

DEVELOPMENT OF A COMPUTERIZED ENROLMENT SYSTEM IN A RURAL-BASED HIGHER EDUCATION SYSTEM

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ABSTRACT

The purpose of this study was to design a computerized enrolment system for a rural-based higher education institution and to find out its acceptability in terms of construction design and functionality. The computerized enrolment system was developed using the software Visual Basic, an Object-Oriented Programming visualization tool. The result of the study revealed that the Enrolment System is "Very Acceptable" as evaluated by the selected faculty members and staff of the school. In the light of the present findings and conclusions, the following recommendations are advanced, namely, that this enrolment system should be introduced to the school; that it should be adopted by the school to help the staff find records of students more easily and faster and the system should be utilized as a model for future research, especially for technology or computer-related research studies.

Keywords: Enrolment System, Computer Technology, Higher Education, Management, Information System

INTRODUCTION

As we live in an advanced technology world where computers are a big help to all human beings, the discovery of all digital mechanisms has increased from a small gadget to big equipment, which are the products of the work done by well-trained scientists with the help of the advancements in science and technology. As time passes by, those aspiring individuals who want to be acknowledged in the fast-rising technology scene create more gadgets. In addition, they never fail to amaze and satisfy the ever-curious human beings. One of the best and eventually the greatest is the development of Object-Oriented Programming (OOP) Language that has wide application in different industries and research areas (Behera and Tiwari, 2011).

Object-oriented programming was developed at the end of the 1960s, when the nascent field of software engineering began to discuss the idea of a software crisis. It has claimed to promote greater flexibility and maintainability in programming; thus, became the paradigm of choice for software development in the industry as well in the academia (Al-Linjawi and Al-Nuaim, 2010). OOP offers certain advantages over traditional programming approaches that make software easier to build, maintain, modify, and reuse. A good working knowledge of Object Oriented (OO) techniques enables programmers perform simple programs more efficiently and effectively (Wang, 2001). The central idea of OOP is to build programs using software objects. The object is an encapsulation of protected data along with all the legal operations that act on that hidden data (Capretz, 2003). There are several OOP languages such as Simula, Smalltalk, Modula-3, Eiffel, C++, and Java (Malik, 2002).

In higher education institutions, the use of technology in learning systems has been on the rise in recent years. Such technological advancements are utilized in the teaching of some

courses or as a supplement to classroom instruction (Naps et al., 2000; Bravo et al., 2003; Ali, 2011). In some introductory computer-related subjects, the use of visualization tools based on OOP has been developed to facilitate better understanding of concepts among students (Al-Linjawi and Al-Nuaim, 2010; Ali, 2011; Boroni and Clausse, 2011). Aside from using visualization tools and the internet in the educational system, higher education institutions have also utilized these tools to manage information systems (Riad et al., 2009; Ng et al., 2011). These information systems facilitate enhanced data sharing and proper coordination among departments within the learning institution. As such, there is smooth flow of information as well as it is easier to monitor the students' performance in school.

Given the advantages of utilizing information systems in educational management, the aim of the present study was to develop a computerized enrolment system in a rural-based public higher education institution in order to better coordinate and streamline the functions within the organization. This system made use of the OOP tool and the prototype was evaluated by selected faculty and staff members of the institution in terms of its acceptability based on design and functionality.

MATERIALS AND METHODS

Research Design

The descriptive developmental research design was the method used to determine the level of acceptability of the computerized Enrolment System as to its design and functionality. The evaluators were composed of the faculty and staff at Purificacion Dolar Monfort College, a rural-based higher education institution located in the province of Iloilo, Philippines. In this study, a computerized Enrolment System in the said educational institution was developed using an Object-Oriented Programming Language.

The Respondents

The respondents were seven (7) selected faculty and staff of the school. The respondents were chosen according to their capability to evaluate a computer system according to its design and functionality.

Data Gathering Instrument

The instrument that was used to measure the acceptability of the study was a questionnaire-checklist. The items in the questionnaire were divided into two parts. Part I included the personal data of the respondents and Part II contained the rating scale, which includes the category, scale value, and rating.

For every item in the questionnaire, there were five choices with their corresponding rating value: (1) Highly Acceptable, (2) Very Acceptable, (3) Acceptable, (4) Fairly Acceptable, and (5) Not Acceptable. The respondents were asked to put a check mark inside the bracket which corresponds to their responses on the acceptability of the construction design and functionality of the computerized Enrolment System.

In Part II of the questionnaire, the following weights were assigned to every field indicated. Five (5) for Highly Acceptable, four (4) for Very Acceptable, three (3) for Acceptable, two (2) for Fairly Acceptable, and one (1) for Not Acceptable.

Data-Gathering Procedure

Upon completion of the computerized Enrolment System, a questionnaire-checklist was prepared, validated, and conducted with the cooperation of the seven (7) selected respondents. Respondents were gathered in a room and the computerized Enrolment System

was shown and introduced for them to evaluate. Eight (8) items were used to evaluate the acceptability of its design and functionality. The data were gathered, tallied, computed, and interpreted using the scale.

Statistical Tools, Analysis, and Interpretation of Data

The statistical tools used in determining the acceptability of the computerized Enrolment System were by means of getting the weighted scores and weighted mean of the responses towards the different statements about the enrolment system.

The following statistical formula was used in this study:

1) For finding the weighted score:

$$\sum x = \frac{(wf)}{n}$$

where: $\sum x$ = weighted score

w = weight

f = frequency

n = number of respondents

2) For the acceptability of the system:

<i>Numerical Value</i>	<i>Equivalent Rating</i>	<i>Interpretation</i>
5	Highly Acceptable	The system is acceptable without revision.
4	Very Acceptable	The system needs very slight revision.
3	Acceptable	The system needs minor revision.
2	Fairly Acceptable	The system needs major revision.
1	Not Acceptable	The system should be totally abandoned.

To guide in the interpretation of the result on the level of acceptability of the computerized Enrolment System, the following scale was used in the descriptive interpretation of the weighted score and the average of the weighted score.

For Acceptability:

4.21 – 5.0	Highly Acceptable
3.41 – 4.20	Very Acceptable
2.61 – 3.40	Acceptable
1.81 – 2.60	Fairly Acceptable
1.00 – 1.80	Not Acceptable

The results of these statistical treatments provided groundwork for the analysis and interpretation of data. The findings were the basis in making appropriate conclusions and recommendations.

RESULTS AND DISCUSSION

This study developed a computerized enrolment system for a rural-based higher education institution located in the Philippines. The enrolment system was evaluated by a panel of faculty and staff of the institution based on its design and the functionality. Table 1 shows the response on the design of the system. The panel rated the system as “Very Acceptable” in all aspects of the design.

Table 1. Acceptability of the computerized Enrolment System as to its constructive design as evaluated by the selected faculty and staff

<i>Design</i>	<i>HA</i> (5)	<i>VA</i> (4)	<i>A</i> (3)	<i>FA</i> (2)	<i>NA</i> (1)	<i>Weighted Score</i>	<i>Average</i>	<i>Equivalent</i>
The design of the system manifests creativity.	0	7	0	0	0	28	4	VA
The design shows originality.	0	2	5	0	0	23	3.28	VA
The design of the system suits its purpose.	0	3	4	0	0	24	3.42	VA

In terms of the functionality of the computerized enrolment system, the respondents rated it “Very Acceptable” in all areas (Table 2).

Features of the System

The Purificacion Dolar Monfort College Enrolment System contains the profile and information of all students enrolled in the educational institution, for teachers who want to know about the profile and records of students and for students and even alumni who may want to get their transcript of records more easily and faster through this computerized enrolment system. Figure 1 shows the format of the computerized Enrolment System. In addition, it functions like any other system by using the Visual Basic program.

Table 2. Acceptability of the computerized Enrolment System as to its functionality as evaluated by the selected faculty and staff

<i>Functionality</i>	<i>HA</i> (5)	<i>VA</i> (4)	<i>A</i> (3)	<i>FA</i> (2)	<i>NA</i> (1)	<i>Weighted Score</i>	<i>Average</i>	<i>Equivalent</i>
The system’s function meets its purpose.	0	6	1	0	0	27	3.85	VA
The system is stable.	0	0	7	0	0	21	3	VA
The system is reliable.	0	3	4	0	0	24	3.42	VA
It functions like any other enrolment system.	0	6	1	0	0	27	3.85	VA
The system is easy to manipulate.	0	6	1	0	0	27	3.85	VA

System Operation Procedure

The system is very easy to manipulate. Here are some steps on how to use the system. To start with, open the file names of the students in the Documents folder; it will automatically go to the system. Upon opening the system, you can right away start encoding the data of the students in the system. After entering the data, to save the file, click on Add Record, it will

automatically save the data encoded in its database. After clicking on Add Record, a new work space will appear for the next record to be encoded. To recover a student’s record, just click on the Find Record, after clicking it will display the student’s record automatically. In clicking Delete Record, it will erase the selected record immediately.

Parts and Contents of the System

The computerized Enrolment Systems contains the following data:

1. “Student Number” – contains the student’s ID number.
2. “Personal Data” – contains the student’s complete name, date of birth, place of birth, address, phone number, guardian/parents, person to be contacted in case of emergency, address, school last attended, present school year, program and major field of study.
3. “Courses” – contains the courses where the student is enrolled in, its number of units and respective descriptive titles.

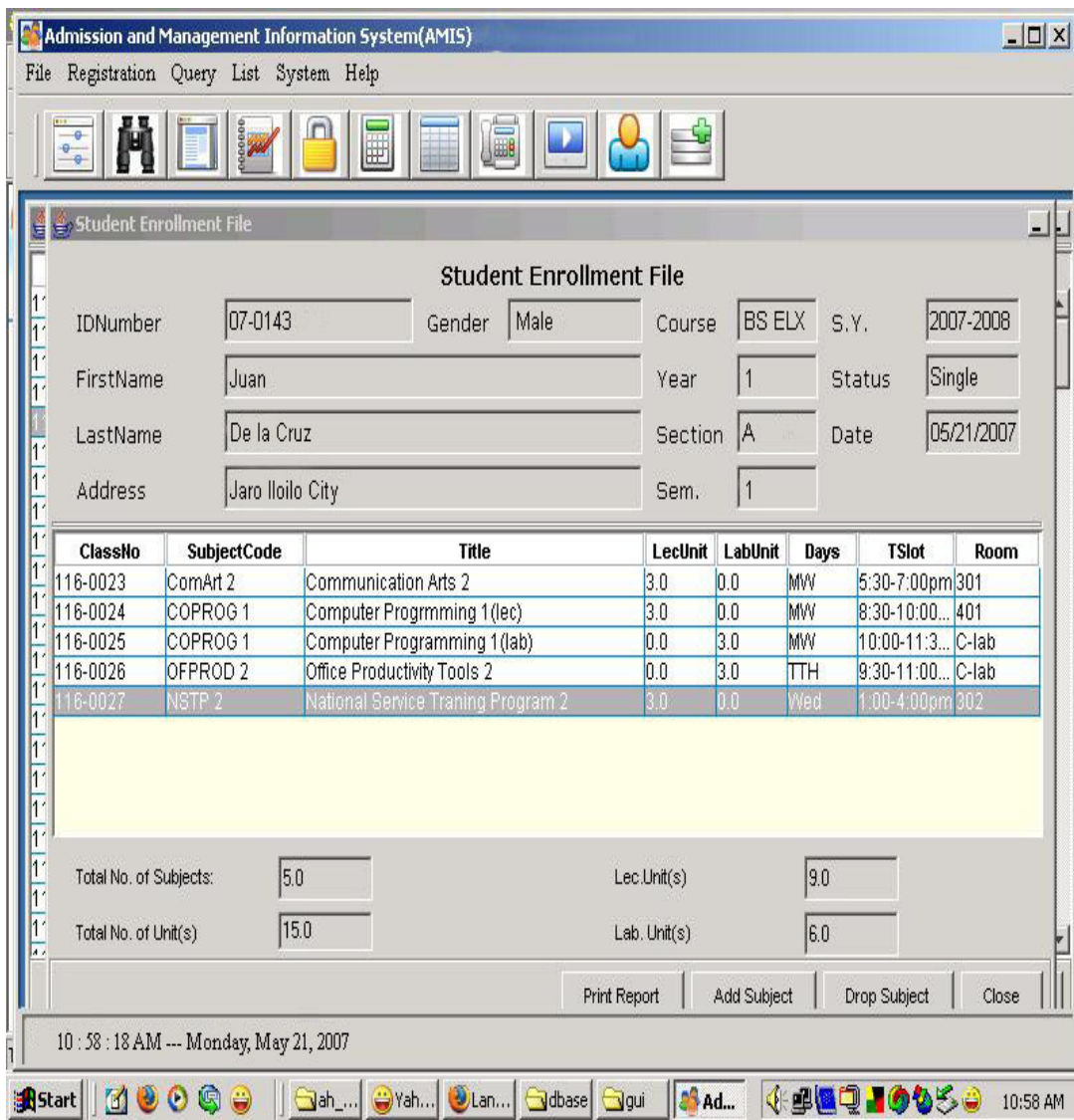


Figure 1. Features of the computerized Enrolment System developed at the Purificacion Dolar Monfort College

Advantages of the System

The following are the advantages when using the newly-developed Enrolment system.

1. Storing and retrieving student's file/record will be easy.
2. The work of the staff will be less strenuous in finding or editing the file/record of a student.
3. Enrolment will be done more easily and faster.

The use of the Visual Basic program has been applied to develop various computer-based system including class schedules (Mom and Enokela, 2012), demographic studies (Sadeghi-Bazargani et al., 2007; Olatubosun and Charles, 2012) and academic information system (Ng et al., 2011). In this study, this particular software was used to make a computerized enrolment system and was found to have high acceptability in terms of design and functionality. Based on these results, a computerized enrolment system for a rural-based institution of higher education should be promoted as this considerably improves the administrative efficiency in the educational sector.

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