Development and Validation of Module in Computer System Servicing

Christian A. Fajardo[1]
cafajardo@psu.edu.ph
[1]Faculty, Information Technology Department, Pangasinan State University - Lingayen Campus

Abstract – *The world today is in a state of information age, and due to this advancement in technology, it is expected that computer technology and its utilization will become the foremost medium of information distribution. While many people use computer nowadays, few of them knows how it works in terms of its component and circuitry. Hence, this is an urgency to find out a means on how to expose this knowledge to end – users in a meaningful way and make it easy for everyone to understand how the computer works through the subject Computer System Servicing. Hence, this study is focused on the development and validation of a module for Computer Hardware Servicing. Special features of the module included a comprehensive discussion of each topic supplemented by illustrations for better understanding.*

Keywords – *Module, Computer System Servicing, Module Development*

INTRODUCTION

Many technical vocational education and training schools today are transforming their old industrial arts rooms into modular style learning centers, and teachers are using different strategies in teaching. A current method in use today is the modular approach to instruction wherein the students must follow detailed technical instructions on how to complete activities in the module. According to Daugherty and Foster (1996), the modular approach in technology education is "an exciting, efficient, and effective student-centered means of introducing students to a variety of broad technological concepts". They believe that many of the modules being used encourage the integration of school subjects with technology.

Daugherty and Foster further stated in "The Technology Teacher", that several technology teachers have utilized these many resources and have developed modules that fit to the idiosyncrasies of the teachers, community, and students. This powerful strategy allows the teachers to use professional knowledge to develop what is best for their students and for the individual classroom dynamics. If teachers have the time and ability, a module developed especially for their students is the most effective.

The Philippine Education Quarterly reported that modules can take the place of a teacher. These self – learning devices help pupils to learn or acquire skills, knowledge, and information in the absence of a teacher. These materials provide sufficient reinforcement, enrichment, and source materials. They also allow the learner to work at a rate style and level situated to his capacity.

Among the forms of individualized instruction, the modules are effective and economical in developing specific knowledge and skills, especially in Computer Hardware Servicing for instance. Furthermore, these developed learning and grading strategies, improve classroom management techniques, and encourage achievement for greater use of existing educational resources through the establishment of realistic obtainable learning goals within an individualized program of studies.

Hence, this study is focused on the development and validation of a module for Computer Hardware Servicing. Special features of the module included a comprehensive discussion of each topic supplemented by illustrations for better understanding.

The modules aimed to assist the students in acquiring the technical skills needed for Computer System Servicing. The students are also motivated to

develop self – discipline and critical thinking, as well as teachers, awareness of differences among students' increase. The approach will be useful for the enrichment of the fast learners and for the enhancement of the slow learners.

Furthermore, the approach also contributes to the solution of lack of instructional materials for competency – based training, particularly in Computer System Servicing. It offers each student enough time to study a given concept at his own pace independently. Hence, this study aimed to make competency – based training in Computer System Servicing more meaningful.

OBJECTIVES OF THE STUDY

The primary aim of this study is the development and validation of modules in Computer System Servicing which may serve as supplementary instructional materials for tertiary level.

METHODOLOGY

The Research and Development (R&D) method of research was used in this study. In this study, the output was the developed module an instructional material which can be used to solve the problem of lack of instructional materials in Computer System Servicing subject. The development of the module has undergone four stages namely: (1) the planning stage (2) development of the module (3) validation of the module (4) final revision of the module. The end result of this study is the final copy of the module.

The process taken in the planning stage were the following: course outline of Computer Hardware Servicing they can be also related to I.T. Hardware and Software, determining contents included in the module which we believed the difficult and of great need for the learning venture in Computer Hardware Servicing and I.T. Hardware and Software and obtaining appropriate references and resources. Included in the plan was the integrated of hands-on activities to catch the learner's attention and interest.

The development stage of the developed module comprised of the developing and editing the first draft, developing the second draft and developing the third draft which served as the final copy of the developed module.

The validation was undertaken with the following procedures. Evaluating and establishing the acceptability of the second draft of the module by five (5) teachers/experts in the subject or course relative to Computer System Servicing. The validation was done to ascertain that the lesson does not deviate from the lesson's objective and course outline. In the validation of the second draft, the objectives, content/subject matter, examples, practice exercise, assignment, solve problem exercises and graphics/comic strips was evaluated to its level of acceptability.

In the final revision of the developed module, the suggestions, recommendations, comments and criticisms were considered in the development of the third draft as the final copy of the developed module.

The frequency counts and average mean were used in the analysis and interpretation of the data regards to the profile of the evaluators and determining the level of acceptability of the module.

RESULTS AND DISCUSSION

This topics and contents of the developed module were based on the course outline in Computer System Servicing shown as well as a sample course outline for PC Hardware Technology & Troubleshooting shown in Appendix D for college students as one of their subjects for the Information Technology course. The developed module has 6 lessons. The lessons and sub lessons can be seen in Table 1.

These topics included the basic skills needed by the students to master and pass the assessment test for Computer System Servicing NC – II in TESDA. Alternately, the researcher believes that the topics in this module were the basic skills needed by the students to master the I.T. Hardware and Software (or any similar) subject for I.T. students as aforementioned in the CHED Memorandum No. 25; Series of 2001 entitled "Revised Policies and Standards for Information Technology Education (ITE)".

The topics in the developed module were finalized by the selected I.T. instructors and Computer System Servicing NC – II trainors by checking which of

the suggested topics should be included in the draft. Upon completion of the module, it was validated by the experts based on the level of acceptability.

Topics and Contents of the Developed Learning Module

Lesson Number	Lessons	Sub Lessons
1	Introduction to Computer Concepts	1 Introduction to Computers 2 Computer Systems 3 Types of Computer
2	Basic Computer Components	1 Identifying the Major Components of a PC 2 Identifying the Internal Components of a System Unit 3 Computer Monitor 4 Keyboard Overview 5 Computer Speakers
3	Computer Assembly	1 Tools of the Trade 2 Overview of the General Safety Issues 3 Steps in Computer Assembly 4 Post – Assembly Reminders
4	Fundamental Software Installation	1 Introduction to Computer Software 2 Operating System Overview 3 Preliminary Considerations for OS Installation 4 Understanding the System Requirements for OS Installation 5 Installing Windows 10 6 Installing Device Drivers 7 Installing an Application Software
5	Networking Fundamentals	1 Networking Basics 2 Networking Requirements 3 Making RJ – 45 Cables 4 Setting – Up a Simple Network 5 File Sharing
6	Basic PC Troubleshooting & Maintenance	1 Troubleshooting Basics 2 Common Computer Problems and Possible Solutions 3 Maintaining your PC

Table 1. Topics and Contents of the Developed Learning Module

CONCLUSION AND RECOMMENDATION

In the light of the findings gathered from the study, the researcher arrived at the following conclusions:

1. The lessons in the developed module comprise all the necessary topics in Computer Hardware Servicing for students in the tertiary level.

2. The components of each of the lessons in the developed module met the requirements of a module in the tertiary level as for the standard of both TESDA and CHED in relation to the subject Computer Hardware Servicing.

Based on the conclusions drawn, the following recommendations are presented:

1. Having established the level of acceptability of this developed module which is very highly acceptable; the research strongly recommends this module for try – out to measure further its effectiveness.

2. Teachers should be encouraged to develop instructional materials such as the module, especially on the subjects where most students find difficulty.

3. The development of the module in the other disciplines is recommended.

4. Further studies along this line should be conducted in the region.

REFERENCES

Robles, Andropov P. Development, Validation and Acceptability of Computer –
Aided Modules in General Science for First Year High School Students, University of Rizal System, 2007

Ruguian, Victoria M. Effectiveness of Modularized Instruction in Kinematics, Mariano Marcos State University, 2007

Carigma, Dalisay R. Development and Validation of a Module in Handicraft Technology, University of Rizal System, 2003

Tan, Marcelo E. Development of Modules in Word Processing and Authoring Software, Eulogo "Amang" Rodriguez Institute of Science and Technology, 2003

Caspi, Antonio R. Development and Validation of Instructional Module in Civil Technology for Secondary Schools, Eulogo "Amang" Rodriguez Institute of Science and Technology, 2004