

**Information and Communication Technology Use  
and Library Users' Satisfaction in Public Universities  
in Edo State**

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**Abstract**

*This study investigated the influence of ICT use by librarians on library users' satisfaction in public universities in Edo State. The research identified the level of library users' satisfaction, examined the level of ICT use by librarians, and determined the influence of ICT use on library users' satisfaction. The research provided insight into the use of ICT by librarians in relation to library users' satisfaction within Edo State. The models adopted were Expectancy-disconfirmation and Technology Acceptance Models. The descriptive survey research design was adopted. The population of the study is 12,400 library users. A sample of 388 library users was used, and the sampling technique adopted was the simple random sampling technique. The structured questionnaire was the instrument for data collection, and data was analysed using descriptive and inferential statistics. Findings showed that library users were satisfied with service delivery of librarians, library users perceived that librarians highly use ICTs. Findings also revealed that ICT use influenced users' satisfaction ( $R^2 = 0.448$ ;  $F = 250.565$ ;  $p = 0.001$ ). The research concluded*

*that library users rarely patronise the library, despite the high ICT usage skills. The research recommended that librarians should embrace the use of ICTs in order to render effective and efficient services.*

**Keywords:** User satisfaction, service delivery, ICT, expectancy disconfirmation model, TAM

### **Introduction**

Library users' satisfaction is paramount to the survival of any library in this century. Over time, libraries changed focus from being collection-centred to user-centred. The whole idea of library user satisfaction as posited by Zhang, Wang & Lili Zhao (2021) is necessitated by the fact that library users are in need of timely and accurate information. Library users' satisfaction is becoming more sophisticated, but the availability of affordable ICTs provides an increased opportunity to reach out to the library patrons, (Aiyebelehin, Ikenwe, & Okpetu, 2017).

ICT use varies and depends on the purpose for which the technology was invented. As in other professions, librarians use ICT for a lot of routines tasks. It is easier to use technology for routine tasks that are repetitive; Tamil, Manalan & Raja (2019) noted that ICTs like robots can be used for repetitive tasks like shelving, shelf-reading, accessioning, book finishing. Hence, this that the research seeks to investigate how ICT use by librarians can affect users' satisfaction.

### **Objectives of the Study**

1. identify the level of users' satisfaction of library patrons in public universities in Edo State;
2. examine the level of ICT use by librarians in public universities in Edo State;
3. determine the influence of ICT use by librarians on users' satisfaction in public universities in Edo State;

### **Research Questions**

1. What is the level of users' satisfaction of librarians in public universities in Edo State?
2. What is the level of ICT usage by library patrons in public universities in Edo State?

### **Hypothesis**

H<sub>0</sub>: There is no significant influence of ICT use on users' satisfaction of librarians in public universities in Edo State.

### **Conceptual Reviews**

#### ***Users' Satisfaction***

Service is the act of helping out in doing a work for someone or for the general public. Services could range from those unsolicited for and freely given, to those rendered at a fee. Okwu & Okon (2021) noted that the services rendered in libraries and by librarians are often free of charge, as the library is seen as a social institution established to serve the information needs of the society. We should however note that, as averred by Shittu (2020), many businesses and entrepreneurs render services for a fee, because they handle it from the profit making perspective. Whether a service is solicited for or not, free of charge or paid for, a service is expected to make the recipient better off than before receiving such service, thus leading to the user's satisfaction (Filho, 2019).

#### ***Information and Communication Technology Use***

ICT is any tool or machine that when applied to accomplish a task, makes the task easier. It is the application of knowledge to solving the practical challenges of humans. ICT basically helps to ameliorate the sufferings and hardship of humans in the society (Mlambo, et al., 2022). These ICTs, as noted by Panda (2021), may range from simple machines like the mobile phones or complex ones like the mainframe computers, databases or the Internet. Yang, et al. (2022) posited that

ICTs have successfully permeated all facets of human endeavours, from healthcare to education, from commerce to tourism, from governance to users' satisfaction. That is to say, in our day to day activities, we make use of one form of ICT or another, either simple or sophisticated. With the application of ICTs to daily routines, Choudhury, Rahman & Barooah (2018) opined that humans are able to easily navigate their activities with less effort and less stress.

### **Theoretical Framework**

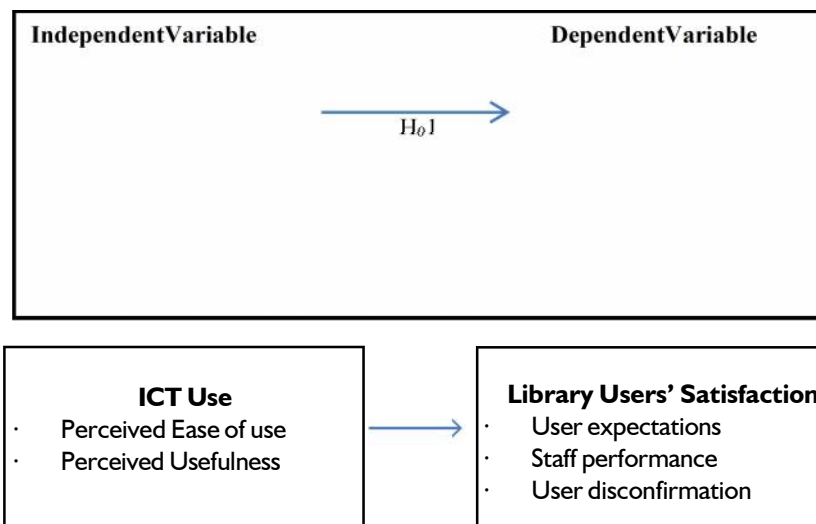
#### ***Expectancy-Disconfirmation Model (EDM)***

Expectancy Disconfirmation Model (also commonly known as Expectation Theory) is the most widely accepted theory concerning customer satisfaction processes. The theory was propounded by Richard L. Oliver in 1977 and further developed in 1980. The model was originally developed in consumer behaviour research, and the main idea of the model is that satisfaction or dissatisfaction is a function of both referent and perceived performance; typically, expectation, provide referent against which people asses performance (Zhang, et al., 2022).

The theory holds that satisfaction/dissatisfaction results from a customer's comparison of performance (of a product or service) with predetermined standards of performance. According to the view, the predetermined standards are the customer's predictive expectations. Three possible outcomes of the comparison are possible. Positive disconfirmation occurs when performance is perceived to be better than the predetermined expectations; in this scenario, customer is delighted. Zero disconfirmation occurs when performance is perceived to be exactly equal to expectations; customers are likely to be satisfied. Finally, negative disconfirmation occurs when performance is lower than expectations, of course, negative disconfirmation leads to dissatisfied or unhappy customers. The theory involves four primary constructs: user expectations, staff performance, user disconfirmation of beliefs, and user satisfaction.

The Expectancy-Disconfirmation model is useful to this research because it gives a clue to what affects library users' satisfaction during a service delivery process, taking into account the four constructs of user expectations, staff performance, user disconfirmation of beliefs, and user satisfaction. It is necessary that librarians find out what affects library users' satisfaction in service delivery and thus try to meet up with the demands of library users.

### Conceptual Model



**Figure 1: Conceptual model of library users' satisfaction and ICT use Solomon & Adeyeye (2023).**

### Methodology

The descriptive survey research design was adopted for this study. The research was a cross sectional survey, generating one-time-only data. The population of the study consist of the 12,400 library patrons who are recipients of the library services. The sampling techniques adopted for this study was the simple random sampling technique, the sample size was calculated using a formula by Bacon-Stone (2022).

$$n = \frac{N}{1 + N * (e)^2}$$

$N =$  Sample Size;  $N =$  Population = 12,400;  $e =$  acceptable error limit = 0.05

To ensure equal representation of the three institutions, the sample size for each institution is gotten, using the formula given in the below (Bacon-Stone, 2022).

$$a = \frac{\Delta}{N} * n$$

$a =$  sample size for each institution;  $\Delta =$  population of each institution

**Table 1: Sample Size**

University Library	Registered Library Users	Actual Library Users	Sample Size
John Harris (Uniben) Library	30,000	7,000	219
Ambrose Alli University Library	20,000	5,000	156
Edo University Library	1,200	400	13
<b>Total</b>	<b>51,200</b>	<b>12,400</b>	<b>388</b>

To validate the instrument, it was scrutinised by experts within the field of Librarianship to ensure that it can adequately measure what is intended. To test the reliability of the instrument, it was subjected to collecting data for a pilot survey, using library patrons in Delta State University Library, Abraka, Delta State. The Cronbach's Alpha coefficient was used to determine the reliability coefficients of the instruments. The results are presented below in Table 2.

**Table 2: Cronbach's Alpha Coefficients**

<b>Variables</b>	<b>Coefficient</b>
Service delivery	0.92
ICT use	0.84
<b>Overall Scale</b>	<b>0.88</b>

*Source: Researchers' Field Survey Result (2023).*

### Results and Discussion of Findings

**Table 3: Questionnaire Return Rate**

<b>University Library</b>	<b>Number Distributed</b>	<b>Number Returned</b>
(University of Benin) Library	219	189 (86.3%)
Ambrose Alli University Library	156	111 (71.15%)
Edo, State University Library	13	11 (84.62%)
<b>Total</b>	<b>388</b>	<b>311 (80.15%)</b>

*Source: Researchers' Field Survey Result (2023).*

Table 3 presented the return rate of the total number of questionnaire distributed across the three public universities in Edo State. The e-questionnaire was sent to the library patrons through their students platforms in the different universities. A total of 388 copies of the questionnaire were filled, but only 311 were duly filled and found usable for analysis, giving a response rate of 80.15%.

**Table 4: Demographic Representation of the Respondents**

		<b>Frequency</b>	<b>Percentage (%)</b>
Library	John Harris (Uniben) Library	189	60.77
	Ambrose Alli University Library	111	35.69
	Edo University Library	11	3.54
	<b>Total</b>	<b>311</b>	<b>100</b>
Gender	Females	155	49.8
	Males	156	50.2
	<b>Total</b>	<b>311</b>	<b>100</b>

*Source: Researchers' Field Survey Result (2023).*

Table 4 revealed the libraries and gender of the respondents. The Table shows that 189 (60.77%) of the respondents are from John Harris (Uniben) Library; 111 (35.69%) of the respondents are from Ambrose Alli University Library, and 13 (3.54%) of the respondents are from Edo State University Library. The gender showed that 155 (49.8%) of the respondents are females; while 156 (50.2%) of the respondents are males.

**Research Question One:** What is the level of users' satisfaction of librarians in Public Universities in Edo State?

**Table 5: Level of Users' Satisfaction of Librarians in Public Universities in Edo State**

Users' Satisfaction						
User Expectation	VH (%)	H (%)	L (%)	VL (%)	Mean	S.D.
<i>I expect...</i>						
too much from the librarians.	154 (49.5%)	103 (33.1%)	54 (17.4%)	0 (0%)	3.32	0.7532
the librarians to be at their best performance.	245 (78.8%)	66 (21.2%)	0 (0%)	0 (0%)	3.79	0.4095
the librarians to provide all the possible services of a library	227 (73%)	84 (27%)	0 (0%)	0 (0%)	3.73	0.4447



<b>Staff Performance</b>	<b>VH (%)</b>	<b>H (%)</b>	<b>L (%)</b>	<b>VL (%)</b>	<b>Mean</b>	<b>S.D.</b>
My needs are often met and exceeded by the librarians	54 (17.4%)	257 (82.6%)	0 (0%)	0 (0%)	3.17	3794
I have high expectations from the librarians because they have always met my needs.	128 (41.2%)	135 (43.4%)	48 (15.4%)	0 (0%)	3.27	0.7081
Librarians spend less time and resources in meeting my needs (efficiency).	42 (13.5%)	155 (49.8%)	144 (36.7)	0 (0%)	2.77	0.6704

<b>User Disconfirmation</b>	<b>VH (%)</b>	<b>H (%)</b>	<b>L (%)</b>	<b>VL (%)</b>	<b>Mean</b>	<b>S.D.</b>
The performance of librarians often exceeds my initial expectations.	64 (20.6%)	157 (50.5%)	90 (28.9%)	0 (0%)	2.92	0.6998
I am likely to continue using the library even when there are alternative options.	90 (28.9%)	143 (46%)	78 (25.1%)	0 (0%)	3.04	0.7352
Librarians go out of their way to meet my needs.	112 (36%)	109 (35.1%)	90 (26.9%)		3.01	0.8041

**Source: Researchers' Field Survey Result (2023). Criterion Mean: 2.5**

Research question one identified the level of users' satisfaction of library users in public universities in Edo State. The results revealed that there was a high level of user expectation from the librarians, there was a high level of librarians' performance in discharging their professional duties, and there was a high level of user disconfirmation.

Thus, these showed that there was a high level of users' satisfaction in the overall service delivery of librarians in public university libraries in Edo State.

Studies had attempted to identify whether or not library users were satisfied with the use of libraries, especially with a decline in library patronage. Findings from Omar, Salleh & Arshad (2021) showed that for librarians to satisfy library users, they must be at their best professional level, rendering quality services at all times. Also, Mangai (2016) averred that to guarantee library users satisfaction in the services they receive, librarians who are the service providers must regularly strive to exceed the expectation of the library users, because satisfaction is derived solely from the difference between users' expectation and their ultimate experiences.

**Research Question Two:** What is the level of ICT usage by library patrons in Public Universities in Edo State?

**Table 6: Library Patrons' Perception of Level of ICT Usage by Librarians in Public Universities in Edo State.**

ICT Use	VH (%)	H (%)	L (%)	VL (%)	Mean	S.D.
<b>Perceived Ease of Use</b>						
<i>I perceive that...</i>						
the librarians find it easy to use ICT to answer my queries.	224 (72%)	87 (28%)	0 (0%)	0 (0%)	3.72	0.4496
the librarians find it easy to employ ICT to do what they want to do.	102 (32.8%)	209 (67.2%)				
the librarians' interactions with ICTs are clear and understandable.	193 (62.9%)	118 (37.9%)	0 (0%)	0 (0%)	3.62	0.4860

it is easy for the librarians to become skilful at using most ICTs.	247 (79.4%)	64 (20.6%)	0 (0%)	0 (0%)	3.79	0.4049
the librarians find it easy to use ICTs generally.	93 (29.9%)	124 (39.9%)	0 (0%)	0 (0%)	3.33	0.4702
			94 (30.2%)	0 (0%)	3.0	0.7767

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### Perceived Usefulness

<i>I perceive that using ICT will...</i>	<b>VH(%)</b>	<b>H (%)</b>	<b>L (%)</b>	<b>VL(%)</b>	<b>Mean</b>	<b>S.D.</b>
enable librarians to accomplish tasks more quickly.	275 (88.4%)	36 (11.6%)	0 (0%)	0 (0%)	3.88	0.3205
improve job performance of librarians.	293 (94.2%)	18 (5.8%)				
increase productivity of librarians.	175 (56.3%)	136 (43.7%)	0 (0%)	0 (0%)	3.56	0.4969
enhance the librarians' effectiveness on the job.	230 (74%)	81 (26%)				
make it easier for librarians to do their job.	245 (78.8%)	12 (3.9%)	54 (17.3%)	0(0%)	3.61	0.7656

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**Source: Researchers' Field Survey Result (2023)**

### Criterion Mean: 2.5

Research question two examined the level of ICT use by librarians in public universities in Edo State. Findings from the study revealed that the library patrons had the perception that the librarians in public university libraries in Edo State find it easy to adopt and use ICTs in

the discharge of their professional duties. Also, the findings showed that library patrons had a positive perception that the librarians in public university libraries in Edo State adopted and used ICTs for their professional duties because they perceive: that these ICTs were useful to their overall service delivery. This showed that the library users had a high level of perception that librarians used ICT in the discharge of their professional duties. This was influenced by the librarians' perceived ease of use and perceived usefulness of these ICTs.

Researches had tried to investigate the variable of ICT use by librarians. Researches have also tried to understand the reasons behind the adoption or otherwise of these ICTs by librarians. Panda (2021) showed that there was an increased usage of mobile communication technologies, which was influenced by the increasing popularity of these mobile devices, hence their suitability for librarians to use them for on-the-go reference services. Findings from Verma (2021), also showed that with the use of technologies in libraries, plagiarism detection is possible with the use of blockchain technologies. Also, researchers have increasingly shown and accepted that the use of ICTs are influenced mainly by the perceived ease of use and the perceived usefulness of these technologies to the would-be users (Rahman & Yunus 2022; Muraina, 2021).

### Hypothesis

H<sub>0</sub> I: There is no significant influence of ICT use on users' satisfaction of librarians in Public Universities in Edo State.

**Table 7a: Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.448 <sup>a</sup>	.448	.446	.32074

a. Predictors: (Constant), ICT Use by Librarians

b. Dependent Variable: Library User Satisfaction

**Table 7b: ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	25.776	1	25.776	250.565	<.001 <sup>b</sup>
	Residual	31.788	309	.103		
<b>Total</b>		<b>57.564</b>	<b>310</b>			

a. Dependent Variable: Library User Satisfaction

b. Predictors: (Constant), ICT Use by Librarians

**Table 7c: Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.101	.211		-.477	.633
ICT Use by Librarians	.920	.058	.669	15.829	<.001

a. Dependent Variable: Library User Satisfaction

**Source: Researchers' Field Survey Result (2023)**

Tables 7a-c presented the results of the regression analysis for the influence of ICT use on users' satisfaction in public university libraries in Edo State.

Table 7a presented a model summary which established how the model equation fits into the data. The  $R^2$  was used to establish the predictive power of the study's model. From the results, ICT use had a strong positive statistically significant relation with users' satisfaction of library patrons in public university libraries in Edo State ( $R = 0.669$ ,  $p < 0.05$ ). The coefficient of determination ( $R^2$ ) of 0.448 showed that ICT use explained 44.8% of the variations in users' satisfaction of library patrons in public university libraries in Edo State, while the remaining 55.2% variations in users' satisfaction was explained by other exogenous variables different from ICT use under examination. This result suggested that ICT use influenced 44.8% of users' satisfaction of library patrons in public university libraries in Edo State.

Table 7b presented the results of ANOVA (overall model significance) of regression test which revealed that ICT use had a significant influence on users' satisfaction of library patrons in public universities in Edo State. This could be explained by the F-value (250.565) and low P-value (0.001) which is statistically significant at 95% confidence interval. Hence, the result posited that ICT use by librarians in public university libraries in Edo State influenced library users' satisfaction.

Also, Table 7c presented the results of regression coefficients. It revealed that at 95% confidence level, a unit change in ICT use led to a 0.92 increase in users' satisfaction of library patrons in public university libraries in Edo State, given that all other factors were held constant.

On the strength of the result ( $R^2 = 0.448$ ;  $F = 250.565$ ;  $p = 0.001$ ), the research rejected the null hypothesis one ( $H_01$ ) which stated that there is no significant influence of ICT use on users' satisfaction of librarians in public universities in Edo State. Findings from the study revealed that ICT use had a strong positive statistically significant relation with users' satisfaction of library patrons in public university libraries in Edo State.

Studies had tried to explore the usefulness of ICT on library users' satisfaction, as a deviation from the traditional modes of service delivery to library users. Yusuf, Adebayo, Bello and Kayode (2022) reported that despite the slow adoption and use of artificial intelligence (AI) in developing countries like Nigeria for effective service delivery in academic libraries, the eventual adoption and use of these AI in academic libraries for service delivery in Nigeria was setting a new level of efficiency and effectiveness in library service delivery. Some of the challenges faced by developing countries like Nigeria in adopting and using AI were financial uncertainties, job loss, and technological disadvantage.

Also, Chukwueke & Onuoha (2019) had posited that the efficiency and effectiveness of any library operations and services regardless of

the size, type, and user community, is determined by the success with which the library was able to provide and satisfy its diverse users' information needs in a timely and accurate manner and the incorporation and advancement of Information and Communication Technologies (ICTs) have assured the actualisation of timely and accurate service delivery.

### **Conclusion**

Librarians in public universities in Edo State constantly render services to library patrons, who were satisfied with the services. This showed that the initial expectations of library patrons were met or exceeded. This was because there was a strong positive correlation between ICT use and library users' satisfaction.

### **Recommendations**

Based on the findings of this research, the following recommendations are made:

- i. Librarians need to be properly equipped through constant trainings, in order to ensure they render satisfactory services to library users;
- ii. Librarians should endeavour to up-skill in the use of ICTs in order to always render high quality services to library patrons;
- iii. Librarians should improve their skills in the use of emerging ICTs as these ICTs regularly come with updated versions and new technologies.

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