge, and learners' current capability, the teacher chooses the suitable modality. Students may feel more comfortable with the presence of teacher as an instructor.

During this stage, the teacher should examine whether process is successful? If not, he/she needs to return to the stage 3 to make a change of schema. It reflects the flexibility of the teaching process. If right, he/she goes to the next step. This action on the diagram is called "evaluation with organizing phase".

(5) Revising: in this stage, the teacher revises the whole process. An evaluation of the implementation has been done from the teacher and the analytic data feedback from the learner. The required adjustments for improving the course are also noted. The data are helpful for teacher to start a new course in b-learning modality.

2.4.2. The BLO (b-learning organized) framework for teacher

This framework is made clear for organizing step of BLC framework. It shows in the Figure 5 bellow

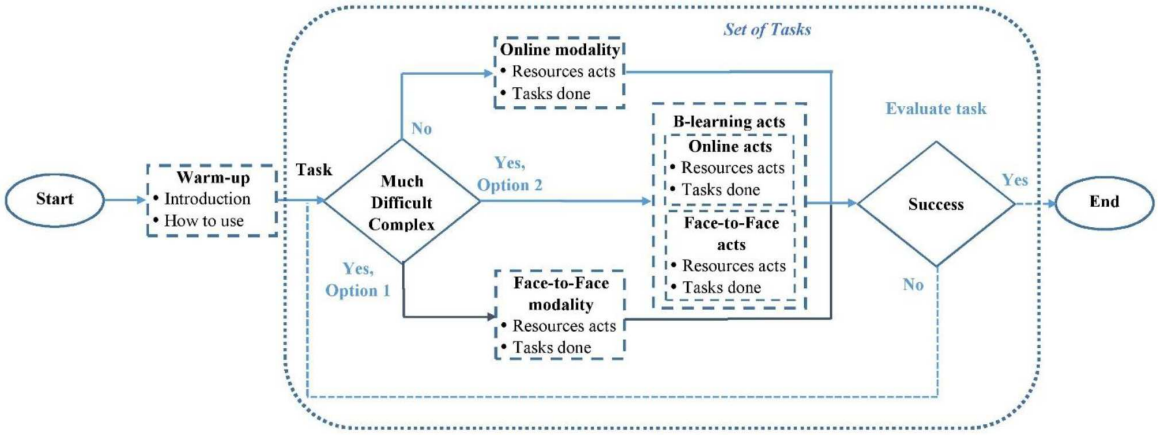

Figure 5. BLO (b-learning organized) framework for teacher

The picture confirms that the teacher can choose the appropriated modality depending on the difficulty or complex of problems/tasks analyzed in the stage 3 of BLC framework. The online modality can be chosen if the task can be solved by learners. Otherwise, the conventional modality or the mixture of modality (b-learning) may be a selection. An example for b-learning is learning in the computer lab where the user can be both studying in the face-to-face medium and doing activities with online resources.

2.5. Discussion

The frameworks were developed according to the design-based approach. One may argue about the applicability of these because of the contradictory between the dynamic teaching/learning and the static frameworks. One more question is how to design properly if the teacher has not enough information about learners (technological literacy, for example). The answer is the post-control plot during or at the end of each step in the frameworks. For that reason, frameworks try to describe a dynamic process by explaining the flexibility in modification of a step with the post-control plot activity. At a high level of using technology, a learner has an e-portfolio which contains the right information. Nevertheless, the teacher can evaluate the learners' technological and related literacy with a quick test or investigation at the warm-up step. The modification is also carried out by the teacher that expressed in term of the post-control plot in the frameworks. In that sense, dynamic teaching indicates formally in the frameworks.

One can dispute about the creativeness of the learner when they follow the designed scenario. Students still have chances in the creative processes which they can contribute to the resource of course as doing a project or making production as required tasks, for examples.

The procedure of instruction is not shown directly in the frameworks. However, the principles of instruction and authentic learning must be concerned in the phases of the frameworks, especially in the designing and organizing phase. Moreover, one can refer other processes as CoI (Community of Inquiry) developed by Garrison and Vaughan [4] to find a guideline for setting a task.

3. Conclusion

The two frameworks (BLC and BLO) were developed on the basis of the first principle of introduction and authentic learning, as well as the design-based approach. The teachers are provided conceptual frameworks and practical guidance before the b-learning is implemented. They should concern about the flexibility of frameworks as a controlled process which serves suggestions for improving teaching plan. The application of these frameworks with the activeness and experience, the teachers is expected to exploit b-learning efficiently. These data also enrich the facts and figures which give a contribution for developing b-learning in both theory and practice.

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