Teacher's Information Technology Evaluation and Certification Program System in Kao-Hsiung

Jia-rong Wen[1], Li Chin Wu[2]

Graduate Institute of Information and Education

National Kao-Hsiung Normal University,

Kaohsiung,Taiwan,R.O.C.

jerome@nknucc.nknu.edu.tw[1] , qbi@icemail.nknu.edu.tw[2]

Abstract *¾The major purpose of this study was to develop a certification model and a set of instruments to evaluate IT competencies for teachers. The methodologies for the research include a literature review, Delphi, panel discussion, and questionnaire investigation. The expected outcomes of this study were:(1) the ministry of education will have an accurate assessment of the computer literacy and technology skill levels of their teachers; (2) computer literacy will be promoted throughout the primary and intermediate education levels throughout Taiwan; (3) teachers will be able to use the computer skills that they have learned to enrich their current school curriculum.*

Index Terms ⸺ Certification, Information Competency, Professional Growth of Teachers, Training, License System

1. INTRODUCTION

Internet technology has been growing day by day; it is very important for teachers to have information ability and to use information in teaching for students to propagate learning field. For the trend toward information integrating teaching, through content designing of information certification, system establishment and function spreading, this research takes teachers who teach in elementary and junior high school in Kaohsiung as genie pig to make them apply this all sorts of function of information evaluation system and participate in information ability certification.

2. BACKGROUND

In Taiwan, the Minster of education holds information to enhance teachers' ability. In addition, the Minster of education lists information ability teachers' qualification in information education from July 2001 (Minster of Education, 1998). it also makes norm for teachers' information ability, and offers the plan for teachers' information ability evaluation. Then, the plan is used to evaluate the effect for teachers going to information seminar. It also asks for every city and county according to their demand and division to hold teachers' information ability test. Presently there are 12 counties in Taiwan hold the teachers' information skill test.

Owing to chiefs' supervising in counties and cities, they all

try to enforce evaluation of teachers' information ability. The evaluation is to help raise teachers' information ability. However, the standard concept and method of evaluation of information ability doesn't have complete theory. Therefore, the research with brilliant plan in university is to through literature review. Teachers can use this norm to evaluate themselves and make themselves better. It can offer education to adjust the plan for developing teachers' information ability to develop people to suit for future trend.

3. IMPORTANCE

The implement of information ability certification not only offers teachers to exanimate their information ability but also reveals certain phenomenon as follows:(1) Narrate related information education situation and policy, (2) analyze related information ability or transition of information education system, (3) expect certain society trend or condition, (4) estimate all sorts of information education policy and program (5) assist to design purpose and order of information education and (6) estimate to education phenomenon for administration in school (7) estimate system of information education (8)play a role as a communicative tool for government and teachers (9)offer objective standard for education certification (10)classify education system (11)a reference for distributing education resource Gorth & Chernoff 1986 Shulamn 1987 Andrew & Barnes 1990 .

4. PURPOSE

The plan is to analyze teachers' information ability norm and the effect of enforce evaluation of teachers' information. Then, the research tries to fit to education reform trend with teachers' ability norm and evaluation.

Furthermore, the research is to find the way to develop the test of information ability. We hope analyzing and explaining of plan that will offer certified reference for future education reform and teachers using information into teaching. Meanwhile, the plan is to increase people engaging into education and teachers' information ability. Besides teachers can help develop information education.

5. THE BUILDING AND DESIGN OF THE SYSTEM

The Building and Design of the System. After the compiling and editing of the examination are finished, we will develop the system framework of the information passport certification and start the analysis and design of the system. (According to references related to certification and exploration of investigation reports).

5.1. System Framework

We use 3-Tiered frame in this research, just as the figure 1. The browser of tested teachers is on the Client port. There is a server for logging in and exchanging messages on the middle layer. There are web server, Database Server, and Database to store group user's data and passwords, statistic data, exam question database, and mechanism of giving exams. Besides, this system will use 'WWW' as developing platform to contact the browsers of Web Server and Client through 'HTTP'.
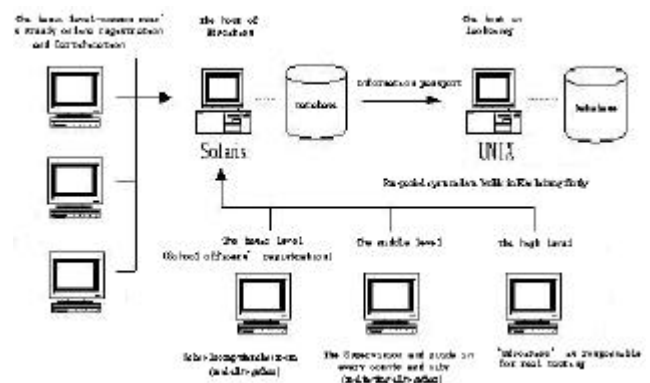
FIGURE. 1

THE SYSTEM FRAMEWORK

5.2. System Process

If a teacher wants to receive information ability examination, he should follow certain process. When a teacher enters this system for the first time, he has to register to gain the ID for later logging in. After that, when this teacher enters this system to start certification, the system will automatically identify the user. Unless the user has had his ID and password, or the system will command him to register before logging in. If a user has logged in this system before, the system will automatically present a user's behavior process of using the Internet, such as the time a user logs in and the process of certification.

5.3. Certification Process

If a teacher starts the information ability certification, he should have the following process. In the basic-level stage, a teacher can freely choose academic subject or technical subject examinations, and he can finish the certification at one time. Besides, he also can be online at anytime and choose certain certification items for tests, without time limit. The system will automatically record tested teacher's certification process. Therefore, this system won't give the question items which has already been tested, and it will imply the teacher who has not yet pass the certification items to receive the tests. When a teacher has passed all the certificated items, the system will show the window for printing the certificate; thus teachers can print out the certificate online as the proof of passing the certification. The lists of recording the teachers who pass the certification will be transferred to 'Edacities' and Kaohsiung

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Bureau of Education, which will officially award the qualified teachers the certificates.
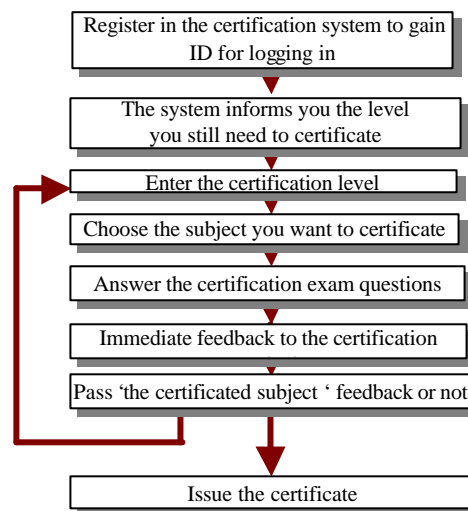

FIGURE. 2

The Certification Process

6. METHOD

The method of this research contains 'content-analyzing method', 'Delphi method', and 'inquiry-and-visiting method'. Explaining these contents and the measurement below in turns:

6.1. Content-analyzing Method

According to the analysis of the documents and the discussion of the group, to confirm the information ability of the teacher including the attainment of information and computer, and so as to use it to evaluate the actual level of teachers' information attainment

6.2. Delphi method

According to the research of the documents, on 26, Sep., 2001, bringing forward the meeting of the subject teachers and the test-territory professors on the issue of implementing the information melt in the subject education at the beginning, to confirm the architecture of this certification test. Based on the architecture, to revise the

question of the test. At the Present, it is on the progress of finishing the early content of the test. We expect, when finishing it, to turn the early content of the test into the professors of the information education territory to proceed with the experiment of the effect of the content of the test.

6.3. Inquiry-and-visiting Method

The inquiry papers are adapted in this research, and get the opinion from the teachers of the sample about the test tools, evaluation index, and system testing on the subject of the content of implement and index, and system test. In addition, these questions are the closure ones.

6.4. System Prototype Implementing Method

This research uses the Prototyping Model to develop this certification testing system of information. Firstly, it analyzes the demand of the functions and users of the system through the analysis of the documents and the discussion of the trend, and the point of other online system of test. According to the above result to proceed with the design of the architecture of the database system, and then develop the module of system. And secondly, to choose a better key function to have an advancing research on the early operative system.

7. RESULTS

7.1. Certification System

This certification system is divided into four degrees, basic, elementary, medium and high-level degrees. The first degree, the basic level, is to popularize, and each teacher can participate the certification system on the website freely. The elementary level is for the chiefs and net-workers in schools to register with their section as a unit, and have the test together in school. The medium level is for a county or a

city as a unit to register and test. The Educities is responsible for the high level test. The methods of the test are planed by this research as the table two.

TABLE I

the certification system and its content of this research

Degree	Content	Type	Examination
Basic	Include the basic ideas and operation of the computers	Closed	Internet
Elementary	Include the ideas about the certification system, working system and how to use the teaching software	Closed	(schools)The information charge-man is responsible for the test
Medium	Include the information network,ommunication, the work of applied software, and how to use computers as teaching tools	Closed	(counties)The chief unit is in charge to have the test.
High-level	Include the application and design of the information, and the design of the computer assisted instruction software and hardware	Closed and open	The examination of the works and test on the spot

In order to popularize this certification system widely, every teacher, school, and organization in counties or cities can register with the name of a person or a unit, log in to pass the test, check the information license, and they can print the license by themselves. The advance stage should be registered on a unit base. And there is someone responsible for having a test together and giving the license in order to strengthen the reliability of the license.

7.2. Certification Mode

The certification mode of the teachers' information abilities has been initially established in the plan of this stage. The establishment of the system and the design of the question bank are developing and testing according to this mode.

7.2.1. The purposes of the certification

The purposes are to understand the information abilities

of the teachers in Kao-hsiung city and to promote the teachers' basic information applied abilities. Also, with the policy of the nine-year integrated education, it needs to merge information into teaching, and the certification can make sure teachers have the basic information applied abilities.

7.2.2. The aims of the certification

This certification system expects that each teacher can have the following capacities: 1. information concept knowledge, 2. information skills, 3. information application.

7.2.3. The procedure of giving licenses

The teachers in Kaohsiung city can log in, practice, and test on the website freely. After passing the test of subjects and skills, they can get the passing licenses.

7.2.4. The items of the certification

This plan is to carry out the basic level in the first period. The main testing items are stated in subjects and skills as the following.

■ **Subjects**

They are tested in three parts information concept knowledge, information operation skills, and information teaching application.

■ **Skills**

They are tested within the information operation skills, including seven parts: keyboard operation, mouse operation, working system operation, word, drafting, browse, and E-mail, etc.

7.3. Ability targets

The targets of the teachers' basic information capacity and its evaluation in the certification system have been established in this stage. We are pre-testing the targets with the sample of the teachers in elementary and junior high schools in Kaohsiung city, and assess its importance and practicability.

7.4. Introduce of the system

We have completed the system establishment and the questions bank on line. The website is http://digschool.nknu.edu.tw. The first evaluation and test of this researching plan has been finished on Nov. 19, 2001. The second test of the system is carried out on Jan. 23, 2002 for carefulness, using the samples from Kan-ha Junior High School. The modification will be in accordance with the results of this test.

8. CONCLUSION

The rapidly changing world in which we live means that what teachers learnt few years and teach today may be out dated. In the field of information education in particular teachers need to compete with time. In order to meet the need of this changing world, teacher's information skills are required. They have to re-evaluate and retrain themselves either with computer technology or using the Internet in teaching. This project provides a fairy nice chance for the teachers and government to know how well the instructors can master the computer. Also it offers the self-assessment for the teachers to make their career trains plan, especially to those middle age teachers who afraid of computer in the past. Totally three thousand teachers out of nine thousand passed the basic level of on-line test in only three months. They may under the help of their friends, for the basic level is aiming at promoting the fundamental commuter knowledge. This also encourages teachers to access to the Internet. We believe that with the help of the administration,

at least 60% of the teachers may pass this basic test very soon. Their continuous participating in the rest three levels of certificating system is expected. All teachers' computer literature may be pulled up when implicating this system nation wild. The provision of continuous training for every teacher were able to make use technologies also adapt their teaching to the need of students and their teaching projects.

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