Effectiveness of Online Learning Platform Features, Skills Required and its Impact on LIS Students and Research Scholars in Karnataka

Nagaraja L. Gujjarappa
Research Scholar
Dept. of Studies in Library and Information Science,
University of Mysore, Mysuru – 570006, Karnataka.
nagarajalg@gmail.com

Chandrashekara M
Senior Professor
Dept. of Studies in Library and Information Science,
University of Mysore, Mysuru – 570006, Karnataka.
chandra.uom@gmail.com

Abstract

The study evaluates students' perceptions of online learning platforms, focusing on features, skills required, and negative impacts. A quantitative research design was used, with 544 respondents from 13 Karnataka universities participating. The study found that video/audio, recording/live captions, messaging, privacy, and digital whiteboard features are useful. Basic internet search, Microsoft Office, and email management skills are essential for effective online learning. Challenges such as focus issues, physical health, academic workload, and economic impact remain. However, students and researchers are confident in navigating online learning platforms, providing valuable insights for educators and universities..

Keywords
Online learning; LIS education; Students; Research Scholars; Technical skills; e-learning

Electronic access
The journal is available at www.jalis.in
DOI: 10.5281/zenodo.15172026

Journal of Advances in Library and Information Science
ISSN: 2277-2219 Vol. 14. No.2. 2025. pp.101-107

1. Introduction

The rapid advancement of Information Communication Technology (ICT) influenced the education sector, leading to the widespread adoption of online learning platforms, especially during and after the COVID-19 pandemic, to ensure continuous instruction. These online platforms provide different features such as video conferencing, real-time collaboration, instant messaging, and digital whiteboard tools, making learning more accessible and flexible(Dhawan, 2020). The pandemic further enhanced the move to online learning and teaching, convincing educators and students to adapt to online learning environments(Bao, 2020). While online platforms offer several advantages, including interactive learning opportunities, accessibility, and flexibility, they also pose numerous challenges and require specific technical skills for effective utilisation (Rapanta et al., 2020).

Students' digital skills, the usability of platform features, and overall students' confidence in using technology for learning are the multiple factors for the effectiveness of online learning. While some students find online learning beneficial and engaging, a few experience technical issues, lack of focus,and health-related issues(Aristovnik et al., 2020). Furthermore, the digital divide and the disparities in access to technology continue to create challenges, especially for learners from poor economic backgrounds (Czerniewicz et al., 2020). The present study aims to evaluate the perceptions of postgraduate students and research scholars about online learning platforms, focusing on the usefulness of various features of online learning platforms, the skills required to navigate these online platforms, and their negative impacts on LIS students. Additionally, the study explores students' confidence levels in utilising online learning platforms and examines how online learning experiences impact their academic performance and digital literacy. The findings of this study will provide a meaningful understanding of the advantages and challenges of online learning platforms, helping educators and institutions to improve their online learning methodologies.

2. Review of Literature

The incorporation of online learning platforms in Library and Information Science (LIS) education has reshaped the academic experience of students. As LIS education increasingly integrates digital platforms and online learning and teaching, it is important to

study the usefulness of these platforms, the essential technology capabilities, and the challenges faced by LIS students. This review explores available research on online learning in LIS education, underscores key themes and finds research gaps.

LIS education heavily depends on digital or online resources, information management tools, virtual libraries, and virtual learning platforms important for skill development. Research has shown that online platforms with features like video conferencing, digital whiteboards, and interactive discussion forums improve LIS students' engagement (Richards et al., 2018). Video, audio, instant messaging and chatting features of online learning platforms enable real-time direct and personalised communication between teachers and students, helpful for clarifying doubts(Monika et al., 2023). Low costs, self-learning, flexibility, and convenience are the benefits of online learning (Almahasees et al., 2021).

Online information literacy training programmes benefit the LIS students, but they struggle with hands-on application(Julien et al., 2013). Abstracting and indexing skills, software development abilities, and information literacy are the key competencies for LIS graduates(Tina, 2022). Technical skills are crucial for LIS programs (Partridge et al., 2010). The COVID-19 pandemic posed several challenges to the educational system, including cognitive, managerial, behavioural, and technical challenges(Yao et al., 2022). Issues with virtual learning platforms include system failures and the inability to rewind live broadcasts (Chen et al., 2020). The convenience and flexibility of online classes make them an attractive option, whereas Internet connectivity issues in rural areas challenge students (Muthuprasad et al., 2021). Less technological infrastructure, lack of digital competence, workload, and lack of assessment and supervision may disrupt online learners(Adedoyin & Soykan, 2020). Unfamiliarity with online learning and physical conditions, e.g. eye strain and slow Internet connectivity, are the major challenges in online learning(Octaberlina & Muslimin, 2020).

Users' or learners' confidence in utilising and navigating online learning platforms is influenced by digital literacy, system usability, and prior experience. A study by Martin and Bolliger (2018) revealed that learners with higher technical knowledge reported more confidence in using learning systems, while learners with a lack of experience showed nervousness and unwillingness. Similarly, Tsai et al. (2019) also highlighted that self-efficacy is an important factor influencing how well students adapt to learning platforms, with more confident learners exhibiting better levels of engagement. Online platform design also plays a crucial role; Sanchez et al. (2013) found that interactive features, interfaces, and clear guidance enhance learners' confidence, whereas fewer features or poorly designed tools lead to disengagement and frustration. However, gaps remain evident among different demographic groups, with Scherer et al. (2019)exploring that those with lower socioeconomic status and older adults often face greater difficulties adopting online learning tools. These findings show that while many learners are becoming more expert with online learning technologies, training and accessibility remain critical for encouraging universal confidence. Finally, a few studies explore how online learning platform features are useful for students, the required skills to use online platforms, and their impacts in other fields, but there is a need to study how LIS students find the usefulness of online platform features and positive and negative impacts of online learning faced by LIS students. The present study aims to investigate how LIS students perceive online learning platforms with the following research questions:

1) Which online learning platform features are considered the most and least useful by LIS students?
2) What skills are most essential for effectively using online learning platforms?
3) What are the major challenges and negative impacts faced by LIS students in online learning platforms?
4) How confident are users in navigating and utilising online learning tools?

3. Methodology

A quantitative research design was utilised to evaluate the usefulness of online learning platform features, essential skills to use the platform, impacts and LIS students' confidence level in using the platforms. The study follows statistical analysis, including descriptive statistics. A random sampling method was employed to ensure that all research scholars and postgraduate students had an equal chance to be involved in the survey. A questionnaire was used as a tool to gather the data. The questionnaire was distributed both online through Google Forms and in-person. A total of 544respondents, including 422 postgraduate students and 122 research scholars from 13 universities in Karnataka responded to the survey. A. Microsoft

Excel was utilised for data visualisation and correction. The SPSS was used to analyse the data by applying the Chi-square statistical tests.

4. Data Analysis

This section presents the data analysis, and the results are interpreted in the context of research questions.

4.1. Features of Online Learning Platforms

Table 1 shows the usefulness ratings of various features of online learning platforms as perceived by LIS students. Ratings were based on a 5-point Likert scale: 5 – Very Useful, 4 – Useful, 3 – Moderately Useful, 2 – Less Useful, and 1 – Not Useful. The top 5 online learning platforms' features have been identified based on the highest mean ratings. The highly preferred online platform feature is Video/Audio (Mean = 4.2537), which is essential because clear communication or interaction is the base of online learning. Recording/Live Captions (Mean = 4.0643) is highly useful, particularly for accessibility, allowing to review lecturers later. Instant Messaging/Chatting (Mean = 4.0717) is required for real-time interaction. Privacy and Security (Mean = 4.0588) are strongly preferred, underscoring concerns related to data security and secure communication. Digital Whiteboard (Mean = 3.9191) is generally utilised for clarifications during online lectures. Since all p-values = .000, it shows all features have significant differences in students' preferences.

Table 1 Usefulness of Online Learning Platform Features

Features	M	SD	X^2	*p*
Digital Whiteboard	3.92	.97901	303.188	.000
Instant messaging/Chatting	4.07	.87128	373.243	.000
Video/Audio	4.25	.71422	526.735	.000
Spotlighting	3.68	1.00057	263.059	.000
Customizable backgrounds / Dark and light themes	3.78	.97897	299.015	.000
Meeting reactions/Raise Hand	3.91	.96049	300.026	.000
Recording / Live captions	4.06	.89273	359.511	.000
Multi-device support	3.93	.95014	299.474	.000
Layout view	3.74	.95085	293.279	.000
Privacy and security	4.06	.92452	351.423	.000
Meeting reminders/Automatic Notifications	3.93	.91889	312.949	.000

Note: Mean values are based on a 5-point rating scale: 5 – Very Useful, 4 – Useful, 3 – Moderately Useful, 2 – Less Useful, and 1 – Not Useful. M = Mean; SD = Standard Deviation; X^2 = Chi-Square; p = Probability Value.

4.2. Skills Required to Use Online Learning Platforms

Table 2 and Graph 1 show the priority ratings for various skills essential for online learning platforms, as rated by LIS students. The standard deviation shows response variation, while mean values indicate the importance of each required skill. The high means values for basic computer skills indicate that (Mean = 4.6176) is considered to be highly required.

Students (Mean = 4. 2316) rated safe finding and installation of software skills as highly required due to their responsibility for safe finding and installing software/applications for learning. Social media and video conferencing skills (Mean = 4.3640) suggest students have greater confidence in video conferencing for classes and interaction with friends and teachers. Regarding technical skills (cyber security, password setting, troubleshooting), students (Mean = 4. 2978) rated it highly required. The p-value for the skills shows statistically significant differences. The p-value and chi-square test (X^2) confirm statistically significant differences in students responses.

Table 2 Priority of Skills Required for Online Learning

Skills	M	SD	X^2	*p*
Basic computer skills	4.62	.62553	916.000	.000
Safe finding & installation of Software skills	4.23	.77104	548.371	.000
Social media and video conf. skills	4.36	.75306	574.474	.000
Technical Skills	4.30	.83408	509.750	.000

Note: Mean values are based on a 5-point rating scale: 5 = Highly Required, 4 = Required, 3 = Moderately Required, 2 = Slightly Required, and 1 = Not Required. M = Mean; SD = Standard Deviation; X^2 = Chi-Square; p = Probability Value

4.3. Negative Impacts of Online Learning

Table 3 Negative Impacts of Online Learning

Impact	Resp.	SA		A		N		D		SD		TS	
		N	%	N	%	N	%	N	%	N	%	X^2	*p*
Inability to focus on screens	PGS	139	32.9	175	41.5	87	20.6	16	3.8	5	1.2	16.694	.002
	RS	47	38.5	63	51.6	7	5.7	5	4.1	0	0.0		
	Total	186	34.2	238	43.8	94	17.3	21	3.9	5	0.9		
Physical Health Issues	PGS	93	22.0	210	49.8	74	17.5	29	6.9	16	3.8	25.628	.000
	RS	52	42.6	50	41.0	11	9.0	9	7.4	0	0.0		
	Total	145	26.7	260	47.8	85	15.6	38	7.0	16	2.9		
Academic Workload	PGS	106	25.1	170	40.3	115	27.3	25	5.9	6	1.4	19.109	.001
	RS	41	33.6	58	47.5	12	9.8	11	9.0	0	0.0		
	Total	147	27.0	228	41.9	127	23.3	36	6.6	6	1.1		
Economic Impact on Students	PGS	123	29.1	165	39.1	95	22.5	29	6.9	10	2.4	12.192	.016
	RS	46	37.7	52	42.6	11	9.0	11	9.0	2	1.6		
	Total	169	31.1	217	39.9	106	19.5	40	7.4	12	2.2		
Online learning may create gaps and demographic disparities in access to quality education	PGS	115	27.3	176	41.7	111	26.3	16	3.8	4	0.9	16.915	.002
	RS	50	41.0	51	41.8	13	10.7	7	5.7	1	0.8		
	Total	165	30.3	227	41.7	124	22.8	23	4.2	5	0.9		
Feel disconnected from teachers when they turn off their cameras during class	PGS	129	30.6	177	41.9	82	19.4	27	6.4	7	1.7	10.233	.037
	RS	45	36.9	60	49.2	10	8.2	5	4.1	2	1.6		
	Total	174	32.0	237	43.6	92	16.9	32	5.9	9	1.7		

Note: Resp. = Respondents; TS = Test Statistics; PGS = Postgraduate Student; RS = Research Scholars; N = Number; X^2 = Chi-Square; p = p-value; SA = Strongly Agree; A = Agree; N = Neither Agree nor Disagree; D = Disagree; SD = Strongly Disagree. Responses were measured on a 5-point scale.

Table 3 present the perceived negative impacts of online learning among postgraduate students and research scholars and, compare their experiences using a chi-square test. It highlights key challenges such as focus issues, physical health concerns, academic workload, economic barriers and engagement difficulties. The percentages shown in the data interpretation are combined with Strongly Agree and Agree responses.

Research scholars reported greater difficulty focusing (90.1%) than postgraduate students (74.4%). The significant difference (p = .002), indicates that maintaining attention or the ability to focus on screens during online learning is a major challenge for both groups. Research scholars and postgraduate students agree that they are experiencing health issues due to online learning, with postgraduate students (71.8%) affected less than research scholars (83.6%). The highly significant result (p = .000) shows widespread physical health issues, such as eye strain and posture issues. A similar study identified eye strain as a barrier to e-learning(Todhunter, 2013). Research scholars (81.1%) feel more burdened by academic workload than postgraduate students (65.4%). The significant p-value (p = .001) shows that online learning may have increased academic workload, especially for scholars. Financial concerns, such as Internet costs and device affordability, are reported by 68.2%of postgraduate students and 80.3%of research scholars. Although both groups are affected, the significant result (p = .016) indicates scholars are slightly more concerned than PG students about economic barriers to online learning.
Class and Demographic Disparities: Compared to postgraduate students (69.0%), Research scholars (82.0%) are more concerned about the digital divide. The significant p-value (.002) suggests that online learning may strengthen disparities in access to quality education.

Feeling Disconnected When Teachers Turn Off Cameras: Both scholars and PG students express significant discomfort when the teachers turn off cameras, with scholars (86.1%) reporting a stronger impact than PG students (72.5%). The p-value (.037) indicates that gestures or facial expressions in communication are essential in online learning.

4.4. Confidence in Using Online Platforms

Table 4: *Student's Confidence in Using Online Learning Platforms*

Statements	Resp.	SA		A		N		D		SD		TS	
		N	%	N	%	N	%	N	%	N	%	X^2	*p*
Online learning enhances technology proficiency, helping me develop overall digital skills	PGS	172	40.8	171	40.5	68	16.1	10	2.4	1	0.2	15.832	.003
	RS	57	46.7	60	49.2	5	4.1	0	0.0	0	0.0		
	Total	229	42.1	231	42.5	73	13.4	10	1.8	1	0.2		
Confident in using and navigating various online learning tools	PGS	208	49.3	168	39.8	41	9.7	3	0.7	2	0.5	4.537	.338
	RS	63	51.6	53	43.4	5	4.1	1	0.8	0	0.0		
	Total	271	49.8	221	40.6	46	8.5	4	0.7	2	0.4		
Familiar with and comfortable with adopting new technologies in online learning	PGS	150	35.5	183	43.4	62	14.7	21	5.0	6	1.4	12.477	.014
	RS	56	45.9	56	45.9	9	7.4	1	0.8	0	0.0		
	Total	206	37.9	239	43.9	71	13.1	22	4.0	6	1.1		
Online learning activities have improved digital literacy skills	PGS	148	35.1	216	51.2	45	10.7	6	1.4	7	1.7	15.354	.004
	RS	61	50.0	57	46.7	4	3.3	0	0.0	0	0.0		
	Total	209	38.4	273	50.2	49	9.0	6	1.1	7	1.3		

Note: Resp. = Respondents; TS = Test Statistics; PGS = Postgraduate Student; RS = Research Scholars; N = Number; X^2 = Chi-Square; p = p-value; SA = Strongly Agree; A = Agree; N = Neither Agree nor Disagree; D = Disagree; SD = Strongly Disagree. Responses were measured on a 5-point scale.

Table 4 shows the research scholars and PG students' confidence in using online learning platforms, their perceptions of how participation in online learning has enhanced their digital literacy, and their ability to adopt technical advancements. It compares the responses of scholars and postgraduate students, analysing the significance of their perceptions using chi-square and p-values.

Online Learning Enhances Digital Literacy: 96.7%scholars agreed that online learning improved

their digital literacy, compared to postgraduate students (86.3%). The significant p-value (.004) indicates differences in the research scholar's and postgraduate student's opinions. Confidence in Using Online Learning Tools: 95.0% of research scholars reported slightly higher confidence than postgraduate students (89.1%) in navigating online learning platforms. Since the p-value (.338) is insignificant, this indicates no major difference in confidence levels between the postgraduate students and scholars. Comfort in Adopting New Technologies: 91.8%research scholars were more comfortable with adopting modern technology than postgraduate students (78.9%). There are significant (p = .014) differences in the opinions of research scholars and postgraduate students. Improvement in Technology Proficiency: A larger proportion of scholars (95.9%) stated improvements in technology skills compared to postgraduate students (81.3%). The p-value (.003) suggests that scholars gain more technological benefits.

5. Discussions

Video/audio, recording/live captions, messaging/chatting, privacy and security, and digital whiteboard features of online learning platforms are very useful features as highly rated by students. Basic skills like Internet search, MS Office, and email management are essential fundamentals for effective online learning. Safe finding software and installation is important but not as critical as basic computer skills; students may prioritise it more for maintaining protected and effective online learning environments. The ability to use social media and video conferencing tools is crucial for online learning. Cyber security awareness and troubleshooting skills are crucial to ensure safe and smooth online learning experiences.

Research scholars consistently reported higher negative impacts across all categories than postgraduate students, suggesting that they face more challenges with online learning, maybe due to their higher academic and research workload and deeper engagement in research-related activities, which require continued focus and interaction. Research scholars experience a greater enhancement in digital literacy, possibly due to higher engagement in research and academic tasks requiring advanced digital skills. Regarding comfort in adopting new technologies, postgraduate students may need additional training to adapt to rapidly changing digital environments compared to research scholars. Concerning the improvement in technology proficiency, scholars gain more technological benefits, likely due to their requirement for specialised software and data analytical tools in research.

6. Conclusion

The present research explored how LIS students find the usefulness of online platform features, essential skills to use platforms, negative impacts of online learning and the confidence levels of LIS students in using online learning platforms in Karnataka universities. The results show that whereas online learning offers user-friendliness and flexibility, factors like focus issues, physical health issues, academic workload, economic impact and other impacts remain crucial challenges.LIS students are very confident in navigating online learning platforms, digital literacy skills are improved by online learning, students are very comfortable with modern technological advancements, and they are satisfied with the advanced features of learning platforms.

Despite its contributions, this study is limited to Karnataka state-funded universities and library and information science studies. Future studies can examine learners' confidence in using online learning platforms across various disciplines and can survey satisfaction with online learning and its long-term impacts on learning outcomes. Educators and university authorities should encourage learners to use online learning tools as it will enhance digital proficiency through self-learning, and platform providers should focus on incorporating more and more useful features that will positively contribute to education.

References

1. Adedoyin, O. B., & Soykan, E. (2020). Covid-19 pandemic and online learning: the challenges and opportunities. *Interactive Learning Environments*, *0*(0), 863–875. https://doi.org/10.1080 /10494820.2020.181318

2. Almahasees, Z., Mohsen, K., & Amin, M. O. (2021). Faculty's and students' perceptions of online learning during COVID-19. *Frontiers in Education*, *6*(May).https://doi.org/10.3389/feduc.2021.638470

3. 3. Aristovnik, A., Kerzic, D., Ravselj, D., Tomazevic, N., & Umek, L. (2020). Impacts of the COVID-19 pandemic on life of higher education students: a global perspective. *Sustainability*,

12(20), 8438. https://doi.org/10.3390/su12208438

4. 4.Bao, W. (2020). COVID -19 and online teaching in higher education: A case study of Peking University . *Human Behavior and Emerging Technologies*, *2*(2), 113–115. https://doi.org/10.1002/hbe2.191
5. Chen, T., Cong, G., Peng, L., Yin, X., Rong, J., & Yang, J. (2020). Analysis of user satisfaction with online education platforms in China during the COVID-19 pandemic. *Healthcare (Switzerland)*, *8*(3). https://doi.org/10.3390/healthcare8030200
6. Czerniewicz, L., Agherdien, N., Badenhorst, J., Belluigi, D., Chambers, T., Chili, M., de Villiers, M., Felix, A., Gachago, D., Gokhale, C., Ivala, E., Kramm, N., Madiba, M., Mistri, G., Mgqwashu, E., Pallitt, N., Prinsloo, P., Solomon, K., Strydom, S., … Wissing, G. (2020). A wake-up call: equity, inequality and Covid-19 emergency remote teaching and learning. *Postdigital Science and Education*, *2*(3), 946–967. https://doi.org/10.1007/s42438-020-00187-4
7. Dhawan, S. (2020). Online learning: A Panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, *49*(1), 5–22. https://doi.org/10.1177/0047239520934018
8. Julien, H., Tan, M., & Merillat, S. (2013). Instruction for information literacy in Canadian academic libraries: a longitudinal analysis of aims, methods, and success. *Canadian Journal of Information and Library Science*, *37*(2), 81–102. https://doi.org/10.1353/ils.2013.0007
9. Martin, F., & Bolliger, D. U. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning Journal*, *22*(1), 205–222. https://doi.org/10.24059/olj.v22i1.1092
10. Monika, J., B., & Sunita. (2023). Scope and challenges of multimedia in the education sector. *International Journal For Multidisciplinary Research*, *5*(3), 1–6. https://doi.org/10.36948/ijfmr.2023.v05i03.3868
11. Muthuprasad, T., Aiswarya, S., Aditya, K. S., & Jha, G. K. (2021). Students' perception and preference for online education in India during the COVID-19 pandemic. *Social Sciences & Humanities Open*, *3*(1), 100101. https://doi.org/10.1016/j.ssaho.2020.100101
12. Octaberlina, L. R., & Muslimin, A. I. (2020). EFL students perspective towards online learning barriers and alternatives using Moodle/Google Classroom during COVID-19 pandemic. *International Journal of Higher Education*, *9*(6), 1–9. https://doi.org/10.5430/ijhe.v9n6p1
13. Partridge, H., Lee, J., & Munro, C. (2010). Becoming "Librarian 2.0": The skills, knowledge, and attributes required by library and information science professionals in a web 2.0 world (and beyond). *Library Trends*, *59*(1–2), 315–335. https://doi.org/10.1353/lib.2010.a407820
14. Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the COVID-19 crisis: refocusing teacher presence and learning activity. *Postdigital Science and Education*, *2*(3), 923–945. https://doi.org/10.1007/s42438-020-00155-y
15. Richards, M., Bladek, M., Okamoto, K., & Richards, M. (2018). Interactive whiteboards in library instruction: Facilitating student engagement and active learning. *Practical Academic Librarianship: The International Journal of the SLA Academic Division*, *8*(1), 1–27.
16. Sanchez, R. A., Hueros, A. D., & Ordaz, M. G. (2013). E-learning and the University of Huelva: A study of WebCT and the technological acceptance model. *Campus-Wide Information Systems*, *30*(2), 135–160. https://doi.org/10.1108/10650741311306318
17. Scherer, R., Siddiq, F., & Tondeur, J. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education. *Computers and Education*, *128*, 13–35. https://doi.org/10.1016/j.compedu.2018.09.009
18. Tina, A. (2022). Digital education and employment opportunities among library and information science (LIS) undergraduate students in universities in Cross River State. *International Research Journal of Education and Technology*.
19. Todhunter, B. (2013). LOL - limitations of online learning - are we shortening open and distance education messages? *Distance Education*, *34*(2), 232–252. https://doi.org/10.1080/01587919.2013.802402
20. Tsai, M. J., Wang, C. Y., & Hsu, P. F. (2019). Developing the computer programming self-efficacy scale for computer literacy education. *Journal of Educational Computing Research*, *56*(8), 1345–1360. https://doi.org/10.1177/0735633117746747
21. Yao, Y., Wang, P., Jiang, Y. J., Li, Q., & Li, Y. (2022). Innovative online learning strategies for successfully constructing student self-awareness during the COVID-19 pandemic: Merging TAM with TPB. *Journal of Innovation and Knowledge*, *7*(4), 100252. https://doi.org/10.1016/j.jik.2022.100252