The Study of Using the Asynchronous e-Learning on the Knowledge Management Course

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Abstract: - In this paper, we try to find out the effect analaysis after using the Asynchronous e-Learning on the Knowledge Management Course. We invite one of the night class of the night division of the Chihlee Institute of Technology to attend our program. The Knowledge Management Course is assigned to be the first course using the e-learning Platform that is already set up for the night division students. We would like to find out the study outcome of the using of the asychronous e-learning platform. These outcomes would encourage the school teachers to open more courses on the e-learning platform and provide more convenience for the night class students.

Key words: e-learning, knowledge management, asynchronous

1   Introduction

1.1   Research Background
Due to the time and space advantages, knowledge spreads out fast today. Therefore, the e-learning teaching models are designed all over the world. The government and the schools strongly promote the e-learning model in Taiwan. Many digital industries involve in the e-learning environment, too. Under the platform of the open e-learning teaching modes, there is a center of knowledge interchanging [1]-[4]. This center owns the functions of data collecting and data sharing. This center relies on the platform in seeking knowledge, processing knowledge, storing knowledge, and creating new knowledge finally.

1.2   Research Motive
Long-distance learning becomes popular all over the world. Not only its convenience but its new chance for students to return to school at once. Therefore, we would like to find out whether the asynchronous e-learning method would benefit the students whom belong to the night division in Chihlee Institute of Technology.

1.3   Research Purpose
The purposes of this research are to find out:
i. Whether the asynchronous e-learning method is welcomed in Chihlee Institute of Technology Campus.
ii. Whether the asynchronous e-learning method would bring positive learning effect on the course.

1.4   Research Scope
Our research is constrained. Not only on the geographic, but also the time and the participants.

1.4.1   Research Time
Our research should follow the academic schedule of the Chihlee Institute of Technology. Therefore, out research starts from January 20 2006 to July 31 2006.

1.4.2   Research Target
'Knowledge Management' course is selected to become the sole course by using the asynchronous e-learning method during the research time. And the students who take 'Knowledge Management' would become the participant in our research. Totally, there are 68 participants in this research.

2   Literature Review
This section makes a literature review in the following fields: knowledge management and e-learning.

2.1 Introduction of Knowledge Management

The concept of the knowledge is very wide. It also owns the variety definition. The knowledge management represents various definitions, too.

Knowledge management is to provide the right knowledge at the right time to the right person. The purpose is to help the person to make the best decision. The definition of knowledge management means the organization completely explores and exploits the knowledge assets systematically and accurately [5]-[7]. This helps in raising the efficiency of the organizational work and reaching the maximum return on organizational investment.

Knowledge management is the model of the organization to use the formal channels to pursue useful experience, knowledge and professional ability. This would help the organization creating new ability, raising efficiency, promoting R&A work and strengthen customers' value.'

Nonaka submitted the 'SECI Model'. This model is created by knowledge. This knowledge is transformed by the inner & outer knowledge that explains the dynamically creating and maturing process, see Fig.1.
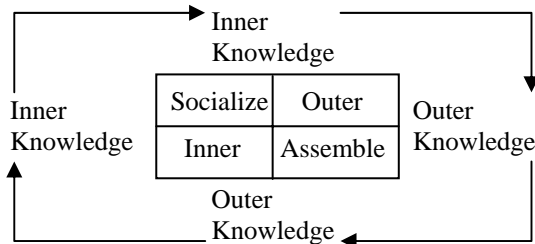

Fig. 1 SECI Model

'Socialize' means to change inner to outer mode. 'Outer' means to change from inner to outer mode. This relies on language and pattern to express thinking and smart skills. 'Assemble' meant to change from outer to inner and assembles the language and pattern. 'Inner' means to change from outer to inner mode and acquires the language and pattern.

2.2 Introduction of e-Learning

The e-learning uses the electrical teaching techniques and allows the learners receive specialists and instructors' knowledge without the constraints of time and spaces [2]-[3]. The e-learning includes the three fields: Related learning contents and goals, using teaching methods (examples and practices) to help learning, establishing the new knowledge and skills those matches the learners' goals [8]-[10].

The three standards of the e-learning are:

i. The on-line learning inter-connected network is created. This network can update, store/access, distribute and share teaching information immediately.

ii. The on-line learning uses the standard internet network technique. It transfers data to the end user through the computers.

iii. The e-learning focuses on the wide-range learning. It exceeds the traditional learning models.

2.2.1 The Characteristics of e-Learning

The characteristics of e-learning are:

i. Providing equal opportunity in education and helping students receive high-quality education.

ii. Eliminating the constraints and interfering on time and space and providing a convenient learning model.

iii. Individual education provides flexible learning model for the students.

iv. Decreasing the learning pressure for the students and emphasizing privacy. Once there is learning problems, discussion can be solved via the computers.

v. The students can join learning programs with foreign students all over the world. It helps in creating the globalization view point.

vi. The ability of self-control is an extra value from this learning model. It also creates the following ability: activity, responsibility, independence, and life-learning [11]-[13].

2.2.2 The Types of e-Learning

The types of e-learning are: multi-type materials, the exchanging channels of learning experience, the virtual learning groups, and professional knowledge provided on network materials. The detailed introduction is listed below:

i. Multi-type Models

E-learning offers the hypertext materials: such as characters, images, music, animations, and videos.

ii. Sharing Channels of Learning Experience

E-learning offers the sharing channels of learning experience. Such as, comment, discussion, chat room.

iii. Virtual Learning Group

The e-learning teaching model eliminates the constraints of time and space. Therefore, there are many learners sharing the teaching materials stored on the same teaching platform. This model creates the virtual learning group.

iv. Professional Providers on Network Materials

The e-learning platform gathers many specialists from different areas. Therefore, this platform stands multi-style materials and comments.

Today, e-learning widens the information sources. It provides the rapid learning channels in this informational world. It provides the information sharing model to decrease the learning expenses. Its professional content increases the learning quality. Its learners-oriented base increases the participating rate.

3 The Research Methodologies

In this section, we would like to submit the research steps and the research methodologies.

3.1 Research Flow

A detailed plan is the key point of research success. Our research flow is listed in Fig. 2.
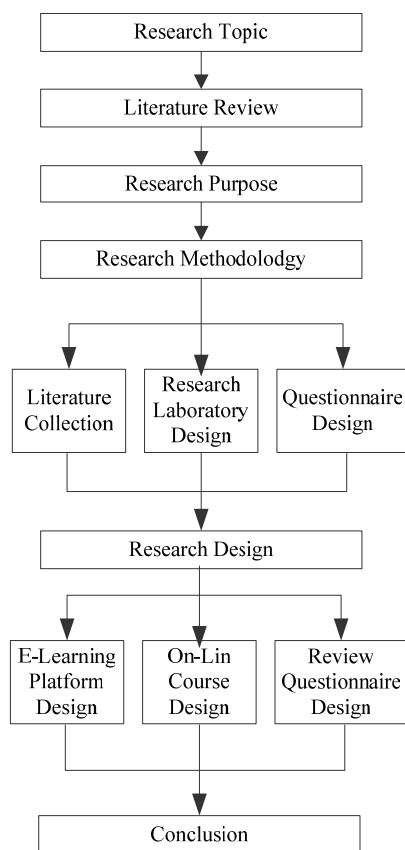

Fig. 2 Research Flow

3.2 Research Methodologies

In our research, we use literature collection, research laboratory design and questionnaire design.

3.2.1 Literature Collection

In the beginning, we focus on various kinds of literature sources. The sources of the literature include various kinds of books, journals, research papers, and educational publications. The result of the literature review is used as the research base.

3.2.2 Research Laboratory Design

Our research is implemented in Chihlee Institute of Technology. This is the first asynchronous e-learning course in this school. Therefore, the following three steps must be prepared in advance.

i. An asynchronous e-learning platform

We set up an asynchronous e-learning platform to implement the research. The e-learning platform includes the following environment: 'Student, Classroom, Teachers' Office and Management'. In order to implement our research, we applied for a 'General Manager' account to go through the complete process.

ii. The On-Line Course Design

In order to implement the asynchronous e-learning successfully, the on-line course plays an important role. Especially, the on-line course must catch the attraction of the students. Therefore, we select 'Knowledge Management' course as the testing on-line course. And we set up appropriate sections and discussion subjects for each week.

iii. The Participants

After we set up the on-line course as 'Knowledge Management', we decide to invite all the students who take the 'Knowledge Management' to join this research program. Fortunately, all the students love to attend this research program and give us a great suggestion at last.

3.2.3 Questionnaire Design

While the semester goes to the end of May 2006, we design a 'Questionnaire' to acquire the evaluation and opinion from all the participants. The 'Questionnaire' is designed into three parts—the students' opinion, the course's review and the e-learning environment' review. There are thirty questions. The effective return rate of the questionnaire is 96%.

4 The Research Design

In this section, we would like to submit the system network planning, the system functional structure and the courses and materials for the Autism students' multimedia digital learning resource platform,

4.1   The e-Learning Platform Design

As we mentioned before, this e-learning platform owns different environments, such as: student, teacher, classroom and management.   Each environment provides different authority for the different users. In this section, we would like to list part of the processing screens are listed in the following Figures (Fig. 3 – Fig. 7):

The Home Page of the e-learning platform shows in Fig. 3.

Fig. 3 The 'Access Screen' of the
Asynchronous Platform

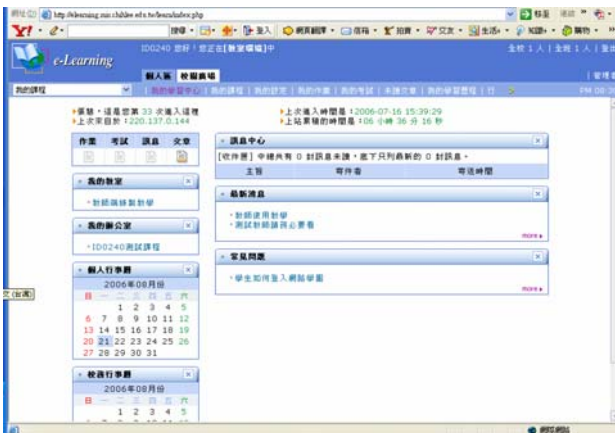The 'Class Environment' page shows in Fig. 4.

Fig. 4 The 'Classroom' Environment of the
Asynchronous Platform

The 'Teacher's Office Environment' page shows in Fig. 5.

Fig. 5 The 'Teacher' Environment of the
Asynchronous Platform

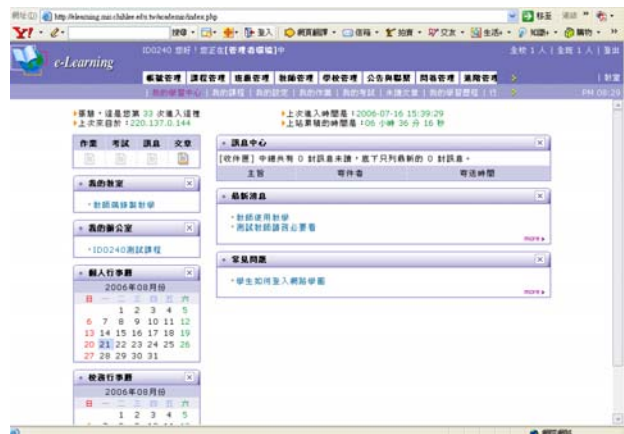The 'Manager's Environment' page shows in Fig. 6.

Fig. 6 The 'Management' Environment of the
Asynchronous Platform

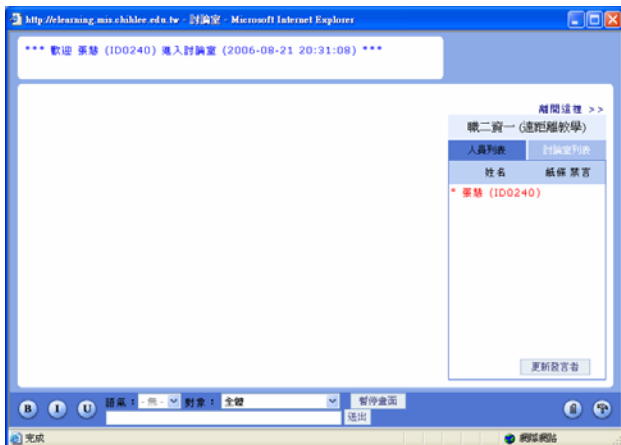The 'Discussion Room' page shows in Fig. 7.

Fig. 7 The 'On-Line Discussion Room' Environment
of the Asynchronous Platform

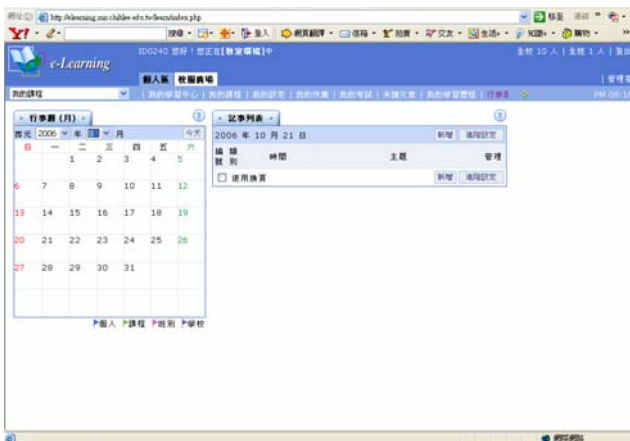The 'School Schedule' page shows in Fig. 8.

Fig. 8 The 'School Schedule Design' Environment
of the Asynchronous Platform

The 'Courses Related Statistical Result' page shows in Fig. 9.

Fig. 9 The 'Courses Statistical' Environment
of the Asynchronous Platform

4.2 The On-Line Course Design

The on-line course is 'Knowledge Management'. The sections of the course are classified into four fields:
i. The 'text' introduction of the course.
ii. The 'case' introduction of the course.
iii. The 'discussion subjects' of the course.
iv. The 'homework' of the course.
    All the fields are scheduled in the syllabus.

4.3 The Review Questionnaire Design

The 'Questionnaire' is designed into three parts—the students' opinion, the course's review and the learning environment' review. Each part contains ten questions. There are total thirty questions in the questionnaire. All the participants are asked to fill out the questionnaire in the classroom at the end of June 2006.

5 Conclusion

After carefully review. We would like to design a questionnaire used to collect data from the participants through our research. The topics of the questionnaire include four different parts: the Students' Opinion topic, the Course's Review topic, the e-Learning Environment's Review and the participants' private data. In this questionnaire, each topic will include 20 questions at least. And the all the participants will be invited to fill out the questionnaire at the same time.

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