

# Competency Based Learning with B-learning Model

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**Abstract:** Competency - based learning is the new trend in education in Vietnam. This article describes how using the blended learning (B-learning) in teaching some courses for students at Hue University - College of Education (HUCE) - Vietnam, particularly their ability to achieve target competencies. Some case studies have been done to clarify about curriculum, training purposes and skills, models and learning environments are used during the courses. We will discuss the methods used, the results achieved, and the challenges encountered during the implementation process. The results showed that, B-learning facilitates and promotes flexibility, autonomy in the learning process of students and the development of their various competencies.

**Keywords:** Blended learning; Competency -based learning; Project-based learning; Flipped classroom; Online course.



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## 1. INTRODUCTION

Competency Based Learning (CBL) is a common trend of global education, as well as a critical perspective in the fundamental innovation and comprehensive education of Vietnam in the current period. When changing training philosophies, many problems in the CBL as assessment, teaching methods ... are the need arises. In particular, the proposal of a teaching model to apply the advances of new science and technology to improve the capacity of learners is a matter of great concern. Blended learning (B-learning - BL) is a combination of traditional face to face teaching and learning with the help of information and communications technology based on Web technologies, the teaching model is very concerned for improving the quality of teaching and learning. The relationship between B-learning and CBL? How will B-learning support CBL? And through B-Learning, learners will develop the necessary competencies and vice versa how does CBL affect B-learning? That are the questions will be posed in this paper.

In the research content, the discussion of competency - based learning will be presented in section 2.1. Section 2.2 will present the use of B-learning model in teaching some courses: Introduction to Database Management System (Dung, 2015b) and Introduction to Informatics (Hieu, 2015) at the Faculty of Informatics - Hue Pedagogical University towards the learner's ability to promote the objectives competencies of the courses.

Some survey results on the structure and the objectives of the course, the learning process, learning model, learning environment... expressed through issues such as: the methodology; the assessment; the competencies of the learners be gained through coursework; the role of teachers and learners. Besides that, a few discussions about the relationship between B-learning and CBL will be presented in section 3. Some conclusions are given in section 4.

## 2. CONTENTS OF THE STUDY

### 2.1. Competency – based learning

Competency based learning (CBL) in association with an educational movement, which advocates determining educational goals by describing in detail to be able to measure the knowledge, skills and attitudes that learners need to be achieved after the end of the course. CBL can also be understood as a teaching strategy in which the learning process based on the performance-based learning. The student should demonstrate firm knowledge levels through its ability to perform specific actions.

When summarizing the theory of the training approach based on the competency. Paprock pointed out five basic characteristics of this approach (Paprock, 1996).

1. Competency approach based on the philosophy of learner-centered;
2. Competency approach to meet the demands of professional activities;
3. Competency approach is oriented to real life and professional activities;

4. Competency approach is very flexible and dynamic;

5. The competencies at the learners formed explicitly. The competencies are the content of professional standards.

The basic characteristics of this leads to the characteristics of the training according to competency-based approach in relation to the process of personalized learning:

Competency based learning requires to personalize learning. Based on the capacity model, students will supplement the shortage of individuals to perform their specific tasks. Personalized learning can help students achieve the knowledge related to interests and their aspirations. Each student should have an individual learning plan. He should demonstrate the capacity maturity by mastering the learning objectives in their planning, to be able to switch to a higher level. The different directions with the appropriate interactions should be provided just in time that learner expect.

CBL focuses on outcomes. Competencies are transformed from learning objectives, needs to be clearly defined and be measured. Students should be empowered to determine the extent of their competency to be achieved. The learner present their learning goals for teachers, participated in identifying their learning process. With resources and flexible learning environment, learning in and outside the school, with the method of learning, the learning experiences are encouraging for the ranking of the learning goals of learners based on demand, their personal capacity.

CBL creates flexibility in achieving these outcomes, in ways consistent with individual characteristics and circumstances of individuals. Teachers and learners, need to work together in the formative assessment to determine the weaknesses and strengths of the learner. The performance-based assessment can help students demonstrate their capabilities through various ways. Assessment system should be used to assist in the feedback to the learner, with the formative assessment method, the system needs to support tracking the learning process of the learner. The evaluation methods through achievements or projects to be able to monitor and respond to the skills, the difficulties, the strengths and weaknesses ... of learners should also needs to be posed.

CBL creates the possibility to identify clearly what needs to be achieved and the criteria for measuring the results. The achievements of learning should be directed to competencies, including the application and creation of knowledge, along with the development of skills and inclinations of the learner. The focus on outcomes and the objectively measurement criteria of the competencies needed to generate these results, that the views of policy makers of education, training and resource development human especially interested.

### 2.2. B-learning model for competency - based learning

In recent times, we have implemented online courses and carried out teaching Introduction to Database Management System course (Dung, 2015b) and Introduction to Informatics course (Hieu, 2015) on B-learning model. Two courses are implemented online learning with the reasons:

The deployment to online learning for both courses as a consequence of some of our other projects, has carefully prepared the documents, textbooks, learning resources and

resources for assessment as well as deployed on course management system Moodle in Hue Pedagogical University from 2012.

The Introduction Informatics course is deployed for the majority of students in the university. In order to help students to combine face to face and online learning method, in order to improve the ability to access computer networks, the exchange of online tools, the learning means of e-learning.

Both of courses have specific characteristics of subjects in informatics learning, that is both theoretical and practical, both logic and technology ... Moreover, the two courses can easily deploy the project based learning method on projects linked to subjects and practices, such as building small management software, but it has full of basic functions of a database management system.

Objectives and summarize the content of the courses mentioned above can be found in (Dung, 2015b), (Hieu, 2015), (Thanh & Dung, 2015), (Dung, 2016).

The objective of the course was made clear on the course and are detailed in each learning module of the course. Learning outcomes and assessment criteria are discussed with students and be published in detail (Dung, 2016).

We have applied instructional design model ADDIE (Analyse, Design, Develop, Implement, Evaluate) (Wilson, B.G., Jonassen, D.H., & Cole, P, 1993) to design the courses. The details of design process can be see in (Dung & Thanh, 2016). With Moodle course management system, the learning process of the learner is be quite strict management. The number of times participation in the course, the results of the self-assessment, learning activities of learners, as well as participate in interaction: learner- learner, learner - learning resources are tracked. The progression of learners compared with the evaluation criteria also be monitored. This is one of the characteristics of CBL.

With the perception, the process of online learning with e-learning is the process: teaching - self- taught with guidance, we have applied the model of teaching modules and Webquest method, while organizing teaching content of the online courses mentioned above. Each course is seen as a module in the overall curriculum. Large module will be divided into smaller modules. The modular nature of teaching is guaranteed. Teaching - self-study method with Webquest be applied within the organization for students on online learning (Dung & Thanh, 2016).

In order to apply the teaching methods, student-centered and action-based learning. Besides that, in order to help the student strengthen problem-solving ability, learning the knowledge of a database management system through the implementation of a small program but which are practical. Furthermore, the learners are students of pedagogy, they were conscious in their studies, skilled use of computer and communications technology well, have knowledge of teaching theory is quite ... should we have boldly implement flipped classroom model. Teaching process for in-class hours and teaching process that combines face-to-face and online learning, can see in (Thanh & Dung, 2015), (Dung, 2015a), (Dung & Thanh, 2016).

With the project - based learning method and the tools for online course management system, the process of authentic learning and authentic assessment has been carried out (Dung,

2015a).

The clarification of the criteria, clarifying the progression of learners compared with the competency assessment criteria are very difficult to process in traditional teaching. With the support of the tool in B-learning, the process was conducted in a relatively simpler. (Dung, 2016), (Dung & Tung, 2016).

The rationale and details of the implementation of the teaching of subjects in the B-learning model, please see the documents led in this section.

With theoretical basis of interactive learning and through empirical research, we propose a framework framework for interactivity in competency - based learning on B-learning, with the key elements of the framework are as follows:

*Pedagogical philosophy and learning theory:* It is constructivism - interactive learning. Learning is the process of absorbing the increase (or renewal) sustainability awareness and behavior of an individual through interaction with the environment. It is the cognitive theory, learning is the process of changing perceptions.

*Identify the purpose and task of learning:* With the application of modular teaching - self-study and Webquest method to organize the course, along with project - based learning methods and authentic assessment method through reports on products of group projects. Therefore, the purpose and task of learning are clearly stated at the beginning of the course and the learning modules, in introduction part of a Webquest in each module.

*Creating motivation for learners:* Through surveys and interviews with students, we found that in B-learning, to learn well students need motivation really driven competency. Motivation of learning comes from internal of learners. It also comes from learning environment. Through experiments showed that, the components of course to consider when designing courses, a learning environment: Content and structure of the course; The teaching and learning activities are carried out in the classroom; The learning support tools such as glossaries; note... The course is not merely document repository. Moreover, the course needs to be flexible such as accessible unlimited on space and time; takes note to the cultural norms of the academic community; responsive to adaptive learning.

*Tools support cognitive and metacognitive:* tools to support assessment and self-evaluation, to adjust learning processes of learner, see (Dung, 2015a)

*Collaborative learning strategies:* Through experiments, showed that by learning habits to get the score, familiar with the reproduced examination ... so important collaborative learning strategies as: raises the question in the discussion; working group; group games; learning by discussing... is needed to improve for students now.

The following learning activities can be done quite easily on some course management system common: homework and exercises are provided through courses; announcements, links to provide abundance learning resources for learners; multiple-choice questions; group homework; the class discussion; forums ...

The forum with the support of the social network Facebook is an interesting example of the construction of the course have note the to the cultural trends of the learning community.

*The role of teachers:* Teacher is not only conveying knowledge but also the support of teaching, guiding students with responsibilities as outlined proposals - the important focus of the course; motivate, encourage students to read materials and attend classes; Institutionalize knowledge; Control and help the learner in implementing the assignments, the projects and activities in the classroom.

Through the process of implementing the above-mentioned course, we also propose measures to improve the interaction on CBL with B-learning:

- The awareness issues should be linked to practical context to enhance the competency of the learner. Besides teaching with specific instructions to help learners towards competency, IL's perspective recommends embedding the teaching activities and the competency be achieved through the learning of students in the activities of social practices more interactive. Learners need to be placed into practical problems. If the skills acquired in the non-practical circumstances and with the same assessment with the guidance of teachers available. This will create the "inert" competencies and the student will be very easy to forget and hard to do well in their careers.

- Strengthen self-evaluation, self-regulation and enhancing self-awareness of learners.

- Assessment of learning outcomes in a comprehensive manner. The learning outcomes are the integration of knowledge, skills, attitudes and even their qualities. Assessment for learning and assessment as learning.

- State the purpose of learning, the learning activities. Unified evaluation criteria. Learning and assessment needs collaborative between learners - teachers, learners - learners and learners - learning environment. The process is also a process of learning together progress of learners and between learners with the instructor.

- Learning does not stop at knowing, understanding, but also towards applying. Learning through action. Enhancing of authentic assessment.

### 3. THE RESULTS OF RESEARCH AND DISCUSSION

#### 3.1. Some survey results

With a variety of reasons, of which reason is the assessment of learning outcomes between the courses that students follow the teaching traditional method and learning with the B-learning is done in two different ways, with two assessment philosophy is different. So we choose the experimental method by objectives (no controlled experiments).

Survey objectives were:

- Investigating the effectiveness of the use of B-learning model in teaching towards the learner's competencies;

- Assess the changing on perceptions of the learners and the impact on teaching and learning while attended the online course.

We have collected survey data on more than 110 students, some faculty to teach relevant courses through 3 semesters, with data sources such as:

These data are critical of the course consists of curriculum, the final study results, reflected by students.

The survey data through direct interviews and online

survey through questionnaires, with Google Form tool.

We have some of the following results:

Teaching methods have helped make the student become the central character of his learning process, participants implement the objectives of the course through the academic mission of each learning activity designed in each module of the course. Students said that they participate in the project, in addition to the purpose of the score, they also hope to gain practical insights for future careers, such that projects to design and build management software for small management problems, in the Introduction to Database Systems course. Student - 12S1021039 code has said: *"This learning method requires us to work more and thereby know that a lot of things"*.

Most of the survey participants agreed that teaching methods help learners improve their skills to create the group, given the rules of the group, rules of communication, collaborative team ... these are skills operational capacity the group, one of the critical competencies required to form for the current teachers.

In B-learning, learners have many tools to access to many more learning resources. Learners have an interactive learning environment, collaborative learning environment more diverse in online learning process. A more desirable for this method of teaching is the personalized learning of learners, learners need to be studied under a separate process, a unique style in space and time difference. However, in implementing our experience, the desired was just be done the initial idea, because many problems remain of current management mechanisms. Besides that, with the view toward competency, the learner will read and more exploitation of learning resources to serve more practical for their competencies, rather than just reading the summary of the lecture, the gist of the slide ... things like that, there will be much more effective in learning to score. The student has participated in the courses, said that: *"In addition to reading documents and viewing of recorded video of lectures, we understand the concepts of a better way thanks to tools such as creating a glossary or via the examples are practical"*. (Student - 13S1021125 code).

A lecturer has participated in the survey, said that *"The important thing is to make the face - to - face session in class is really mean, which is the class that the learners present the study results as well as the inquiries of them, Teachers institutionalized knowledge and questioning for the next session. Conversely, if the classroom teaching is just a restatement of knowledge, where students have not learned anything, then the blended learning method is the complete failure"*. These difficulties are overcome only when the learner actually learned to develop the capacity of their own. They want to have an inventory, whether it's just a small product, but it is realistic to go in your career.

Through the survey, although time spent on the course of the learners are low, but the results have shown a clearly positively significant in the courses of our experiments. With 5-level scale are: Strongly Disagree, Disagree, No opinion, Agree, Strongly Agree. Through the surveys, the number of agreeing to the following questions are quite high.

C1: Purpose and requirements; themes; learning activities; learning tasks in each of the activities in these courses have been clearly stated (over 70% of the respondents answered agree and strongly agree).



C2: Documentary; Learning situations are rich and useful (70%).

C3: Online course (O-C) has helped improve self-learning; the capacity of information technology application; improve working in group (over 78%).

C4: O-C has helped improve self-assess yourself before the course objectives; students understand the meaning of the assessment; O-C offers a variety of assessment tools more useful than traditional teaching (over 70%)

C5: O-C has help to find out information before and after class hours; help occupy knowledge in classroom hour, to understand knowledge and issues to be addressed in practice (over 72%).

C6: O-C to enhance interaction between the learner and the learner; learners and teachers; learners and learning resources (over 70%).

Some survey questions about group work skills (Questions Yes / No):

Q1: You have a better learning through group activities?

Q2: Do you like to learn from others?

Q3: Do you enjoy discussing different views?

Q4: Do you feel motivated to work in one group, to jointly towards a common goal?

Q5: Teamwork is more effective than individual work?

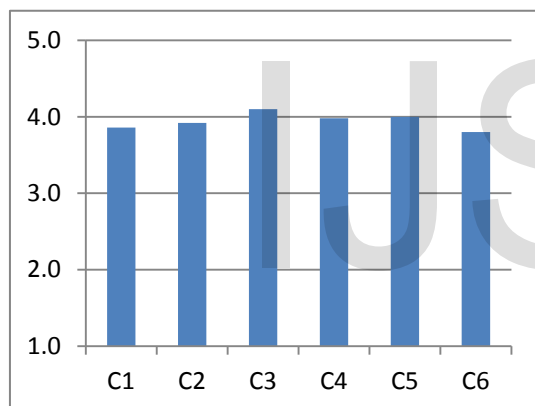


Figure 1: The average score of categories C1 .. C6

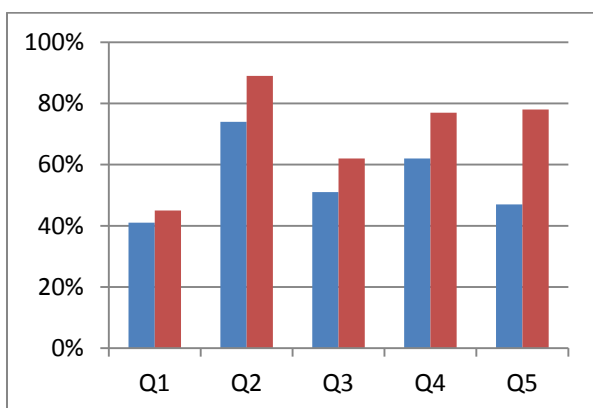


Figure 2: Survey of skills group activities, before and after the course

C1..C6 categories were surveyed with 5-level Likert scale, as mentioned above and is assigned Strongly Disagree: = 1, ... Strongly Agree: = 5. GPA are shown in Figure 1.

Figure 2 shows the change in awareness about group activities of the learner before and after the courses.

Besides that, we have also received some interesting comments as: Interactive learning is useful for learning, but also the idea that interactive in online learning is not effective before an examination style: recorded - copied and reconstruct. They worry in recording lessons; how to assessment. They think that, they had to work a lot of preparation before class and during class hours.

In addition, it should tell out more in CBL, when the learner towards achieving implementation competencies and their professional competencies rather than learning to get the score, then some difficulties in B-learning as the: thanks to another one to do assessment, to access the courses ... are not worth attention.

In B-learning, the learners have the opportunity to apply their knowledge and build skills in the real world. With problem - based learning method is organized through projects, students have the opportunity to transform the knowledge through the integration of essential skills in both inside and outside the classroom. With high interoperability between learners - learners, learners and learning environment, with group activities. Social skills and the expression of attitude emotional of the learner to be expressed and be developed. These factors are important in the formation of personality and culture for their careers.

In the B-learning, the teacher provides adequate support, guidance and motivation to learners. Most students agree that they feel more autonomy in learning. Learners from passive placement deal, becoming more active in the creation of knowledge and improving the competence for themselves.

The questionnaires and survey results can be accessed via the address:

[http://sites.google.com/site/nguyenthedunghue/Home/trang\\_danh\\_cho\\_sinhvien](http://sites.google.com/site/nguyenthedunghue/Home/trang_danh_cho_sinhvien)

### 3.2. Some discussions on the relationship between B-learning and CBL

Based on the characteristics of the B-learning and CBL, as well as the results of the study can be seen B-learning support CBL under the following directions:

With the support of online learning content and course management system, students can learn in a separate schedule. Learners are not bound in the concept of "course / lecture" of traditional teaching. Individual learning progress of students is dependent on the purpose, duration, schedule of them. It is more important that this progress depends on their personal capacity. This is one of the core elements of the CBL.

Furthermore, for the purpose of the request and the learning activities with the task of learning in each learning activity has been clearly stated. With the perception, assessment is not only the learning assessment but also assessment as learning and assessment for learning, in conjunction with teaching methods towards action and solving the problem, along with course management system, the tests appear as required when students are ready to perform, when they have mastered the concepts concerned, which does not depend on a fixed schedule. These will support the learner not only acquire knowledge, skills and

attitudes but also toward perfecting their own competencies.

Next, learning content should be provided in many different forms and highly modular, making the learning process on B-learning into a process of teaching - self- taught with guidance, in order to help people learners can learn in many ways the best school to master academic content. The modularity of the learning content is one of the important components for teachers and learners, to "combine" to form the learner's competencies.

#### 4. CONCLUSION

B-learning is not merely a combination of face to face learning and e-learning but also a form of teaching, in order to personalize learning and towards the competencies of learners.

B-learning is also seen as a pedagogical approach, where the combination of teaching methods in order to integrate the strength and social interactivity of face to face learning with the strengthening of the power of technology, to enhance active learning in online environment, not merely interested in the participation rate to provide information of face - to - face learning and online teaching. In other words, B-learning is not only a change in the structure of the traditional teaching and the enhancement of information and communication technologies. B-learning is not only to provide more computers and learning tools to students, but also the change of the teaching model with features clearly indicate the nature of combined/blended as follows:

- The student - centered, in which learners are active and more interactive.
- To enhance interactive pedagogy environment, including interaction between students - teachers; learners - learners; the learner and the learning environment.
- Integration between formative assessment and summative assessment.

- Integration between theory and practice.
- Integration of teaching methods and forms of teaching.

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