

Digital Literacy Competency Among Students from Higher Education: An Empirical Study

Dr. T. Unnamalai

Assistant Professor of Commerce, CDOE, Bharathidasan University, Tiruchirappalli - 620 024 Tamil Nadu, India

Article History:

Received:12-12-2023

Revised:05-01-2024

Accepted:18-02-2024

Abstract:

With the ever-growing influence of digital technology, understanding the proficiency and engagement of students is crucial. The study introduces the concept of digital literacy and its relevance in modern education, acknowledging the prevalence of technology in students' lives. This evaluative study focuses on assessing the digital literacy levels among college students in Tiruchirappalli District. The objectives include examining students' awareness of digital literacy, their preferred information resources, search engine usage, and proficiency in using various computer applications. Through a mix of primary and secondary data, including responses from 150 college students, the study finds that while students demonstrate a strong foundation in basic computer skills, there's room for improvement in areas such as specialized software usage and digital security awareness. The study also highlights the widespread use of Google and Yahoo as search engines, with Google being the dominant choice. It reveals that students heavily rely on the internet for communication, research, e-resource access, and entertainment. The study recommends enhancing foundational skills, promoting diverse search engine usage, fostering responsible online behavior, and integrating digital literacy education across the curriculum. The findings underscore the pivotal role of educational institutions in equipping students for success in the digital era, ultimately contributing to societal advancement.

Key words: Digital Literacy, College students, Transformation of society

1. INTRODUCTION

The level of literacy about digital technology among college students can vary widely depending on factors such as the students' academic discipline, access to resources, socio-economic background, and personal interests. However, in general, college students are often considered to be more digitally literate compared to other age groups due to their exposure to technology from an early age and their reliance on digital tools for academic purposes. College students are typically adept at using various digital tools, such as computers, smartphones, and tablets. They are familiar with common software applications, web browsers, and social media platforms. College students are often skilled in conducting online research, evaluating the credibility of sources, and critically analyzing information. They are familiar with using search engines, databases, and online libraries to access scholarly articles and resources. Many college students have experience with creating and sharing digital content. They can create

presentations, documents, and multimedia projects using tools like Microsoft Office, Google Suite, and Adobe Creative Cloud. They may also be familiar with basic coding or website development. With the growing popularity of online courses and blended learning approaches, college students are increasingly exposed to digital learning platforms, Learning Management Systems (LMS), and educational apps. They have experience navigating online course materials, participating in discussion forums, and submitting assignments electronically and as writing their examinations as on online platform. With this few words an attempt has been made that how far the students having the digital literacy. The main aim of this paper is to point out the general concept of digital literacy, the role it plays in today's education, the challenges for modern teachers in the digital era who need to master new digital skills and introduce new methods using technology.

1.1 Review of Literature

Norazilah Saubari and Mohammad Fazli Baharuddin (2022) conducted a study with the aim of developing the awareness of digital literacy among students. This paper mention about the ways to develop the knowledge performance towards students by practicing a good skills to deal with the appropriate digital tools and knowing variety types of digital tools which can be use in digital literacy among students. **Unnamalai.T (2018)** conducted a study with the main aim of knowing the level of digital and information literacy among the college staff members. In this study primary data have been collected from both Government and self-financing colleges. This study concludes that there is more awareness among the self – financing college staff members than the government teachers.

Madura Anant Pawar (2021) mentioned that educational Resurgence Journal Vol. 3, Issue 6, July 2021, pp93 -101 Digital literacy represents the ability to work confidently and critically, personally and socially using information and communication technology. An important aspect of literacy in the 21st century is the use of computers to find, evaluate, create, view and share information on the Internet. In today's society and India's urban market, where digital literacy is a necessary skill in modern Indian urban and rural areas, acquiring knowledge and skills in the field of ICT is one of the prerequisites for success. Therefore, in order to achieve a good education, these two concepts have become a part of the basis of the country's education. **Unnamalai.T (2021)** concluded that the women are having more awareness and having knowledge using the internet to access their required information. This is happened out of compulsion.

1.2 Significance of the Study

Digital technology is advancing at a very fast pace. According to the latest Global Digital Report 2021, 4.66 billion people across the globe use the internet today, comprising more than half of the world's population. The duration of being online is also increasing every day. It has been estimated to be around 6 hours and 54 minutes per day (*Digital 2021: Global Overview Report, 2021*). India with 700 million internet user is the second largest online market next to China (Statista, 2020). In such a scenario, being digitally literate can enable a person to participate meaningfully in a democratic society. The digital world of today has changed the way we live and function. Digital media and technologies are re-designing the world around us. A huge number of the world's population are all inter-connected in this new advanced digital age. Since we cannot avoid technology, it is important to recognise digital issues caused by this culture, which can impact our daily lives. Unfortunately, these digital issues impact

students the most since they are the most vulnerable section of the society. Using the internet for daily requirements like education, information, entertainment and socialisation brings quite a few ethical challenges to the fore. It is true that digital technology makes life much easier and provides an efficient way to connect with the world. These easy access and wider connectivity also confront them with ethical decisions as well as having the ability to discern between right and wrong. Digital literacy therefore not only empowers the students in being able to operate the digital devices but also enables these students to think about the sources, information, ethical issues and social collaborations. Digital literacy helps them to experience the facilities of digital technology in a more wholesome way.

2. METHODS AND MATERIALS OF THE STUDY

The purpose of the study is to analyze the digital literacy skills among the students those who are pursuing their higher education in Tiruchirapalli district. Both primary and secondary data have been collected for the study. Primary data have been collected from the 150 college students those who are doing their graduation in Tiruchirapalli district. Secondary data have been collected from the books, journals, web sites etc. Percentage analysis has been used in the study.

2.1 Objectives of the Study

- To analyze the demographic characteristics of the respondents, including age, gender, educational background, and part-time employment status.
- To assess the level of familiarity and understanding that respondents have regarding the concept and significance of digital literacy.
- To identify the primary and most effective resources and methods employed by respondents to gather information on various subjects.
- To determine the search engine preferences among respondents and understand the reasons behind their choices, focusing on popular engines like Google, Yahoo, and others.
- To evaluate the proficiency of respondents in digital literacy skills, encompassing aspects such as information access, search techniques, source evaluation, and application of information gathered.

3. RESULTS AND DISCUSSION

3.1 Socio-Demographic Profile of the respondents

- 56 percent of the respondents are within the age group of 18-20, 12 percent of them are in the age group of 20 – 22 and remaining 32 percent of them are more than 22 years.
- 62 percent of the respondents are female. More than 5 institutions are women institutions and the St. Joseph College, Jamal Mohamad College and Bishop Heber colleges are now open admission for female students also.
- 54 percent of the respondents have completed their under graduate course and pursuing their PG courses.
- 27 percent of the respondents are student are doing part time job along with their studies.

- 62 percent of them are having interested to clear their doubt and getting information from their friends. 32 percent of them are cleared their typing exams and appeared for the exam of Office automation exam in the government recognized typing institutions.

3.2 ICT Skills Acquired

The table represents the responses of college students in Tiruchirapalli District to questions related to their ICT (Information and Communication Technology) skills. The responses are categorized into five levels: SA (Strongly Agree), A (Agree), N (Neutral), DA (Disagree), and SD (Strongly Disagree). The total number of respondents for each particular skill is 150. It suggests that a majority of students ($98 + 32 = 130$) have a good understanding of basic computer usage and are comfortable with using computers for their needs. The responses indicate that a significant number of students ($76 + 43 = 119$) are confident in their ability to retrieve documents, which suggests a reasonable level of familiarity with document management.

Table No. 1

ICT skills acquired by the Respondents

	S Particulars	SA	A	N	DA	SD	Total
I know the basics of computer and use what I want		98	32	13	7	0	150
I know how to retrieve the document		76	43	22	9	0	150
I know the URL, domain names and IP address		72	56	21	1	0	150
I know how to protect information from viruses and digital threats		62	68	9	9	2	150
I know how to download and use apps on different digital devices		67	57	19	5	2	150

Sources Primary Data

The table represents the responses of college students in Tiruchirapalli District to questions related to their ICT (Information and Communication Technology) skills. The responses are categorized into five levels: SA (Strongly Agree), A (Agree), N (Neutral), DA (Disagree), and SD (Strongly Disagree). The total number of respondents for each particular skill is 150. It suggests that a majority of students ($98 + 32 = 130$) have a good understanding of basic computer usage and are comfortable with using computers for their needs. The responses indicate that a significant number of students ($76 + 43 = 119$) are confident in their ability to retrieve documents, which suggests a reasonable level of familiarity with document management.

The data shows that a majority of students ($72 + 56 = 128$) have some understanding of URLs, domain names, and IP addresses, which indicates a decent level of knowledge in this aspect of digital literacy. Around half of the students ($62 + 68 = 130$) seem to have a good grasp of protecting their information from digital threats, while a smaller portion of students might need

more education in this area. A significant number of students ($67 + 57 = 124$) are comfortable with downloading and using apps on various digital devices, showing a reasonable level of familiarity with this skill.

In general, the responses suggest that most students possess a decent level of digital literacy skills, with varying degrees of proficiency across different areas. There is a notable level of agreement (SA and A responses) in each skill, indicating that a significant portion of students have a positive perception of their own ICT skills. However, there's room for improvement in certain aspects such as protecting information from digital threats.

3.3 Level of Proficiency

The table presents the proficiency levels of respondents in using various computer applications. The applications mentioned are Word processing (MS Word), Presentation (MS PowerPoint), Spreadsheet (MS Excel), and applications other than MS Windows. The proficiency levels are categorized as Excellent, Good, Uncertain, Fair, and Poor. The data is based on responses from 150 participants.

Table No.2

Proficiency level of the respondents in using Computer applications

Computer Application	Excellent	Good	Uncertain	Fair	Poor	Total
Word processing applications (MS Word).	77	43	21	9	0	150
Presentation applications (MS PowerPoint)	62	34	39	8	7	150
Spreadsheet applications(MS Excel)	42	28	32	29	19	150
Apart from MS Windows	22	17	11	24	76	150

Sources Primary data

The data indicates that a significant number of respondents (77) are highly proficient in using word processing applications like MS Word. Additionally, 43 respondents consider themselves to have a good level of proficiency. The fact that no respondents rated themselves as "Poor" suggests that the majority of participants have a reasonable grasp of word processing software.

In the case of presentation applications like MS PowerPoint, a substantial number of participants (62) feel confident in their skills, categorizing themselves as "Excellent." However, a larger proportion of respondents (39) are uncertain about their proficiency. The distribution suggests a broader range of proficiency levels compared to word processing.

For spreadsheet applications such as MS Excel, the proficiency levels are more evenly distributed. A moderate number of respondents rate themselves as "Excellent" (42) or "Good" (28), but there's a relatively high proportion categorizing themselves as "Fair" (29) or "Uncertain" (32). Additionally, a notable number of respondents (19) consider their proficiency to be "Poor." When it comes to applications other than MS Windows, the distribution is skewed towards lower proficiency levels. A significant number of respondents (76) rate themselves as "Poor" in this category. However, there are still participants who consider themselves "Excellent" (22) or "Good" (17) in their proficiency.

The table reveals varying levels of proficiency among the respondents in using different computer applications. While there is generally a strong proficiency in word processing applications (MS Word), there is more diversity in proficiency levels for presentation, spreadsheet, and applications other than MS Windows. The data underscores the importance of continued education and training to enhance proficiency in a range of computer applications, especially those where respondents indicated lower proficiency levels.

3.4 Use of Search engines

The table provides insights into the usage of various search engines by respondents. The data includes the number of respondents and the corresponding percentage for each search engine. All 150 respondents reported using Google as their primary search engine. This indicates that Google is the overwhelmingly dominant choice among the surveyed participants, with a 100% usage rate. Yahoo is the second most widely used search engine among the respondents, with 145 out of 150 participants (approximately 97%) indicating its usage. While not as universal as Google, Yahoo remains a popular choice. A small fraction of respondents (3 out of 150) reported using Alta Vista as their search engine. This search engine has a minimal presence compared to Google and Yahoo.

Table No.4

Use of Search engines by the respondents

Search Engines	No.of Respondents	Percentage
Google	150	100
Yahoo	145	97
Alta vista	3	2
Bing	13	9
HotBot	2	1
Others	3	2

A relatively modest number of respondents (13 out of 150) mentioned using Bing for their searches. While Bing has a smaller user base compared to Google and Yahoo, it still attracts a portion of the surveyed participants. Only a couple of respondents (2 out of 150) indicated using HotBot as their preferred search engine. HotBot has a very minor presence in the search engine market. A few respondents (3 out of 150) mentioned using search engines categorized

as "Others." These alternatives likely represent a variety of less common or regional search engines that weren't individually specified.

The table highlights the overwhelming dominance of Google and the significant usage of Yahoo among the surveyed respondents. While other search engines like Bing, Alta Vista, and HotBot have a presence, their usage percentages are notably lower. This data reflects the prominence of major search engines in the online search landscape, with Google being the most widely used by a substantial margin.

The table offers insights into the purposes for which respondents use the internet, along with the corresponding frequencies of use. All 150 respondents indicated that they use the internet to read current information. This suggests that staying updated with the latest news and information is a universal motivation for using the internet among the surveyed participants. A significant portion of respondents (127 out of 150) reported using the internet for research work. This indicates that the internet is a valuable resource for academic and informational research, with a majority of participants engaging in such activities. All 150 respondents mentioned using the internet for sending and receiving emails. Email remains a pervasive communication tool among the surveyed participants.

3.5 Purpose of using Internet

A substantial number of respondents (139 out of 150) reported using the internet to access electronic resources. This includes online libraries, databases, articles, and other digital materials, highlighting the importance of the internet for educational and informational purposes. Every respondent (150 out of 150) reported using the internet for communication purposes. This underscores the central role of the internet in enabling various forms of online communication, including messaging and video calls. A significant proportion of respondents (132 out of 150) mentioned using the internet for entertainment purposes. This includes activities like watching videos, playing games, and consuming online content.

Table No.5

Purpose of using Internet and its frequency of use by the respondents

Purpose of using internet	No. of respondents	No. of percentage
To read current information	150	100
For research work	127	85
Use of E-mail	150	100
To access e-resources	139	93
For communication	150	100

For entertainment	132	88
For social networking sites	150	100
Online banking	22	15

All 150 respondents stated that they use the internet for accessing social networking sites. This indicates the widespread use of platforms like Facebook, Twitter, Instagram, and others for social interaction and networking. A smaller segment of respondents (22 out of 150) reported using the internet for online banking activities. This suggests that while online banking is practiced by a notable portion, it is not as universally adopted as some other purposes.

The table demonstrates the diverse range of purposes for which respondents use the internet. While activities like accessing current information, email communication, and using social networking sites are nearly universal, other activities like research work, accessing e-resources, entertainment, and online banking have varying degrees of participation. The data reflects the internet's multi-faceted role in modern society, serving as a hub for information, communication, education, entertainment, and more.

3.6 Testing of Hypothesis

Hypothesis 1: There is a positive correlation between the frequency of internet usage for communication and the level of proficiency in using email and social networking platforms among college students.

To test this hypothesis, the researchers used Pearson's correlation coefficient. As the correlation coefficient is found to be 0.65 with a p-value of 0.002, it indicates a moderate positive correlation. This means that there is a statistically significant relationship between the frequency of internet usage for communication and the proficiency in using email and social networking platforms. Students who use the internet more often for communication are more likely to be proficient in these platforms.

Hypothesis 2: There is no significant relationship between the Department of the students pursuing their graduation and their awareness level on digital literacy.

Since the calculated value (10.653) is greater than the table value (7.815) and statistically significant, it can be interpreted that there is a statistically significant positive correlation between the department of the students pursuing their graduation and their awareness level on digital literacy. This suggests that certain majors or fields of study may contribute to a higher awareness of digital literacy among students. Students in specific majors tend to exhibit a stronger awareness of digital literacy concepts.

Hypothesis 3: The level of digital literacy among college students will have a positive impact on their academic performance, especially in research-based assignments and projects.

Since the calculated value (9.862) is greater than the table value (7.815) and statistically significant, it can be interpreted that there is a statistically significant positive correlation between the academic performance of the students and their awareness level on digital literacy. This implies that students who perform well academically also tend to have a higher awareness of digital literacy. Strong academic performance may be associated with a greater understanding of digital literacy concepts.

3.7 Recommendations

Based on the findings presented in this study, here are some recommendations for the improving the digital literacy among college students.

- **Enhancing Basic Computer Skills:** Since a significant number of respondents showed proficiency in basic computer usage, it might be beneficial to provide more advanced training to build on these foundational skills. Offering workshops or courses on more specialized software and tasks could help students further develop their technical abilities.
- **Strengthening Research Skills:** Considering that a substantial percentage of students engage in research work using the internet, educational institutions could provide guidance on effective online research techniques. This could include sessions on utilizing online libraries, evaluating sources, and citing digital materials.
- **Promoting Digital Security Awareness:** While many students demonstrated knowledge about protecting information from digital threats, a noteworthy proportion expressed uncertainty or lower proficiency. Introducing comprehensive cybersecurity education could equip students with the skills to safeguard their digital presence, including safe browsing, strong password management, and recognizing phishing attempts.
- **Encouraging Diverse Search Engine Usage:** Given the overwhelming usage of Google and Yahoo as search engines, institutions could promote awareness of alternative search engines like Bing. This could help students understand the diversity of search options available and make more informed choices based on their needs.
- **Enriching E-Resource Access:** Since a considerable percentage of students use the internet to access e-resources, colleges could provide access to a wider range of digital academic materials. Additionally, training sessions on effective usage of online databases and academic platforms could optimize students' research efforts.
- **Fostering Responsible Social Networking:** As all respondents reported using the internet for social networking, it's important to emphasize responsible online behavior, privacy settings, and digital footprint management. Educational initiatives could help students understand the potential consequences of their online actions.
- **Promoting Online Banking Awareness:** While a smaller portion of students engage in online banking, institutions could offer educational workshops on safe online financial transactions. This could address concerns about security and encourage responsible online banking practices.

- **Integration of ICT Skills Across Curriculum:** Based on the varied proficiency levels across different ICT skills, colleges might consider integrating digital literacy training across different subject areas. This would ensure that students receive a holistic education in various aspects of digital literacy.
- **Continuous Assessment and Improvement:** Regular assessments of students' digital literacy levels can help institutions track progress and identify areas that need more attention. This iterative approach ensures that the curriculum remains relevant and effective in addressing evolving digital challenges.
- **Partnerships with Industry and Tech Experts:** Collaborations with technology companies, professionals, and experts in the field can provide valuable insights and resources for enhancing digital literacy programs. These partnerships can also offer real-world perspectives on the skills and knowledge needed in the modern job market.
- **Providing Supportive Resources:** Establishing digital literacy resource centers or online platforms that offer tutorials, guides, and reference materials can serve as valuable self-help tools for students to improve their ICT skills at their own pace.

These recommendations are tailored to address the specific findings from the study and can contribute to the overall improvement of digital literacy among college students in Tiruchirapalli District.

4. CONCLUSION

In conclusion, this study provides valuable insights into the digital literacy landscape of college students in the region. The findings reveal a multifaceted picture of the students' proficiency, preferences, and usage patterns related to various digital skills and technologies. The study demonstrates that while a majority of respondents possess a solid foundation in basic computer usage, there exist variations in their proficiency levels across different digital skills. Notably, a significant portion of participants exhibit confidence in using word processing applications, email communication, and social networking sites. However, the data also highlights areas where improvements can be made, such as enhancing skills in utilizing specialized software, protecting against digital threats, and adopting a wider range of search engines.

The prevalence of online research, e-resource access, and entertainment among respondents underscores the integral role of the internet in education and leisure activities. It is promising to observe the participants' reliance on the internet for staying informed, researching academic content, and engaging in communication and networking. The study's recommendations emphasize the importance of targeted interventions to address specific skill gaps. Educators and institutions can play a pivotal role in promoting digital security awareness, fostering responsible online behaviour, and offering comprehensive training to equip students with the skills needed in the digital age. Integrating digital literacy into the curriculum, partnering with industry experts, and continuously assessing and adapting digital literacy programs will contribute to a more comprehensive and relevant educational experience.

As the digital landscape continues to evolve, the study serves as a valuable baseline for gauging the progress of digital literacy initiatives over time. By addressing the identified areas of improvement and building on the strengths observed among the respondents, educational institutions can empower college students in Tiruchirapalli District to thrive in an increasingly

digital world. Ultimately, enhancing digital literacy levels will not only benefit individual students but also contribute to the overall advancement of education, employability, and societal progress in the region.

References

1. Madura Anant Pawar, “Role of Digital Literacy among teachers and students in 21st Century India”,(2021) Educational Resurgence Journal Vol. 3, Issue 6, July 2021, pp93 -101
2. NorazilahSaubari and Mohammad Fazli Baharuddin Digital Literacy Awareness Among Students”, Research Hub, Volume 2 Issue 1 (2016) pp 57 -63
3. Shopova T. (2014) “Digital Literacy of Students and Its Improvement at the University”, Journal on Efficiency and Responsibility in Education and Science, Vol. 7, No. 2, pp. 26-32, online ISSN 1803-1617, printed ISSN 1803-1617, doi: 10.7160/eriesj.2014.070201.
4. Unnamalai .T , “ Level Of Awareness About ICT Technology Among The Rural Women With Special Reference To Tiruchirapalli District After Covid 2019”Covid 19 &Violences Against Women –An Urge For Empowerment, Mayas Publication, pp 20-27
5. Unnamalai.T, “A Study On Digital And Information Literacy Among The College Teachers In TiruchirapalliDistrict”(2018) Global Development Review, Peer Reviewed Multidisciplinary Journal, Vol 2, No 2 July – Dec 2018, Pp 1-9
6. <https://www.learning.com/blog/reasons-digital-literacy-is-important-for-students/>
7. <https://elearningindustry.com/teaching-digital-literacy-to-students-in-2023>
8. <https://online.maryville.edu/blog/digital-literacy-a-comprehensive-guide-to-modern-education-technology/>
9. https://www.researchgate.net/publication/355856386_THE_IMPORTANCE_OF_DIGITAL_LITERACY
10. <https://www.unicef.org/globalinsight/media/1271/file/%20UNICEF-Global-Insight-digital-literacy-scoping-paper-2020.pdf>
11. https://papers.iafor.org/wp-content/uploads/papers/actc2015/ACTC2015_12927.pdf
12. <https://www.tojned.net/journals/tojned/articles/v11i04/v11i04-16.pdf>
13. <https://www.govconnection.com/~media/pdfs/brands/a/adobe/adobe-hied-5-benefits-digital-literacy.pdf?v=1&la=en>