PERCEIVED EFFECTIVENESS AND CHALLENGES OF ICT RESOURCES' USE IN SERVICE DELIVERY AMONG LIBRARIANS IN SPECIAL LIBRARIES

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Abstract

The study investigates the perceived effectiveness and challenges of ICT resources' use in service delivery among librarians in Special Libraries. The study adopted a survey research design guided by two research questions and two hypotheses. The population of the study comprised all 53 librarians working in special library. The researchers adopted a census sampling technique, since the population was small and manageable; all 53 librarians were included as the sample of the study. One rating scale titled "Effectiveness and challenges of ICT resources use in Special Libraries" (ECIRUSL) was used as the instrument for data collection. The instrument was validated by specialists in Library and information science. The rating scale was subjected to a reliability test using Cronbach alpha statistics which yielded a coefficient of 0.71. The research questions are answered using mean and standard deviations while the hypotheses were tested using one sample z-test at 0.05 level of significance. The major findings of the study revealed that the majority of the respondents perceived ICT resources to be very effective in their service delivery in private libraries (mean = 3.25). The major challenges impeding the use of ICT include inadequate funding, poor maintenance culture, and low ICT literacy skills among librarians, among others. Based on these findings, the study concludes that effective utilization of ICT resources significantly enhances library service delivery; however, addressing challenges such as funding, maintenance, and capacity building is essential for optimal ICT integration in private libraries. The researchers recommend among others that Management of special libraries should organize vigorous trainings for their staff on ICT skills.

Keywords: Special library, ICT resources, literacy skills, librarians, management of special library

Introduction

Special library is considered as special because of the nature of resources and services it provides to its users. Special library is seen as a storehouse or building containing collections of knowledge or information resources from the previous centuries, present and possibly predicted information that might be useful in future (Mundi, 2022). In the 21st century, the use of ICT in service delivery in libraries has become paramount. The concept of ICT has been described by many authors in the literature. Adomi and Kpanghan (2020) view ICT as a diverse set of technological tools and resources used to communicate and to create, disseminate, retrieve and manage information. Information and Communication Technologies (ICTs) are, therefore, defined as electronic tools or technological devices used to gather, process, store, preserve, access, retrieve and disseminate information when required with dispatch.

The role of technology is very much significant for cooperative acquisition, cooperative processing (cataloging and classification), exchange of information materials (e-resources), joint publications, networking, joint training of personnel, interchange of staff for seminars, and workshops (Igwe, 2020). Apparently, ICT is an indispensable tool needed for provision of value-added information that supports sustainable development. Many institutions and organizations, including schools and libraries face diverse challenges in the process of integrating ICT to their services. Nevertheless, information provision is paramount to development and growth of any nation. It is therefore important that, effort is made to enable usability of ICTs in all sectors, of the nation ICT and library services. Information and communication technology is a term used in the library to refer to application of computers and other technologies to library practices such as acquisition, storage, organization and dissemination of information (Igwe, 2021). The world has become a global village, and with ICT, many library users now have access to a variety of information, without necessarily investing much time or energy.

The role of ICT in all aspects of information management cannot be over-emphasized. Buttressing this issue, Ejedifiru (2020) points out that ICT technology has revolutionalized the pattern of information storage, retrieval, and dissemination in a quick, effective way and with less expense. Prominent among the cheap and most effective technology-related devices that have been used for information storage, retrieval and dissemination are cell phones, audio players, video recorders and players, etc. Those facilities have made the world a global village, since events can be recorded, without mixing words, digital communications technology is the latest in libraries that are electronically operated with the aid of computer network operations and services. Currently, the problem of creating, encoding, saving, accessing and disseminating information in libraries is all about clicking a button to reach your preference of knowledge (Mamza & Bassi, 2014).

Special libraries today require current technology to ensure that their core functions, such as the implementation of efficient and effective library cooperation and resource sharing networks, implementation of management information systems, developing institutional repositories of digital local content and digital libraries are automated (Krubu & Osawaru, 2021). There is no doubt that information and communication technology has revolutionized the process in which information services are provided to team users. It can also be said that repetitive library operations have taken on a new dimension, especially in the areas of information generation, dissemination, and transfer from one region to another. According to Emezie and Nwaohiri (2017), librarians are no longer the custodians of physical books that are always covered with websites, but have instead become portals to online information resources. The description of their role in information management as passive personnel has also changed to active information managers. Interestingly, libraries using the ICT have the ability to excellently achieve the following routine operations.

Despite the well-established effectiveness of ICT resources for service delivery in libraries, various challenges abound in the use of these resources. Challenges such as technophobia, resistance to change, skill incompatibility, poor infrastructural facilities and poor maintenance culture all form challenges to use of ICT resources in libraries. This view was stressed by Oyedokun, Oyewumi, Akanbi, and Laaro (2018) that inadequate provision of ICT infrastructure and in-depth digital skills among library staff deter both library staff and information seekers from making good use of ICT tools. Considering the fact that compatibility of spare parts during repairs also affects foreign made ICT facilities because their strengths matter a lot.

Emphasis has been consistently laid on the use of ICT resources in all areas of work. However, no studies to the best of the researchers' knowledge have been carried out to check whether librarians in private libraries in Owerri Municipal council perceive ICT resources to be effective in their service delivery and to find out the peculiar challenges faced by librarians in private libraries in the use of these ICT resources. This constituted a gap in literature which the current study sought to fill.

Statement of the Problem

Information and Communication Technology (ICT) has become an indispensable tool in enhancing library operations and improving service delivery across all types of libraries. Special libraries, which cater to the information needs of specific institutions such as medical, legal, and corporate organizations, rely heavily on ICT resources to manage and disseminate specialized information efficiently. However, despite the acknowledged benefits of ICT integration, many special libraries in Nigeria seems to face persistent challenges such as inadequate funding, poor maintenance culture, incompatible accessories, and limited ICT literacy among librarians. These problems may hinder the optimal utilization of ICT resources, thereby affecting the quality and timeliness of information services provided. While several studies have examined ICT use in academic and public libraries, there is a noticeable gap in empirical studies focusing on librarians in special libraries within Owerri Municipal Council. This study, therefore, seeks to investigate the perceived effectiveness and challenges of ICT resources' use in service delivery among librarians in special libraries, with a view to providing evidence-based recommendations for improved ICT adoption and utilization.

Aim and objectives of the study

The aim of the study is to investigate Perceived effectiveness and challenges of ICT resources' use in service delivery among librarians in special libraries. The specific objectives sought to:

i. determine the extent to which librarians perceive ICT resources to be effective for service delivery in special libraries in Owerri municipal council.

ii. examine the challenges faced by librarians in special libraries in the use of ICT resources for service delivery.

Research questions

1. To what extent do librarians perceive ICT resources to be effective for service delivery in special libraries in Owerri municipal council?

2. What are the challenges faced by librarians in special libraries in the use of ICT resources for service delivery

Hypotheses

Ho1: The mean responses of librarians on the effectiveness of ICT resources on service delivery in special libraries is not significantly greater than the criterion mean of 17.50.

Ho2: The mean responses of librarians on the challenges faced in the use of ICT resources for service delivery is not significantly greater than the criterion mean of 17.50.

Methodology

A descriptive survey research design was adopted for this study. This design was considered appropriate because it enables the researchers to collect data from a defined population and describe the characteristics, opinions, and experiences of respondents regarding the effectiveness and challenges of ICT resources in special libraries. The design is also suitable for studies seeking to generalize findings from a population within a real-life context. The population of the study comprised all fifty-three (53) librarians working in special libraries such as medical, banking, legal, and research institutions located within Owerri Municipal Council of Imo State. These libraries were selected because they provide specialized information services that depend heavily on ICT resources. The sample size for the study consisted of the entire population of 53 librarians. Given that the population was small and manageable, the researchers adopted a census sampling technique, which ensured that all members of the population participated in the study. This approach eliminated sampling error and provided comprehensive data representing the entire study population. The instrument for data collection was a structured rating scale titled "Effectiveness and Challenges of ICT Resources Use in Special Libraries" (ECIRUSL), developed by the researchers based on literature and expert input. The instrument was divided into two sections. Section A contained 7 items designed to elicit information on the perceived effectiveness of ICT resources in service delivery among librarians, while Section B contained another 7 items aimed at identifying the challenges faced by librarians in using ICT resources for service delivery. The items were structured on a four-point Likert scale as follows: Very High Extent (VHE) = 4 points; High Extent (HE) = 3 points; Low Extent (LE) = 2 points; and Very Low Extent (VLE) = 1 point. The total number of items (7) multiplied by the four-point scale (2.50) yielded a criterion mean of 17.50, which was used as the benchmark for hypotheses testing.

The validity of the instrument was ensured through expert judgment. The draft instrument was reviewed by specialists in Library and Information Science who assessed it for content relevance, clarity, and alignment with the research objectives. Necessary modifications were made based on their feedback. To ascertain reliability, the instrument was pilot-tested among 10 librarians outside the study area and the internal consistency was determined using the Cronbach Alpha method which produced a reliability coefficient of 0.71, indicating acceptable reliability for social science research. For data collection, the researchers personally administered copies of the questionnaire to the respondents to ensure a high response rate. Respondents were guided where necessary to complete the instrument accurately, and all completed copies were retrieved immediately after administration. The data analysis involved the use of descriptive and inferential statistics. Specifically, the research questions were answered using mean and standard deviation, while the hypotheses were tested using the one-sample t-test at the 0.05 level of significance. This combination of descriptive and inferential statistics provided both a summary of respondents' opinions and statistical validation of the observed differences.

Results

Research question 1: To what extent do librarians perceive ICT resources to be effective for service delivery in special libraries in Owerri Municipal Council

Table 1: Perception of ICT resources' effectiveness on service delivery in special libraries in Owerri Municipal Council

| S/N	Item Statement	VHE	HE	LE	VLE	Mean	SD	Remark
1	ICT resources such as the Integrated Library System (ILS) have significantly improved the speed and efficiency of cataloguing and circulation services.	25	20	6	2	3.20	0.78	High extent
2	The library's website or online portal has made it easier for users to access information and library services remotely.	22	21	8	2	2.96	0.83	High extent
3	ICT resources enhance the accuracy and reliability of information services provided.	30	19	3	1	3.82	0.87	High extent
4	ICT resources facilitate better communication and interaction with library users.	27	18	6	2	3.57	0.94	High extent
5	ICT resources have simplified interlibrary loan requests, allowing quicker access to materials.	18	23	9	3	2.63	0.73	High extent
6	The current ICT infrastructure in our library is sufficient to meet users' evolving information needs.	20	22	7	4	2.89	0.94	High extent
7	ICT resources have improved the accessibility of information resources in the library.	28	20	3	2	3.74	0.77	High extent
	Grand Mean					**3.25**		**High extent**

Note. VHE = Very High Extent; HE = High Extent; LE = Low Extent; VLE = Very Low Extent.
Criterion mean = 2.50.

The data in Table 1 show the responses of librarians on the extent to which they perceive ICT resources to be effective in service delivery. The results indicate that all items recorded mean values above the criterion mean of 2.50, implying a high extent of perceived effectiveness. Specifically, librarians reported that ICT resources have enhanced cataloguing, accuracy, accessibility, and communication efficiency in their libraries. The cumulative grand mean of 3.25 (SD values ranging between 0.73 and 0.94) confirms that respondents perceive ICT resources to be highly effective in improving service delivery in special libraries within Owerri Municipal Council.

Figure 1

Figure 1. Perceived Effectiveness of ICT Resources for Service Delivery in Special
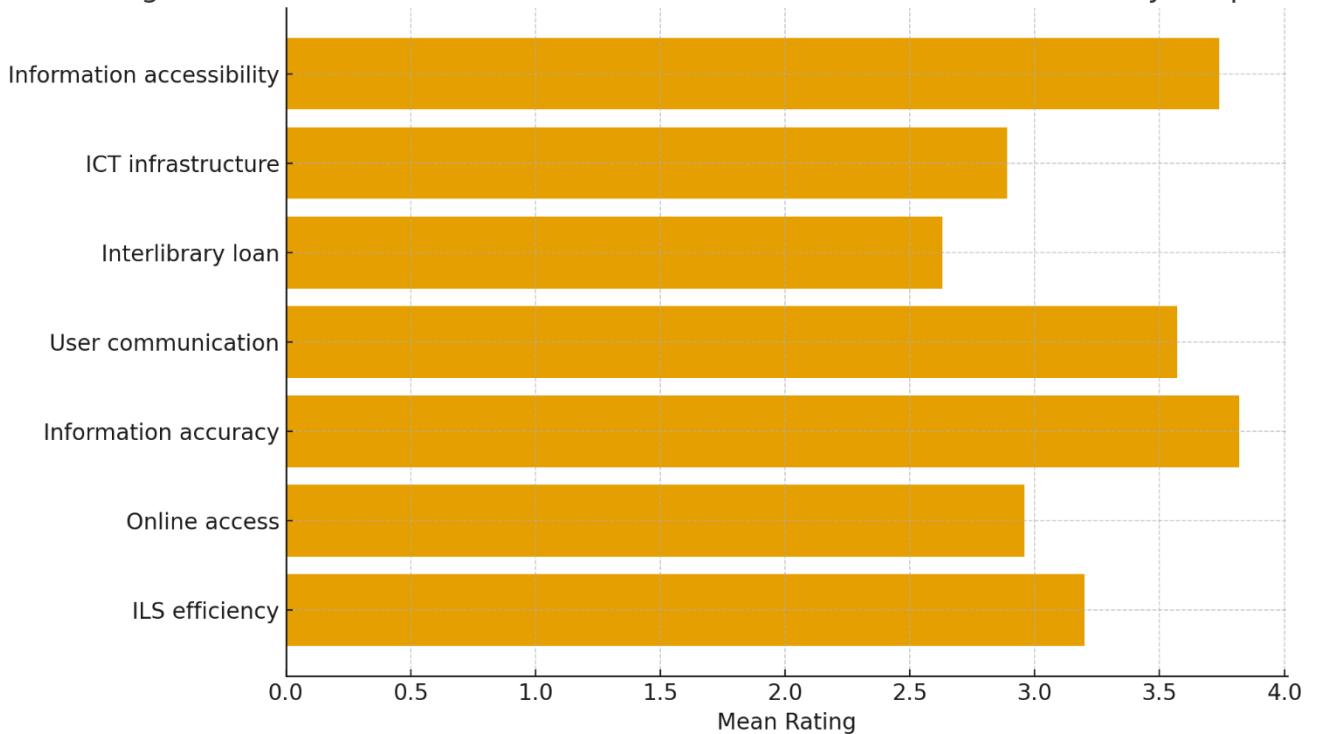
The first research question examined the extent to which librarians perceive ICT resources as effective for service delivery. As shown in Figure 1, the respondents generally rated ICT resources highly effective, with all mean values exceeding the criterion mean of 2.50. This suggests that ICT tools such as Integrated Library Systems, online databases, and digital communication platforms significantly enhance work efficiency and user satisfaction in special libraries.

Research question 2: What are the challenges faced by librarians in special libraries in the use of ICT resources for service delivery

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The second research question explored the challenges librarians face in using ICT resources for service delivery. Figure 2 shows that inadequate funding, poor maintenance, and lack of ICT literacy were the most significant challenges, with mean ratings above the criterion mean of 2.50. Conversely, technophobia and resistance to change recorded lower mean scores, indicating that attitudinal barriers are less problematic compared to structural and resource-related issues.

Table 2

S/N	Item Statement	VHE	HE	LE	VLE	Mean	SD	Remark
1	Inconsistent funding of libraries.	18	22	9	4	2.89	0.94	Agree
2	Inability to maintain ICT facilities.	19	23	7	4	2.94	0.77	Agree
3	Incompatible accessories.	14	20	12	7	2.50	0.92	Agree
4	Technophobia among staff.	10	17	16	10	2.32	0.82	Disagree
5	Resistance to change.	8	15	18	12	2.15	0.99	Disagree
6	Poor infrastructure.	20	25	6	2	3.05	0.89	Agree
7	Lack of ICT literacy among librarians.	17	21	10	5	2.60	0.93	Agree
	Grand Mean					2.63		Agree

Note. VHE = Very High Extent; HE = High Extent; LE = Low Extent; VLE = Very Low Extent. Criterion mean = 2.50.

Table 2 presents the responses of librarians on the challenges they face in the use of ICT resources in special libraries. The results show that five of the seven listed items recorded mean values above the criterion mean of 2.50, indicating that respondents generally agreed that these factors constitute significant challenges. Specifically, the major challenges identified include inability to maintain ICT facilities (mean = 2.94, SD = 0.77), inconsistent funding of libraries (mean = 2.89, SD = 0.94), poor infrastructure (mean = 3.05, SD = 0.89), incompatible accessories (mean = 2.50, SD = 0.92), and lack of ICT literacy among librarians (mean = 2.60, SD = 0.93). These findings imply that limited financial support, inadequate maintenance practices, and infrastructural deficits hinder the optimal use of ICT resources in special libraries.

On the other hand, technophobia among staff (mean = 2.32, SD = 0.82) and resistance to change (mean = 2.15, SD = 0.99) were rated below the criterion mean, indicating that these are not major impediments to ICT adoption in the studied libraries. The grand mean of 2.63, which is above the criterion mean of 2.50, confirms that librarians in special libraries in Owerri Municipal Council face notable challenges in effectively utilizing ICT resources for service delivery. The relatively low standard deviation values across all items suggest consistency in respondents' opinions.

Table 3: One sample z-test of significance of librarians' responses on perception of ICT resources' effectiveness in service delivery in special libraries.

Variable	N	Total Mean	S.D	Df	z-statistic	p-value	Decision
Perceived effectiveness of ICT resources	53	22.75	5.86	52	4.949	0.000	**Ho is rejected**

Data on table 3 is the result of the one sample z-test of significance on the responses of the librarians on effectiveness of ICT resources/tools in special libraries. The total mean is 22.75 which is greater than the

criterion mean of 17.50. More so, the p-value is 0.000 which is less than 0.05 level of significance. Since the p-value is less than 0.05, the null hypothesis is rejected and it is therefore concluded that the total mean responses of the librarians on their perception of effectiveness of ICT resources for service delivery in special libraries is significantly greater than 17.50.

Table 4: One sample z-test of significance of librarians' responses on challenges of ICT resources' use in special libraries.

Variable	N	Total Mean	S.D	Df	z-statistic	p-value	Decision
Challenges of ICT resources	53	18.41	6.26	52	7.849	0.000	**Ho is rejected**

Data on table 4 is the result of the one sample z-test of significance on the responses of the librarians on the challenges in the use of ICT resources/tools in special libraries. The total mean is 18.45 which is greater than the criterion mean of 17.50. Moreso, the p-value is 0.000 which is less than 0.05 level of significance. Since the p-value is less than 0.05, the null hypothesis is rejected and it is therefore concluded that the mean responses of the librarians on the challenges in the use of ICT resources among librarians in special libraries is significantly greater than 17.50.

Discussion of findings

Figure 1

Perceived Effectiveness of ICT Resources for Service Delivery in Special Libraries in Owerri Municipal Council.

This figure illustrates the mean ratings of librarians' perceptions regarding the effectiveness of ICT resources such as Integrated Library Systems (ILS), online access, information accuracy, and user communication. All the mean values are above the criterion mean of 2.50, indicating that librarians perceive ICT resources as effective in enhancing library service delivery.

Figure 2

Major Challenges Affecting ICT Utilization in Special Libraries in Owerri Municipal Council.

This figure depicts the mean responses of librarians regarding the major challenges hindering ICT usage. Key challenges identified include inadequate funding, poor maintenance culture, and low ICT literacy levels. Items below the criterion mean of 2.50 indicate less significant challenges such as technophobia and resistance to change.

The findings from the study, as presented in Tables 1 and 2, revealed that the majority of librarians in special libraries perceived ICT resources as highly effective tools for enhancing service delivery. This demonstrates that ICT has become an indispensable component of modern library operations, improving work efficiency, accuracy, accessibility, and overall user satisfaction. The strong positive perception among librarians underscores the growing recognition that ICT facilitates faster access to information, efficient cataloguing and circulation processes, and better communication with users. These results align with the assertions of Emezie and Nwaohiri (2017), who noted that the role of librarians has shifted from custodians of physical materials to facilitators of digital access through ICT integration. Similarly, Ikwgwuiro (2017) reported that librarians in Kaduna special libraries perceived ICT as a key driver of operational efficiency and effective information dissemination. The findings further corroborate the results of Daniel, Wiche, and Nsirim (2023), who observed that higher ICT competency levels among librarians translated into improved service delivery and user satisfaction in university libraries.

These findings have important implications for policy and practice. The positive perception of ICT's effectiveness suggests that special library managers and policymakers should continue to invest in ICT infrastructure and training to sustain and enhance service quality. The result also confirms the relevance of technological determinism theory, which posits that technological innovation drives organizational change and efficiency. In the context of special libraries, effective ICT adoption transforms traditional service models into more dynamic and user-centered systems, enabling librarians to deliver services that meet contemporary information needs.

However, the results presented in Tables 3 and 4 revealed that despite the positive perception of ICT, librarians still face notable challenges in its use. The major constraints identified include inadequate funding, poor maintenance culture, incompatible accessories, and low ICT literacy among some librarians. These challenges present structural and skill-related barriers that hinder the optimal utilization of ICT resources. Insufficient funding limits the acquisition and upgrading of technological facilities, while inadequate maintenance and technical support reduce system efficiency and sustainability. The lack of ICT literacy among librarians further exacerbates the problem, as it impairs their ability to fully exploit available technologies for innovative service delivery. These findings are consistent with the observations of Mommoh and Emmanuel (2019), who identified inadequate funding as a major barrier to ICT integration in special libraries in North Central Nigeria. Similarly, Babayi et al. (2023) found that poor ICT literacy among librarians significantly affected the quality of library services in Adamawa State. Together, these studies reaffirm that infrastructural and human capacity deficiencies continue to undermine ICT-driven service delivery in Nigerian special libraries.

In light of these results, this study emphasizes the need for a holistic approach to ICT implementation in special libraries. Beyond providing hardware and software, library management must address systemic issues such as sustainable funding, periodic maintenance, and continuous capacity building. Furthermore, fostering collaborations with parent organizations, government agencies, and donor partners can enhance resource mobilization and technical support. By addressing these multifaceted challenges, special libraries can strengthen their technological foundation, improve service efficiency, and remain relevant in the digital information environment.

Conclusion

The study examined the perceived effectiveness and challenges of ICT resources' use in service delivery among librarians in special libraries within Owerri Municipal Council. Findings revealed that librarians generally perceive ICT resources as highly effective tools that enhance efficiency, accuracy, accessibility, and communication in library operations. However, the study also identified significant challenges such as inadequate funding, poor maintenance culture, lack of ICT literacy skills, and weak infrastructural support, which hinder the optimal use of these technologies. Based on these findings, the study concludes that while ICT has greatly improved service delivery in special libraries, its full potential can only be realized when issues related to funding, infrastructure, and staff capacity are adequately addressed. Strengthening institutional support and continuous ICT training for librarians will therefore be essential for sustaining effective and technology-driven library services.

Recommendations

Based on the findings, the researchers recommend that:
1. Management of special libraries should organize vigorous trainings for their staff on ICT skills.
2. Organizations should endeavour to support libraries located in their respective in their vicinity. By funding special libraries in their vicinity, it will alleviate the financial constraints of the library thereby providing better services to their users.
3. The library personnel and users should keep themselves updated about emerging ICT tools for efficient service delivery in libraries.

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