
Assessment of Library Users' Problems on Transactional Procedures: Basis for Library Management System Development

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Abstract

This research aimed at assessing problems encountered by library users- librarian, staff, students, and teachers- on the different library transactional procedures as basis for the development and design of a Library Management System for Cagayan State University-Piat in the Philippines. The study utilized the descriptive design in determining the degree of seriousness of the problems encountered by the respondents in using the existing library transactions, and the interventions that can be done to address the problems encountered by the respondents. Findings revealed that the problems encountered by the library users in the manual operations of the library in terms of borrowing, returning and searching library materials are "Very Serious". On the part of the library staff, the issues on security of records, cataloguing, borrowing, returning, searching, inventory of library materials and generation of reports are considered "Serious". Using Waterfall Model, the system was developed with the aid of software and hardware requirements. The library system developed "very efficiently" stored the library records in the database secured with password, systematically classified the materials, save time in entering information of library materials, displayed for duplication of accession numbers, monitored the borrowed and returned books, systematically displayed inventory of materials, and saved time in generating accurate library reports. It can be concluded that the proposed library system can provide better and easier access to the different transactions in the library and provide convenience to the library staff and library users in the different transactions.

Keywords: library management system, transactional procedures, library, cataloging, waterfall model

1. Introduction

The increased development of technologies and the ability of computers to handle difficult tasks has made people's jobs much easier. Organizations, businesses, institutions, and the like must function, transact, and work with computers because of the wonders and conveniences they provide. One place that need computerization is the library.

A library is thought to be the brain of educational institutions. It promotes literacy and education by providing a wealth of information on any subject. It improves the distribution of

knowledge by serving as a collection for reading resources, which maximizes students' personal skill development and academic accomplishment.

There are two (2) types of library classifications. The Dewey decimal classification (DDC) and the Library of Congress (LC). In the Philippines, the DDC is commonly used. The DDC arranges reference materials in the library according to subjects. It also uses decimal numbers in classifying the books in every subject.

Despite the fact that the library catalogue is likely the most significant tool for discovering materials in the library, and regardless of how reference materials are organized and classified, finding books in the library remains a challenge for some scholars. Not everyone knows or understands the Dewey decimal classification, and libraries may have too many reference materials, making it difficult for a researcher to discover a book manually.

A librarian would have a lot of work if they used the manual system of organizing and managing the library. Human mistake is a risk with manual operating systems. For example, a librarian who wrongly indexes a book or misfiles a borrower's data slows down the process and wastes staff time. Manual systems are similarly inefficient. Locating and updating a card index instead of utilizing a computer to issue and return books is slow and arduous. Manual systems are incapable of efficiently storing enormous amounts of data. Manual systems require staff to spend more time on mechanical and clerical work rather than interacting with library users. Automated IT solutions, on the other hand, allow libraries to post current information on a website and allow readers to search it (Daphine, 2013).

Traditionally, library transactions in CSU Piat are being operated manually. This is a challenge for the IT professionals and students who belong in this institution to make a change. A need to have some changes and innovation in the library is to improve its performance and services; to let the library users experience the use of library through IT experience; and to be more computer literate.

Based on the experiences and observations of the researcher on the existing library manual transactions of the library, it is a tedious work on the part of the librarian in managing their daily transactions. The library users also have difficulty in locating the books that they need and in determining whether a book is available or not.

According to Kalin (1991), with computers' ability to handle enormous amounts of data and output in a number of forms, the library has finally come to the user, wherever he or she may be, in the form of an Online Public Access Catalogue (OPAC).

Prior to implementing the OPAC system, the researcher needed to create a library system to increase the library's service quality and performance.

The researcher looked into the current library system in use. The researcher determined the seriousness of the respondents' challenges in using existing library transactions, as well as the interventions that can be made to alleviate the respondents' problems. Based on the information acquired, an automated library system was created to meet the changing demands of libraries.

2. Material and Methodology

The research design employed in this study was the descriptive design describing the assessment of the problems encountered by the respondents on the existing library manual transactions and the proposed library system.

The respondents were the Library staff and the one thousand two hundred one (1201) randomly-selected library users (students and employees).

Two questionnaires floated for the two (2) groups of respondents identified the different problems being encountered by the respondents on the use of the existing library transactions and the respondents' assessment on the efficiency of using the proposed library system.

Other data were gathered through interviews, observations and documentary analysis. With regard to the system development, the Waterfall Model was utilized wherein the whole process of software development is divided into separate cascading phases.

The figure below contains the stages and phase of the proposed Library Management System. It includes the requirement gathering and analysis, system design, implementation, testing, deployment of system and maintenance.

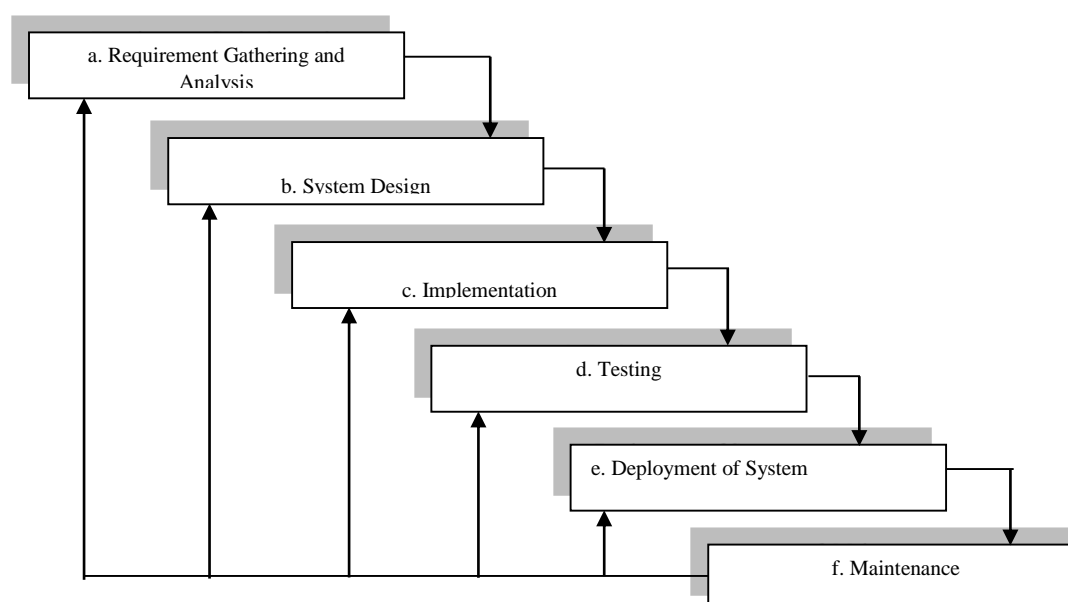


Figure 1: The Waterfall Model

3. Results and Discussion

The problems of the library users on the use of the existing library operations are the issues of borrowing, returning and searching of library materials.

As shown in table 1, the problems encountered on the time consumed in borrowing transaction, the difficulty in locating the books on the shelf and the difficulty in determining whether a book needed is available or not are considered “Very Serious” with weighted means of 3.27, 3.56 and 3.62 respectively. On the other hand, the time consumed in returning transaction is a “Serious Problem” with a weighted mean of 2.56

An overall weighted mean of 3.25 indicates that the problems encountered by the library users in using the existing library transactions are considered “Very serious”.

The findings would imply that the library users do not feel at ease with the existing system due to difficulties encountered in locating a book and whether the book needed is available or not.

Table 1. The Problems Encountered by the Library Users in using the Existing Library Transactions

ITEMS	WEIGHTED MEAN	DESCRIPTIVE INTERPRETATION
Borrowing		
There is much time consumed in borrowing transaction.	3.27	Very Serious Problem
Returning		
There is much time consumed in returning transaction.	2.56	Serious Problem
Searching of Library Materials		
There is difficulty in locating the books on the shelf.	3.56	Very Serious Problem
There is difficulty in determining the availability of the book.	3.62	Very Serious Problem
OVERALL WEIGHTED MEAN	3.25	Very Serious Problem

As shown in table 2, the problems of the library staff on the use of the existing library transactions reveals that security of records, cataloguing, borrowing, returning, searching of library materials and generation of reports are “Serious Problems” while classification and inventory of library materials are “Very Serious Problems”.

An overall weighted mean of 3.14 reveals that the problems are considered “Serious”.

These problems occur as a result of the lack of personnel in the library and records could be misplaced because they are just filed in folders.

Based on the gathered information on the problems encountered by the respondents on the existing library transactions, the researcher analyzed the problems and observed the different processes involved in the library to be familiarized with the flow of the daily transactions.

In order to address the existing problems with regard to library transactions, the researcher developed a proposed library system and presented it to the respondents for a try out.

Table 2. The Problems Encountered by the Library Staff in using the Existing Library Transactions

ITEMS	WEIGHTED MEAN	DESCRIPTIVE INTERPRETATION
Security of Records		
Some library records are misplaced.	3	Serious Problem
Records may not be filed properly.	3	Serious Problem
Classification of Library Materials		
There is much time consumed in classifying the newly purchased library materials.	3.5	Very Serious Problem
Cataloguing		
There is much time consumed in entering information of library materials.	3	Serious Problem
Accession numbers are sometimes duplicated.	3	Serious Problem
Borrowing		
There is much time consumed in monitoring the number of books being borrowed by library users.	3	Serious Problem
There is much time consumed in monitoring the library users with multiple books borrowed.	3	Serious Problem
Returning		
There is much time consumed in monitoring the due date of the book.	3	Serious Problem
There is much time consumed in tracking the borrowers with overdue books.	3	Serious Problem
There is much time consumed for computing penalty charges for overdue borrowed library materials.	3	Serious Problem
Searching of Library Materials		
There is much time consumed in locating the library materials on the shelf.	3	Serious Problem
There is much time consumed in determining the availability of the book.	3	Serious Problem
Inventory of Library Materials		
Inventory of library materials is laborious and time-consuming.	4	Very Serious Problem
Number of library materials is mistakenly counted.	3.5	Very Serious Problem
The number of library staff to perform inventory of library materials is not adequate.	3.5	Very Serious Problem

Generation of Reports		
There is much time consumed in generation of library reports	3	Serious Problem
The generated outputs contain errors.	3	Serious Problem
OVERALL WEIGHTED MEAN	3.14	Serious Problem

Table 3 reflects that the library users assessed the proposed library system as “Very Efficient” on the aspect of borrowing, returning and searching of library materials with an overall mean of 3.74.

The findings implies that the proposed system can fast track the processing transactions needed in borrowing and returning, it helps the library users to locate the books or other materials easily and in determining whether a book needed is available or not.

Table 3. Library Users Assessment on the Efficiency, Functionality, Reliability and Performance on the use of the Proposed Library System

ITEMS	WEIGHTED MEAN	DESCRIPTIVE INTERPRETATION
Borrowing		
The proposed system can fast track the processing transactions needed in borrowing.	3.62	Very Efficient
Returning		
The proposed system can fast track the processing transactions needed in returning.	3.57	Very Efficient
Searching of Library Materials		
The proposed system helps the library staff to locate the books or other library materials easily.	3.85	Very Efficient
The proposed system helps the library staff in determining whether a book needed is available or not.	3.90	Very Efficient
OVERALL WEIGHTED MEAN	3.74	Very Efficient

After the final try out, the efficiency on the use of the proposed library system was assessed by the library staff.

As shown in Table 4, the library staff assessed the proposed library system as “Very Efficient” on the aspects of security of records, classification of library materials, cataloguing, borrowing, returning, searching of library materials, and inventory of library materials and generation of reports with an overall weighted mean of 3.91.

Findings revealed that the respondents appreciated the efficiency and usefulness of the proposed system since the system would permanently store information about the books and other library materials, borrowers, borrowing and returning transactions, and lists of all library holdings that can be easily access when needed.

Table 4. Library Staff Assessment on the Efficiency, Functionality, Reliability and Performance on the use of the Proposed Library System

ITEMS	WEIGHTED MEAN	DESCRIPTIVE INTERPRETATION
Security of Records		
The proposed system can store the library records in the database.	4	Very Efficient
The proposed system is password protected.	4	Very Efficient
Classification of Library Materials		
The newly purchased library materials are systematically classified.	3.5	Very Efficient
Cataloguing		
The proposed system can save time in entering information of library materials.	4	Very Efficient
Error message will be displayed for duplication of accession numbers.	4	Very Efficient
Borrowing		
The proposed system can monitor the number of books being borrowed by library users.	4	Very Efficient
The proposed system can track library users with multiple books borrowed.	4	Very Efficient
Returning		
The proposed system can monitor the due date of the book.	4	Very Efficient
The proposed system can track library users with overdue books.	4	Very Efficient
The proposed system can automatically compute the penalty for overdue books.	4	Very Efficient
Searching of Library Materials		
The proposed system helps the library users to locate the books or other library materials easily.	3.5	Very Efficient
The proposed system helps the library users in determining the availability of the book.	4	Very Efficient
Inventory of Library Materials		
Inventory of library materials can be viewed and printed.	4	Very Efficient
The proposed system can display systematically the total number of library materials.	4	Very Efficient

The proposed system can save time and save administrative effort in performing inventory of library materials.	3.5	Very Efficient
Generation of Reports		
The proposed system can save time in generation of library reports.	4	Very Efficient
The proposed system can generate reports that are accurate.	4	Very Efficient
OVERALL WEIGHTED MEAN	3.91	Very Efficient

4. Conclusions and Recommendations

Using Waterfall Model, the system was developed with the aid of software and hardware requirements. The library system developed very efficiently stored the library records in the database secured with password, systematically classified the materials, save time in entering information of library materials, displayed for duplication of accession numbers, monitored the borrowed and returned books, systematically displayed inventory of materials, and saved time in generating accurate library reports.

It can be concluded that the proposed library system can provide better and easier access to the different transactions in the library and provide convenience to the library staff and library users in their transactions.

It is then recommended that the developed library system be implemented. It is also recommended that the system be tested for its efficiency and the library users be allowed to use the proposed library system until they are already familiar with the flow of the system and may overcome their technological fear. Once implemented, it should also be subjected to advanced studies related to system maintenance and improvement in terms of storage capacity and addition of other important functions.

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