Effectiveness of RemoteXs System in Teaching and Research Practices

Pratichya Shakya[*], *Lila Nyaichyai*[**]

Abstract

Tribhuvan University Central Library (TUCL) has implemented Remote Access Services through the RemoteXs system to impart efficient e-resources services for its users mainly after the Covid-19 pandemic. This study aims at investigating the effectiveness of that system in teaching and research practices at Tribhuvan University. This study is based on a quantitative approach. Post positivistic ontology has been adopted as a research paradigm that identifies that all observations are imperfect and have errors and all theory is revisable. The survey questionnaire was used to collect data. The population comprised faculty, Ph.D. scholars, and M. Phil. students among which 105 users were taken as a sample size. The demographic data and statistical data were analyzed using Excel, 2007. Hypotheses were tested to find out their effectiveness on teaching and research practices. This study proved that the p-value (p = 1.96) suggested a significant contribution to the effectiveness of the RemoteXS system in teaching and research practices. It is observed that the system provided current academic and research products in an easy and accessible way to faculties and M.Phil as well as Ph.D. students. High Likert scores on variables; increased productivity after use, perceived usefulness, perceived ease of use, relevancy of content, advanced search system, saving the time of users, and document downloading facilities also indicated the effective use of it by faculties and research students. At last, the issue of the unavailability of Nepal digital resources has been emphasized which would have been used rigorously for the conduction of research in the context of Nepal.

Keywords: *E-resources; Off-campus access; RemoteXs; Tribhuvan University Central Library; Library automation; Digital repository.*

Introduction

In Nepal, few libraries have started adopting the emerging trend of digital libraries (Gautam, 2008). Among them, Tribhuvan University Central Library (TUCL), one of the biggest academic libraries in Nepal (Tribhuvan University Central Library, 2023), has sown a seed

* Central Deparment of Library and Information Science

**Central Deparment of Library and Information Science, TU, Kirtipur; Email: lalichyai@gmail.com

of hope by subscribing Proquest database with RemoteXs software. RemoteXs system is a cloud-based service model and can provide secure access to scattered e-resources of the institution through a single portal and can be accessed from both on-campus and off-campus locations. The available resources can be easily browsed and used in any kind of portable device like laptops, tablets, and even computers (RemoteXs, 2022). The study aims to investigate the effectiveness of the RemoteXs system implemented by TUCL in teaching and research practices at Tribhuvan University. A questionnaire-based survey was conducted among 105 faculties and research scholars using the remote access service of the library. The study has identified its effectiveness on research and teaching practices as well as the problems faced by the users to access subscribed e-resources remotely.

Review of literature

Libraries are changing with technology. As Verma (2015) indicated the shifting paradigm of library use in today's information age. The essence of the digital library grew for the teaching and learning process because digital resources help fetch remote resources easily. It creates visibility for the invisible. Numerous users can access the same material at the same time without a burden. In this way, Akintunde and Anjo (2012) highlighted that digitization holds great promise for the preservation of materials, the shared ability of resources, and the visibility of libraries and institutions. The spread of Covid-19 in Nepal was from January 2020 (Bastola et al., 2020). The government announced a lockdown from 24th march, 2020 which remained extended till 14th June 2020 (Pandey et al., 2022). To cope with this situation, Tribhuvan University switched to online classes. Teachers and students were in great need of digital materials for their daily classes. The concept of a remote access system was the obvious need to cater to the increasing demand for digital resources.

Simply, remote access is the access provided to the users to use corporate resources outside the corporate network by logging in to the network with their user account. There are various methods of accessing resources that are located in a remote location but they differ in what you are allowed to access such as Ezproxy and RemoteXs. In many libraries, EZproxy software has been replaced by the new and latest RemoteXs software with more advanced features. Journals, research articles, books, thesis, and dissertations are kept in RemoteXs. The effective use of these resources is evaluated through usability testing (Ferreira and Pithou, 2005; Joo and Lee, 2011; Apedoe and woo, 2005), where perceived usefulness (PU), perceived ease of use (PEU), attitude (AT), and satisfaction (SA) were variables. Effective use is an important result expected from resources.

Methods

The current study is based on a quantitative approach. Post positivist ontology has been adopted as a research paradigm that identifies that all observations are imperfect and have errors and all theory is revisable. A survey questionnaire was used to collect data. The questionnaire was distributed online and physically. The Likert scale of strongly agreed (2), agreed (1), neutral (0), disagreed (-1), and strongly disagreed (-2) was given the score.

The population comprised faculty, Ph.D. scholars, and M. Phil students among which 105 users were taken as a sample size. The demographic data and statistical data were analyzed using Excel, 2007. The design involved seeking quantifiable data in the form of a questionnaire from 105 registered users (74 faculty members, 20 Ph.D. scholars, and 11 M.Phil. students) among the population of 1053 registered research students and faculty of Tribhuvan University within three months after the approval of the proposal. The purposive sampling technique has been used to select samples. Those who never use the RemoteXs system could not reflect the effective use it, so this study has envisioned faculty members, Ph.D. and M. Phil. Students as the most appropriate population to be asked about the effectiveness of the RemoteXs system provided by TUCL. Here, the independent variable is the RemoteXS system and the dependent variables are teaching and research practices. Regarding the response rate, of the 105 copies of questionnaires distributed to M.Phil. students, Ph.D. scholars, and faculty online and in printed forms, 103 were returned giving a response rate of 98.1%. Later, the data obtained from the survey questionnaires were coded, analyzed, interpreted, and presented using frequency tables, graphs, and charts. The study used figures and tables to explore, present, describe, and examine relationships and trends within research data. Under hypothesis testing, z-test has been used as the statistical technique to find out its effectiveness on teaching and research practices which have been mentioned below:

Hypothesis A:

H_0: The use of the RemoteXS system by faculty does not affect their teaching practices.

H_1: The use of the RemoteXS system by faculty has a positive effect on their teaching practices.

Hypothesis B:

H_0 : The use of the RemoteXS system by research students does not affect their research practices.

H_1: The use of the RemoteXS system by research students has a positive effect on their research practices.

Analysis of data

The researcher has categorized the collected data into four different topics viz perceived usefulness, ease of use, usability in teaching practices, and research activities respectively to show the effectiveness of the RemoteXs system implemented by TUCL. The distribution of the respondents for the research study has been clearly shown in the chart below:
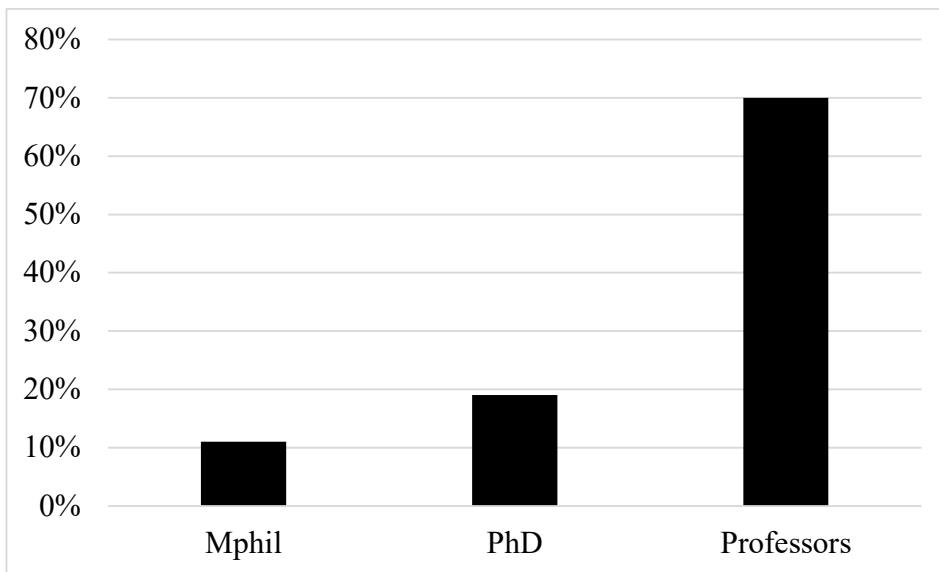

Figure 1: Distribution of Respondents

Use of RemoteXs system in teaching practices by faculty

An intention for users to use an information system is determined largely by their perceived usefulness of the system (Davis et al., 1989). Given below are the statements which showed the usefulness of the RemoteXs System as perceived by the faculty and research scholars in their teaching and research practices respectively.

Table 1: Likert score for use of remotexs system in teaching practices by faculty

S.N.	Statements	Score	Result
1	I can find relevant documents on the topic of my information need	56.88	agree
2	I feel the system is easy to use	36	agree
3	I am utilizing this repository in my teaching practices.	94.32	strongly agree
4	This repository has provided relevant teaching content for my students	54	agree
5	I feel my teaching quality has increased after using this system	26.28	agree
6	The references provided in my course curriculum do not relate to the resources available in this repository	15.82	agree

Source: Data collection

On the 3rd statement faculty strongly agreed upon the use of RemoteXs resources, however, all other statements related to the relevancy of retrieved documents, increased teaching quality, and closer relation with the course curriculum were reflected only agreed.

In addition to this, the researcher tried to find out the usability of this remote access system initiated by TUCL in teaching practices by the faculty. For this, the hypothesis was formulated and tested as follows:

Z-Test: One sample for mean

	Variable 1
Mean	15.11111111
Known Variance	5.8564
Observations	72
Hypothesized Mean	14.28
z	2.912347332
P(Z<=z) one-tail	0.001793618
z Critical one-tail	1.644853627
P(Z<=z) two-tail	0.003587235
z Critical two-tail	1.959963985

Hypothesis A:

Null Hypothesis (H_0): The use of the RemoteXS system by faculty does not affect their teaching practices.

Alternative Hypothesis (H_1): The use of the RemoteXS system by faculty has a positive effect on their teaching practices.

The calculated value of Z = 2.91
Level of significance (α) = 5% = 0.05
Then, the tabulated value of Z at a 5% level of significance is 1.96

Since the calculated value of Z (2.91) is greater than the tabulated value of Z (1.96), the null hypothesis is rejected and the alternative hypothesis is selected. Therefore, it is concluded that the use of the RemoteXS system by faculty has a positive effect on their teaching practices.

Use of RemoteXs system in research activities by M.Phil. and Ph.D. students

Research involves the deep study and consultation of various literature on related topics. Based on this fact, the researcher wanted to know if they agreed or disagreed that the RemoteXs system had been very useful in their research activities. To generate the views of the respondents, four distinct statements had been incorporated in the questionnaire only for Ph.D. scholars and M.Phil students. In total, the majority of them agreed that this system had been useful for them while conducting their research activities. The same results have been represented by the following table.

Table 2: Likert score for use of RemoteXs system in research activities by M.Phil. and Ph.D. students

S.N.	Statement	Score	Result
1	I can find relevant documents on the topic of my information need	6.75	agree
2	I feel the system is easy to use	7.13	agree
3	It has highly increased my interest in my research work	23.21	agree
4	This system provided me with sufficient information for my research work	14.26	agree
5	The citation downloading provision is useful for my research paper writing	20.15	agree
6	These international information resources are not helpful for my research topic related to Nepal	-3.1	disagree

Source: Data collection

The facilities available in the RemoteXs system are useful for researchers. For instance, citation downloading, increased interest in research work, and relevant documents for their research topics. But for the topic related to Nepal, the resources were insufficient, hence, the statement received disagreement from respondents.

In addition to this, the researcher also formulated and tested a hypothesis for the usability of the RemoteXs system in research practices which is shown below:

Z-Test: One Sample for Mean

	Variable 1
Mean	13.61290323
Known Variance	6.45
Observations	31
Hypothesized Mean	12.47
Z	2.505532335
P(Z<=z) one-tail	0.006113361
z Critical one-tail	1.644853627
P(Z<=z) two-tail	0.012226722
z Critical two-tail	1.959963985

Hypothesis B:

Null Hypothesis (H_0): The use of the RemoteXs system by research students does not affect their research practices.

Alternative Hypothesis (H_1): The use of the RemoteXs system by research students has a positive effect on their research practices.

Calculated value of Z = = 2.47
Level of significance (α) = 5% = 0.05
Then, the tabulated value of Z at a 5% level of significance is 1.96

Since the calculated value of Z (2.47) is greater than the tabulated value of Z (1.96), the null hypothesis is rejected and the alternative hypothesis is selected. Therefore, it is concluded that the use of the RemoteXs system by research students has a positive effect on their research practices. This also shows that the research scholars are happy as their information need is being fulfilled by this system through remote access to use reliable and valid e-resources owned or subscribed by TUCL for its patrons.

Findings

The major findings are listed below:

The main objective of this study is to find out whether the RemoteXs system has a positive effect on teaching practices and research activities. This study proves that it did in both cases as the p-value (p = 1.96) suggested the significant contribution of RemoteXS. It is

observed that the system provided current academic and research products in an easy and accessible way to faculties and M.Phil. as well as Ph.D. students. Increased productivity after use, perceived usefulness, perceived ease of use, relevancy of content, advanced search system, saving the time of users, and document downloading facilities are the measures that evaluated the effective use of it by faculties and research students.

However, all Likert scores were received only for the 'Agreed' level, not for 'Strongly Agreed'. The more practical usages of RemoteXs are required further. On the other hand, researchers expressed the absence of documents related to issues in Nepal was emphasized as a 'strongly disagreed' statement. The RemoteXs could include Nepalese digital resources as well in the future so that it would contribute to our national issues as well.

Conclusion

TUCL RemoteXs resources have a positive impact on teaching and research for TU faculties and research scholars. The hypothesis of positive relationships among teaching, research, and RemoteXs was established in this study. Digital resources are one of the effective tools for assisting academic teaching activities. Tribhuvan University is providing the access to enriched digital resources, which were appreciated and utilized by professors and research students. The university has paid a huge amount for purchasing such resources, and the more these resources are used, the more effective they will be. During the online classes those resources are used at maximum, however, after the resuming of physical classes, will the effect be reduced? Its answer should explore further. Nevertheless, the availability of international e-resources was welcomed and used. It is helpful for teaching and scholarly activities. As the international resources were welcomed, how would the national and institutional resources be utilized and explore their effectiveness for users? It will be the question for another research.

The RemoteXs system to access e-resources from off-campus is the best practice of academic libraries which is grooming vividly after the alarm created by the COVID-19 pandemic. It offers an opportunity for the best use of electronic information resources and provides easy access to multiple resources subscribed by the library through its interface from anywhere. Proper awareness programs and orientation sessions should be organized to inform every prospective user about its functionalities and advantages to increase its number of users.

References

Anyakoha, M. (2005). Information and communication technology (ICT) in library and information services. *Coal city libraries*, *2*(1), 3-10.

Bastola, A., Sah, R., Rodriguez-Morales, A. J., Kumar, B. l., Jha, R., & Ojha, H. C. (2020). The first 2019 novel coronavirus case in Nepal. *Correspondence*, *20*(3), 279-280. https://doi.org/10.1016/S1473-3099(20)30067-0

Gautam, B. R. (2008). *Digital libraries in Nepal: Relevance of digital contents for users and technological competence of the librarians* [Master's thesis, Tribhuvan University]. Kirtipur. https://elibrary.tucl.edu.np/handle/123456789/6369

Pandey, B. D., Ngwe Tun, M. M., Pandey, K., Dumre, S. P., Nwe, K. M., Shah, Y., . . . Morita, K. (2022). How an outbreak of COVID-19 circulated widely in Nepal: A chronological analysis of the national response to an unprecedented pandemic. *Life (Basel)*, *12*(7), 12. https://doi.org/10.3390/life12071087

RemoteXs. (2019). https://www.remotexs.co/

Tribhuvan University Central Library. (2020). https://tucl.remotexs.co/

Tribhuvan University Central Library. (2023). *About us*. https://tucl.edu.np/

Tribhuvan University Central Library. (2023). *Brief introduction*. http://tucl.edu.np/about-us/#introdution

Tribhuvan University Central Library. (2023). *Events*. https://tucl.edu.np/events/

Verma, M. K. (2015). Changing role of library professional in digital environment: A study. *International journal of library science*, *13*(2), 96-104.