Original Research Article

Elevating Satisfaction: Library System Impact on User Material Access and Satisfaction

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Abstract: This study assessed the level of student satisfaction with the current manual borrowing system of the library in contrast to automation. It employed the quantitative type of research with a descriptive-comparative design. The study aimed to describe the respondents using frequency and percentage distribution. Moreover, the level of satisfaction towards both systems using mean and standard deviation. Moreover, the significant difference of the resulting overall mean used paired t- test. It involved the calculation of the frequency, mean and standard deviation and paired t-test. 235 respondents participated in this study which were identified through the use of stratified random sampling. The study having able to assess the overall satisfaction difference between the two services concluded high significant difference between the two system, with automation having higher satisfaction than the manual system. With the results in hand, the researchers would like to recommend to the school administrator to implement the library's automated system services and to further improve the organization of books wherein they can be more accessible to the library users.
Keywords: Automated Library System, Manual Library System, paired t- test, Library, Services, Student Satisfaction, Descriptive-Comparative, Borrowing.

INTRODUCTION

Technology integration is pivotal in library operations as information explosion necessitates the shift from manual to automated system for efficient management [1]. Specifically, automation is the mechanism crucial to attain the benefits of systematic record keeping, streamlined issuance and return of books and cost effectiveness [2]. Also, library automation maximizes library management and workflow using a software primarily operated by a computer [3]. The expensive, inefficient and obsolete nature of manual systems prompted libraries to adopt an automated system to effectively manage collection, circulation and weeding of library materials [4]. By embracing the idea of automation, effective management is achieved as long as technology is embedded in the library services [5].

Globally, technology enforced a paradigm shift in library distribution services as libraries were enticed by its advantages. In Ghana, the University of Cape Coast made use of automation way back in 2000. The cataloging section first received the treatment and successfully achieved their objectives to make distribution and processing of library books convenient and fast [5]. On the other hand, Tanzania's public university libraries attested how the change of system from manual to automated was able to improve and support the services offered by each library section. A study conducted [6], surveyed 8

public university libraries in Tanzania who partly automated several functions present in the library. The results concluded that 95% of cataloguing was automated while the remaining 5% of automation was for budgeting. Thus, the demand for automation especially in cataloguing services of the library is crucial to reduce repetition of work and increase efficiency in terms of organization and accessibility of card catalogues [7].

In the national scope, the manual library system of Quezon City Public Library contained anomalies [8]. They found out that the manual library system is slow in transacting books and all the data in their manual record can be easily lost. Therefore, they made the decision to computerize the library system instead, for simple transactions and to prevent the loss of all system data. Moreover, the use of the library management system in Llano High School helped in managing and organizing the library process and services [9]. Using the system, the librarian can easily keep track of the books being checked out and returned. Hence, the library workflow becomes more efficient.

On the other hand, a faster and efficient way of borrowing books is what students, teachers and staff wanted. However, one of the colleges in the municipality of Banaybanay, Davao Oriental still operated their libraries manually. As a result, it takes more time and effort to find books that the students need. Thus, automation of the library system was proposed to manage work processes in school libraries. This is to eliminate hassle in dealing with various library transactions including lending and searching for a specific book [10]. In Davao City, one of the big universities completely upgraded their library management system and notice that it is not only the community benefited from the software's ease-of-use, but librarians also noted a distinct benefit as well with improved access to the platform [11]. This means that it is essential for the learners and librarians to have systematic software to function for library management.

Even though automated library systems are being integrated in public university libraries almost everywhere, but not every educational facility has it. In the school where the study is conducted, automation of the basic operations of the library is still not applied which makes borrowing of books inconvenient for both students and librarians. With that being said, the researchers felt the need to automate the cataloguing section along with the book lending services of the participating school to effectively cater the influx of information and large collection available in the library. Therefore, the proponents of this study pursued to address the said

predicaments in the library by integrating an automated library borrowing system.

METHODS

The study was quantitative in nature and used the comparative design since the study integrated an automated library system software. Specifically, it only aimed to compare the average satisfaction scores of the manual and the automated system. This was to measure the level of satisfaction of basic education learners in terms of browsing and borrowing library materials compared to the absence of the automated system. Comparative design analyzes and explicates the differences of the variables concerned making it contextually suitable as the design of the study [12]. The design was applied in order to achieve its objective of determining the efficacy of integrating an automated library borrowing system in improving library management through comparing the resulting average satisfaction scores of manual and automated systems.

The researchers adhered to established study protocols throughout the whole data collection process. First, a letter of permission authorizing the conduct of the study was addressed to the school principal. After securing permission, orientation activities were conducted to help prospective participants understand the study. Interested participants were then determined and listed after the orientation activity. Only then were informed consent forms given and collected accordingly. If the participant was a minor, they were also given a parent consent form. That participant could only partake in the study if a parent or guardian affixed their signature, consenting the minor to participate. After receiving the forms, survey questionnaires were handed out to the respondents. After giving them ample time, the answered questionnaires were collected and analyzed.

On the other hand, developing the software started with a plan. This included a data flow diagram, which served as the blueprint of the software for its commands and functions. Data modeling was also done for the database. After generating the necessary blueprints, the researchers then collected the raw data needed for the database. They first gave a letter of permission to the principal and then to the school president, granting access to basic information necessary for software development. After securing their permission, a letter was then given to the librarian and the registrar, granting the collection of library user data and book data. Having obtained the necessary information, the database of the software, which must contain the information of library users and books, was created. Data was transferred and stored in the database

along with its creation. Meanwhile, for the software interface, the researchers started to code for the front end and back end. The software was then finished after debugging and successfully running the code.
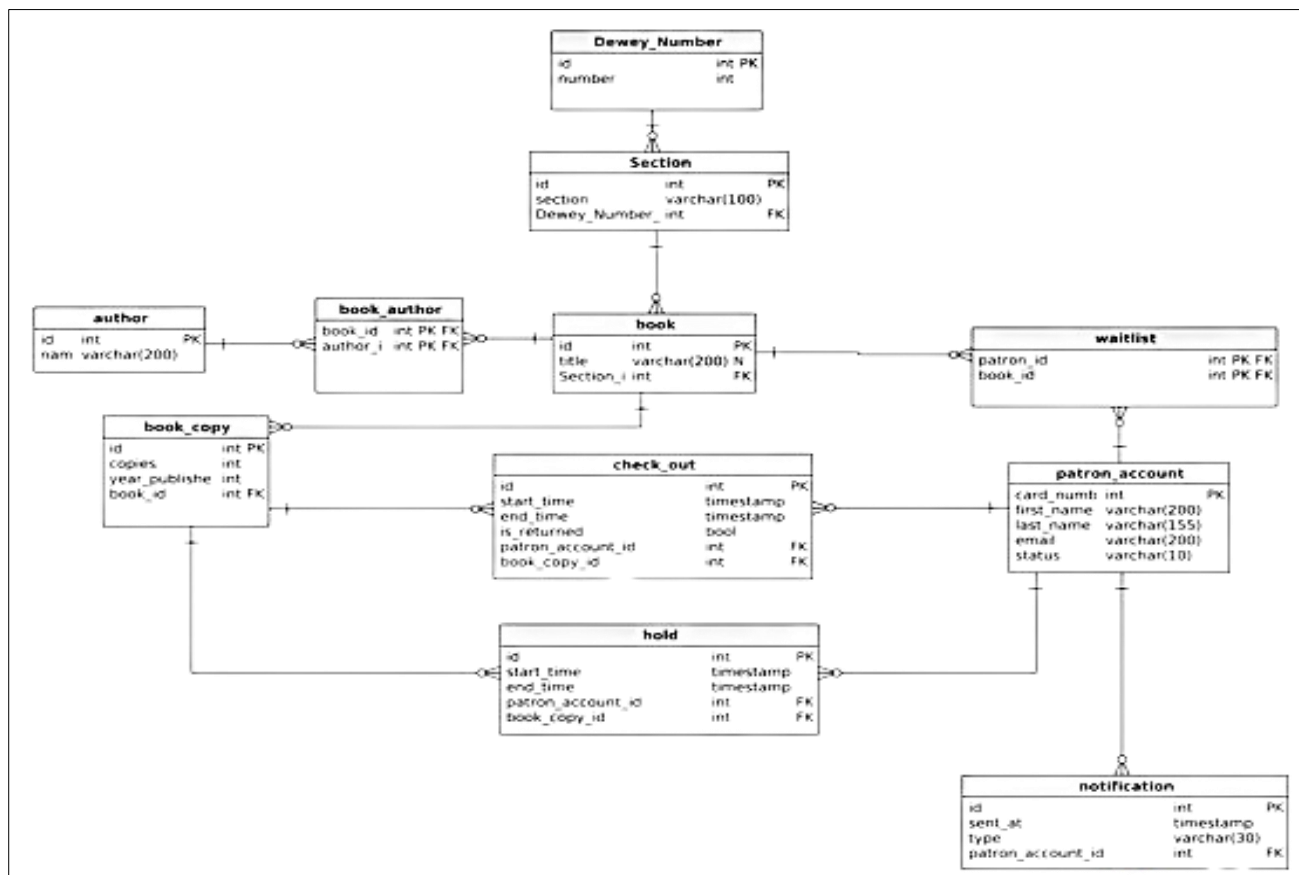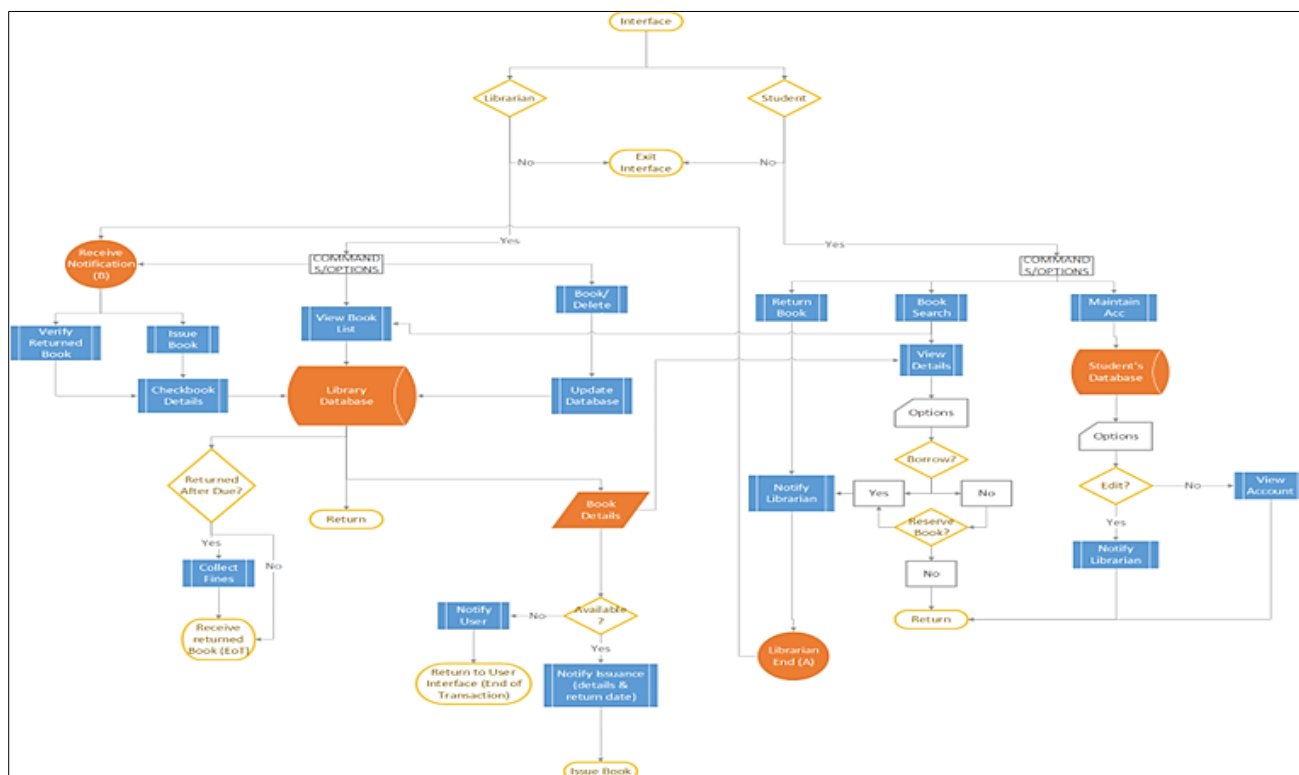

Figure 3: Database Modelling Diagram

Figure 4: Data Flow Diagram for Library System

RESULTS AND DISCUSSION

Table 3: Demographic Profile of the Respondents

Sex	Valid	Frequency	Percent
	Female	175	74. 47%
	Male	60	25.53%
	TOTAL	**235**	**100%**
Age	13 -15	51	21.71%
	16 - 19	181	77.02%
	Unidentified	3	1.28%
	TOTAL	**235**	**100%**
Year Level	9	33	14.04%
	10	32	13.62%
	11	92	39.15%
	12	78	33.19%
	TOTAL	**235**	**100%**

Table 3 displays the demographic profile of respondents categorized by sex, age and year level with 235 respondents. With regard to sex, 175 were female with a percentage of 74.47% from the total respondents and 60 of the respondents are male having a percentage of 25.53%. From the results of profiling, it can be inferred that most library users are female in comparison with males.

As for the age, 51 of the respondents' answer ranges from 13 - 15 (21.71%) of the sample population. For the 16-19 age bracket, there are 181 responses (77.02%) and 3 (1.28%) are unidentified having a total number of 235 responses. According to the data, it can be deduced that most respondents falls in the 16-19 age bracket. It is then followed by the age range 13-15 with the least number of respondents neglecting 3 unidentified ages. In terms of year level, 33 (14.04%) of the respondents are grade 9, 32 (13.62%) of the respondents are grade 10, 92 (39.15%) of the respondents are grade 11, and 78 (33.19%) of the respondents are grade 12. Accordingly most respondents are grade 11 having

the largest number, followed by grade 12, grade 9 and lastly grade 10.

The results of profiling of respondents with regards to sex contradicts the study of [5], entitled "Establishing Clients' Satisfaction Levels with Automated Library Based Services: A Case Study at University of Cape Coast Library, Ghana" where 70.8% of their respondents were male and 29.2% are female implying that males are heavy users of library resources [5].

With regards to the age of respondents, it portrays similar results to the study entitled "A Study of Students' Satisfaction with Resources and Services in School Libraries in the Punjab, Pakistan" where in majority of their respondents were ages (13-14) in between the given age range (11 - above 16 years old) [13]. In the case of the results from the data in the table, 16 - 17 years old, which is the largest age group who are respondents of the study, is in between the study's data range of 13 - 19 years old.

Table 4: Level of Satisfaction of Library Users of the Library Manual System

Profiling		Mean	Standard Deviation	Description	Interpretation
Sex	Female	3	1	Maybe	Neutrally Satisfied
	Male	3	1	Maybe	Neutrally Satisfied
Age	13 - 15	3	1	Maybe	Neutrally Satisfied
	16 -19	3	1	Maybe	Neutrally Satisfied
	Unidentified	2	1	Agree	Satisfied
Year Level	9	3	0.9	Maybe	Neutrally Satisfied
	10	3	0.59	Maybe	Neutrally Satisfied
	11	3	0.68	Maybe	Neutrally Satisfied
	12	3	0.76	Maybe	Neutrally Satisfied

Table 4 displays the user's satisfaction with the library services. Specifically, males and females have an equal resulting mean of 3 on their satisfaction with the manual system of browsing and borrowing

services with a standard deviation of 1 for both sexes. This means that both males and females were not sure if they were satisfied or not and the variability of their answers are low.

With regards to age, the resulting mean of 13 to 15 and 16 to 19 are both 3 with a standard deviation of 1, agreeing that the manual system meets their satisfaction. This indicates uncertainty about their satisfaction level with the manual services and low variability of answers. The majority of the ages are undecided about their satisfaction with the manual system services of the library while the ages marked as unidentified has a mean score of 2 with a standard deviation of 1. With regards to year level, which is composed of grades 9-12, the satisfactory level of the manual system services results in 3 or "maybe" with a standard deviation of 0.9, 0.59, 0.68 and 0.76 respectively in increasing year level highlighting the inherent complexity and uncertainty often present in scientific inquiry.

From the given data above, there are similar findings that interpret that both sexes provide identical results on how they comprehend their satisfaction level of the manual service. According to [13], the distribution of mean results for males is 28.285 and 29.159 for females. This indicates that there is a short gap between the satisfaction levels of manual systems based on their sex.

In addition, in terms of age and year level, the resulting mean is nearly similar to the study about the satisfaction of teens ages 13 - 18 years old towards manual library services [14]. The overall satisfaction of teens in the school of the library services garnered the highest resulting mean of 3. 96 respondents. According to their mode and table of interpretation, the given study has met the satisfaction of the library users. However, the results presented above have a mean of 3 meaning neither satisfied nor dissatisfied and may have the tendency to increase and reach satisfactory same with the study used for cross referencing or the other way around.

Table 5: Level of Satisfaction of Library Users with the Automated System

Profiling		Mean	Standard Deviation	Description	Interpretation
Sex	Female	1.71	0.56	Strongly Agree	Very Satisfied
	Male	1.94	0.60	Agree	Satisfied
Age	13 - 15	1.63	0.58	Strongly Agree	Very Satisfied
	16-19	1.81	0.58	Agree	Satisfied
	Unidentified	1.63	0.35	Strongly Agree	Very Satisfied
Year Level	9	1.71	0.54	Strongly Agree	Very Satisfied
	10	1.48	0.53	Strongly Agree	Very Satisfied
	11	1.85	0.64	Agree	Satisfied
	12	1.81	0.51	Agree	Satisfied

Table 5 shows the level of satisfaction of library users in using the automated system of the book borrowing and browsing services offered by the library in terms of sex, age, and year level. In terms of sex, the satisfaction of the male respondents has a mean of 1.94 with a standard deviation of 0.60 while the female respondents have a mean of 1.71 with a standard deviation of 0.56. Although the female respondents accumulated a lesser mean than the male respondents, such results indicate that both male and female respondents have an average level of satisfaction on the automation of the library services.

In terms of year level, the grade 9 respondents' satisfaction has a mean of 1.71 with a standard deviation of 0.54. In contrast, the grade 10 respondents have a corresponding mean score of 1. 48 with a small gap in standard deviation of 0.53 compared to grade 9. Moreover, the satisfaction of the grade 11 respondents has a corresponding mean of 1.85 with a standard deviation of 0.64 which is the highest value for the standard deviation among the year levels. The grade 12 respondents, on the other hand, have a mean score of 1.81 with the least standard deviation value of 0.51 compared to other year levels. These results imply that grade 10 respondents have a higher level of satisfaction among all the grade levels. This is followed by the grade 9, 12, and 11 respondents. However, based on the table of interpretation, the mean score of all grade levels shows that the respondents have a high to average level of satisfaction with the library regardless of grade level.

The mean satisfaction scores for respondents of age 13 - 15 is 1.63 same as well with the unidentified ages with a standard deviation of 0.58 and 0.35 for each of the bracket respectively interpreted as very satisfied. On the other hand, respondents of age 16-19 have a mean score of 1.81 and a standard deviation of 0.58 interpreted as satisfied. However, despite these age-based differences, the overall interpretation of the satisfaction scores indicates that respondents generally have a high to average level of satisfaction with the library, regardless of age.

The satisfactory results of respondents from the data in terms of sex align with the study about the impact of automation on users' perception of GCU Library Faisalabad library services [15]. The study

reported high and almost the same mean scores of male and female respondents. This means that both are highly satisfied with the library services being automated.

Meanwhile, the satisfaction level of ages 18 - 19 and above is contradictory to the trend exhibited by undergraduates of the same age in the study regarding the overall experience of digital library use [16]. The study found that graduate students' satisfaction with digital libraries is significantly higher than undergraduates, with over 80% satisfied compared to 60% of undergraduate respondents. Notably these results are aligned with the resulting mean of grades 11 and grade 12 of age considerably undergraduates who were satisfied enough with the rendered automated services in the library.

Table 6: Difference in the Satisfaction Level of Library Users when Using the Manual and Automated System of the library service

	Mean (Manual)	Mean (Automated)	t value	p value	Description
Variables	3	1.77	15.76	2.78049E-39	**Significantly Different**

The disparity between library patrons' satisfaction levels with the automated and manual system for the book borrowing services offered by the library is shown in table 6. The paired t-test resulted to a p value of 2.78049E-39 which indicates a high significant difference between the two. Specifically, from the overall mean score, the automated system garnered the lower number of mean (1.77) which means higher satisfactory rate than the manual system which garnered a mean of 3. Thus, there is a higher satisfaction with the use of automated systems than the manual system in comparing the overall mean of the two variables and the resulting significant differences of the data.

The data aligns with a study [17], which examined the effects of automation on library management services in four management institutes in Aligarh, India. The study found that most professional librarians believe automation has improved library services, while 85% of library users believe automated systems are superior to traditional manual systems.

CONCLUSION

Specifically, the results showed that manual borrowing system have an average level when it comes to the satisfaction of the students, and high level of satisfaction when it comes to the automated borrowing system of the students. With this the researchers of this investigation accept the alternative hypothesis which stated that there is a significant difference between the level of satisfaction of students in book and borrowing services offered by the library using the manual and automated system. Considering that there is a substantial difference between the two variables of the study, it can be concluded that the automation of the borrowing system inside the library is one of the ways to improve the library services.

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