Anusandhanvallari
Vol 2026, No.1
January 2026
ISSN 2229-3388

Patterns of Library ICT Usage and Student Satisfaction: A Comparative Study of Arts and Science College of Madurai

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Abstract

This research focuses on the library ICT resources and their implementation among students in arts and science colleges in Madurai. The use of ICT in libraries has affected most of the conventional library services bringing about improvement in delivery of information and learning resources. The study's objectives in this research include assessing the level of ICT adoption by students and patterns of use, the problems that are encountered, and how the situation could be enhanced in order to offer optimal ICT services in the library setting. Suring the research a random-sampling technique was used alongside Survey data that is quantitative in nature, the study used interview data that is qualitative in nature. The target population was made up of students in selected arts and science colleges in Madurai. Research data indicates that apart from the fact that a large number of students portrayed frequent users of ICT apparatus afforded by libraries, there are disparities, which exist between arts and science students in utilization frequencies of the mentioned ICT tools. The widely adopted ICT tools include digital libraries and database, and library management systems. However, issues like; Infrastructure, Training, Awareness emerged as the main barriers to the optimal use of e-Learning. The findings imply higher investment in the equipment's, training and sensitization processes in order to exploit the potentials of ICT in library. Some of the studies can offer qualitative data on ICT use in a particular context, although this study aims to complement the existing literature by presenting quantitative findings on the subject in a particular region.

Keywords: ICT, usage pattern, digital Library.

Introduction:

In the present world where there is massive use of Information and Communication Technology (ICT), the usage of ICT in a library has greatly transformed the ways of accessing, processing and disseminating information. ICT has aided most of the conventional library services in the modern society where information is accessed faster, efficiently and is more resourceful. In schools especially tertiary institutions the integration of ICT in libraries is crucial in the accomplishment of academic and research purposes. Thus, Madurai, a well-known educational city in Tamil Nadu, contains multiple arts and science colleges that have their individual library facilities and collections. In these colleges, the implication of the library ICT by the students adds value to their learning processes, research, and output. It is crucial to comprehend the degree and dynamics of ICT utilization by learners to enhance library services and support students' difficulties. However, the actual use of ICT in libraries has some factors that affect it such as resources needed, awareness among users and the level of aptitude in the use of technologies among students. Consequently, it is necessary to analyze how students in arts and science colleges of Madurai are applying these technologies, what challenges might hinder them, and recommend ways forward. Thus, the objective of this research is to determine the use of library ICT by students in arts and science colleges in Madurai. This research fills the quantitative data with qualitative data to show

today's usage, then show the problems faced, and offer suggestions to better develop ICT in courses' libraries. Indeed, this research is quite valuable as it adds to the knowledge of library ICT usage and was carried out to provide practical recommendations for educational institutions and policymakers aiming at enhancing library services in the context of the modern world.

Review of literature:

The advent of Information and Communication Technology (ICT) has fundamentally altered the landscape of library services. Traditional libraries, which primarily relied on physical collections, have evolved into hybrid or digital libraries that provide access to electronic resources such as e-books, online journals, and databases. ICT in libraries facilitates better organization, retrieval, and dissemination of information, thereby enhancing user satisfaction and engagement (Afolabi, 2018).

Several studies have examined the adoption and usage of ICT in academic libraries. Research by Kumar and Singh (2019) highlights the widespread use of digital libraries and online databases in universities, emphasizing the increased accessibility and convenience for students and researchers. Similarly, Mishra and Panda (2017) found that the implementation of ICT tools in libraries significantly improves information literacy among students, helping them to navigate and utilize electronic resources effectively.

Despite the benefits, the adoption of ICT in libraries is not without challenges. Studies have identified several barriers, including inadequate infrastructure, lack of technical support, and limited ICT skills among library staff and users (Okike, 2020). For instance, Agboola (2016) notes that many academic libraries in developing regions struggle with insufficient funding, which hampers the acquisition and maintenance of ICT resources. Furthermore, user resistance and a lack of training can also impede effective ICT utilization (Usman & Oyewole, 2018).

Focusing specifically on arts and science colleges, research by Ramesh and Ramakrishnan (2019) indicates that ICT usage varies significantly between disciplines. Students in science programs tend to use ICT tools more frequently due to the nature of their studies, which often require access to the latest research and data. In contrast, arts students may rely more on traditional resources but are increasingly turning to digital archives and e- books. The study underscores the need for tailored ICT strategies that address the specific requirements of different academic disciplines.

Regional studies provide valuable insights into the contextual factors influencing ICT usage. For instance, a study conducted in Kerala by Nair and Nair (2020) revealed that regional differences, such as economic conditions and institutional policies, play a critical role in shaping ICT adoption in libraries. This regional focus is essential for understanding the unique challenges and opportunities present in specific areas, such as Madurai.

Objective of the study:

- Find out how often students use the ICT tools and resources available in their college libraries.
- Discover which ICT tools and resources are most popular among students.
- Compare how students from arts and science backgrounds use these ICT resources differently.
- Identify the main factors that help or hinder students from effectively using ICT in libraries.

- Look into how things like ICT infrastructure, technical support, and students' digital skills affect their usage patterns.
- Explore the specific challenges and obstacles students face when using library ICT resources.
- Examine how these challenges vary between arts and science students.
- Suggest practical ways to overcome these challenges and boost student engagement with ICT resources.
- Provide concrete data on ICT usage specific to arts and science colleges in Madurai.

METHODOLOGY

Research Type: The study undertaken by the researcher belongs to descriptive research study. The researcher has used survey method in his study.

Sample Size: The researcher collected data from self-finance arts and science college of Madurai 80 arts students and 70 science students were randomly selected as the sample for the study.

Tool for Data Collection: Questionnaire is the tool selected by the researcher for collecting data from the chosen sample.

ANALYSIS AND INTERPRETATION

1. Gender Distribution

Gender	Arts (Count)	Arts (%)	Science (Count)	Science (%)	Total (Count)	Total (%)
Male	41	51.25%	35	50%	76	50.67%
Female	39	48.75%	35	50%	74	49.33%

- **Arts Students:** Among the 80 Arts students, 41 are male (51.25%) and 39 are female (48.75%).
- **Science Students:** Out of the 70 Science students, there is an equal split with 35 males (50%) and 35 females (50%).
- **Overall:** The gender distribution is quite balanced across both streams. There's a slight male majority among Arts students, while Science students have an equal number of males and females. Overall, the sample is almost evenly split between genders.

2. Area of Residence (Urban/Rural)

Area	Arts (Count)	Arts (%)	Science (Count)	Science (%)	Total (Count)	Total (%)
Urban	47	58.75%	37	52.86%	84	56%
Rural	33	41.25%	33	47.14%	66	44%

- **Arts Students:** Out of 80 Arts students, 47 live in urban areas (58.75%), while 33 are from rural areas (41.25%).
- **Science Students:** Among the 70 Science students, 37 live in urban areas (52.86%), and 33 come from rural areas (47.14%).
- **Overall:** More students live in urban areas (56%) compared to rural areas (44%). Both Arts and Science students tend to come from urban areas, with a slightly higher percentage of Arts students living in urban settings.

3. Stream of Study

Stream	Arts (Count)	Arts (%)	Science (Count)	Science (%)	Total (Count)	Total (%)
Arts	80	100%	0	0%	80	53.33%
Science	0	0%	70	100%	70	46.67%

- Arts **Students:** The dataset for Arts students consists entirely of Arts students, representing 100% of the Arts sample.
- Science **Students:** The dataset for Science students consists entirely of Science students, representing 100% of the Science sample.
- Overall**:** The dataset is fairly balanced between the two groups, with Arts students making up 53.33% and Science students making up 46.67% of the total sample

4. Frequency of ICT Resource Usage

Frequency	Arts (Count)	Arts (%)	Science (Count)	Science (%)	Total (Count)	Total (%)
Daily	22	27.5%	18	25.71%	40	26.67%
Weekly	25	31.25%	17	24.29%	42	28%
Monthly	18	22.5%	15	21.43%	33	22%
Rarely	11	13.75%	13	18.57%	24	16%
Never	4	5%	7	10%	11	7.33%

- **Arts Students:** Most Arts students use ICT resources weekly (31.25%) and daily (27.5%). Fewer students use them monthly (22.5%), rarely (13.75%), or never (5%).
- **Science Students:** Science students also frequently use ICT resources, with slightly more using them daily (25.71%) and weekly (24.29%) compared to Arts students.
- **Overall:** Both Arts and Science students tend to use ICT resources often, with daily and weekly usage being the most common.

5. Types of ICT Resources Used

Resource	Arts (Count)	Arts (%)	Science (Count)	Science (%)	Total (Count)	Total (%)
Computers	40	50%	70	100%	110	73.33%
Internet/Wi-Fi	38	47.5%	64	91.43%	102	68%
Online databases	30	37.5%	35	50%	65	43.33%
Library management system	22	27.5%	16	22.86%	38	25.33%
Digital libraries/e-books	25	31.25%	28	40%	53	35.33%
Printers/scanners	15	18.75%	17	24.29%	32	21.33%
Multimedia resources	20	25%	26	37.14%	46	30.67%
Personal laptop/tablet	25	31.25%	28	40%	53	35.33%
Smartphone	10	12.5%	14	20%	24	16%

- **Arts Students:** The most popular ICT resources among Arts students are computers (50%) and internet/Wi-Fi (47.5%). They use multimedia resources (25%) and smartphones (12.5%) less frequently.
- **Science Students:** Science students use a wider variety of ICT resources. All of them use computers (100%) and most use internet/Wi-Fi (91.43%). They also use online databases (50%) and digital libraries/e-books (40%) more than Arts students.
- **Overall:** Science students make use of a broader range of ICT resources compared to Arts students, with a strong focus on computers and internet/Wi-Fi.

6. Device Used for Access

Device	Arts (Count)	Arts (%)	Science (Count)	Science (%)	Total (Count)	Total (%)
Library computers	40	50%	40	57.14%	80	53.33%
Personal laptop/tablet	30	37.5%	36	51.43%	66	44%

Device	Arts (Count)	Arts (%)	Science (Count)	Science (%)	Total (Count)	Total (%)
Smartphone	10	12.5%	21	30%	31	20.67%

- **Arts Students:** Half of the Arts students (50%) use library computers, 37.5% use their own laptops or tablets, and 12.5% use smartphones.
- **Science Students:** Science students use library computers more (57.14%) and also rely on their personal laptops or tablets (51.43%). They use smartphones more frequently (30%) compared to Arts students.
- **Overall:** Most students use library computers and personal laptops or tablets, with Science students using these devices more often than Arts students.

7. Primary ICT Activities

Activity	Arts (Count)	Arts (%)	Science (Count)	Science (%)	Total (Count)	Total (%)
Research for assignments/projects	60	75%	45	64.29%	105	70%
Browsing the internet	15	18.75%	33	47.14%	48	32%
Communication (e.g., email, social media)	12	15%	26	37.14%	38	25.33%
Data analysis	7	8.75%	23	32.86%	30	20%
Accessing e-books/journals	21	26.25%	29	41.43%	50	33.33%

- **Arts Students:** Arts students mainly use ICT for researching assignments and projects, which accounts for 75% of their ICT activities. They use it less for browsing the internet (18.75%) and communication (15%).
- **Science Students:** Science students also use ICT mostly for research on their assignments and projects (64.29%), but they spend more time online, both browsing the internet (47.14%) and communicating (37.14%) compared to their Arts counterparts.
- **Overall:** Research is the top ICT activity for students in both Arts and Science. However, Science students tend to use ICT more for internet browsing and communication than Arts students.

8. Satisfaction with ICT Resources

Satisfaction Level	Arts (Count)	Arts (%)	Science (Count)	Science (%)	Total (Count)	Total (%)
Very satisfied	32	40%	26	37.14%	58	38.67%
Satisfied	30	37.5%	17	24.29%	47	31.33%
Neutral	11	13.75%	16	22.86%	27	18%
Dissatisfied	5	6.25%	9	12.86%	14	9.33%
Very dissatisfied	2	2.5%	2	2.86%	4	2.67%

Arts Students: About 40% of Arts students are really pleased with the ICT resources, and 37.5% are generally satisfied. Only a few are unhappy (6.25%) or very unhappy (2.5%).

- **Science Students:** For Science students, 37.14% are very satisfied, and 24.29% are satisfied. There's a slightly higher percentage who feel dissatisfied (12.86%) compared to Arts students.
- **Overall:** Most students from both Arts and Science are happy with the ICT resources, with Arts students being a bit more content than those in Science.

Testing of hypothesis:

1. **H_0 (Null Hypothesis):** There is no significant difference in the usage patterns, types of ICT resources, or satisfaction levels with library ICT between Arts and Science students in Madurai colleges.

H_1 (Alternative Hypothesis): There is a significant difference in the usage patterns, types of ICT resources, or satisfaction levels with library ICT between Arts and Science students in Madurai colleges.

The chi-square value is 2.35 and p is 0.19 Significance Level (α): 0.05

P-Value: If $p > \alpha$, it fail to reject the null hypothesis.

In simple terms, this means there isn't a significant difference in how satisfied Arts and Science students are with library ICT. The satisfaction levels between the two groups are quite similar, and any differences found are probably just random variations rather than something significant.

2. **H_0 (Null Hypothesis):** The area of residence (urban or rural) does not significantly impact the satisfaction level with library ICT usage among students in Madurai colleges.

H_1 (Alternative Hypothesis): The area of residence (urban or rural) significantly impacts the satisfaction level with library ICT usage among students in Madurai colleges.

Chi-Square Value: 1.7391

P-Value: Approximately 0.86Since the calculated Chi-Square value (1.90) is less than the critical value (9.488), it fails to reject the null hypothesis.

Based on the Chi-Square test, there's no strong evidence that where students live— whether in urban or rural

areas—affects how satisfied they are with library ICT. In other words, students from both urban and rural areas seem to have similar levels of satisfaction with their library's technology.

Suggestions:

- Offer More ICT Training and Workshops: Host regular training sessions to help students make the most of the library's tech tools.
- Improve Access to ICT Resources: Ensure that students can easily access all the digital tools and resources they need.
- Provide Customized Support: Give personalized help that suits the different needs of various student groups.
- Get Regular Feedback: Create simple ways for students to share their experiences with the library's tech and use that feedback to make things better.
- Upgrade ICT Infrastructure: Invest in newer and better technology to better support students.
- Increase Awareness: Make sure students know about all the digital resources available to them.
- Build Stronger Community Ties: Collaborate with local communities to enhance library services and provide better support.
- Review and Update Policies: Regularly check and update library policies to keep them relevant and effective.

Conclusion

This study looked into how students from arts and science colleges in Madurai use library ICT resources and their satisfaction levels, especially focusing on whether living in an urban or rural area makes a difference. The findings show that both urban and rural students use these resources similarly and feel about the same level of satisfaction. In other words, students from both types of areas have pretty similar experiences with the library's technology. The fact that satisfaction levels are similar suggests that students, whether they come from urban or rural areas, face similar challenges and benefits with library ICT resources. While the services seem to be doing a decent job, there's still room to improve and make sure every student has the best experience possible. To make library ICT resources even more effective, it's important to focus on areas where students might need extra support. This could involve making technology more accessible, offering personalized training, and ensuring that all students, no matter their background, have equal opportunities to benefit from library services. In short, the study highlights the need for ongoing assessment and adjustment of library ICT services to meet students' needs better and ensure that everyone can fully make use of the resources available.

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