

Exploring The Use Of Online Tools For Scholarly Reading And Writing By Research Scholars At Mizoram University

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Abstract:

This study investigates the use of online tools by research scholars at Mizoram University in India. Two studies were conducted among the research scholars of Mizoram University with a gap of one year in between to gather data on their use of such tools. The surveys collected information on the types of online tools the scholars used, the ways in which the scholars utilized such tools for their scholarly reading and writing practices as well as the perceived drawbacks and ethical considerations in using these tools for research. The results show an increase in the use of online tools for scholarly practice over the course of the year although this increase is moderate at best. The study finds that the types of tools used by scholars are mostly consistent where various aspects are not fully utilized by the scholars. The unreliability of various some tools as well as the ethical issues in using them for higher studies and research are also expressed by the respondents of the study. The findings of this study aim to address various benefits and implications present with the use of online research tools for higher educational institutions.

Keywords: Research tools. Online tools. Research Scholars. Mizoram. University.

1. Introduction

Over the past few decades, the educational environment all over the world has changed dramatically due to the advances in technology which have also created new demands and needs from

educators and learners. The change and shift from the traditional classroom to the more digitized and automated form of classrooms and learning environments we have today is one of the most notable change which technology has brought about. These changes have not only impacted teaching practice and teaching methods, but also research and how they are conducted with the adoption of new tools technology have ushered in. Universities and higher educational institutions around the world are quickly adapting to these new technological tools to enhance their research and productivity. This has been accelerated quickly due to the availability of various online tools to aid researchers and scholars in the previous years. This technology is revolutionizing the academic landscape by offering powerful tools for scholarly reading, writing, data analysis and various other tasks (Zawacki-Richter et al., 2019). The use of digital tools in academia has become an integral component of academic research. The proper integration of these resources into academia can propel the institution and its research productivity quickly if used correctly. However, the considerations of moral and ethical use of such resources are also a constant topic of debate. The level of trust that may be placed on AI and its tools should be carefully addressed as well (Siau & Wang, 2018). This creates a need for academic institutions and its administration to be weary of the pros and cons, as well as the current level of technology and its supposed impact on academia.

2. Artificial Intelligence powered tools

Artificial Intelligence (AI) is quickly making its way into all spheres of life including academia and research. AI may be described as a tool which is the summation of human intelligence and learning packaged and processed into a single platform through the use of machine learning and deep learning. This can include a variety of fields such as learning, reasoning, problem-solving, perception, interaction and language understanding. The capabilities of AI is becoming more and more diverse and it offers aide and assistance to a wide array of working fields through various means like machine learning and deep learning. AI-powered tools are aiding and enhancing scholarly research by automating repetitive tasks, helping in data analysis of complex resources and data, as well as in reading and writing of research papers and articles. Tools like MATHia, grading systems like Gradescope, and research assistants like Semantic Scholar can help scholars in many parts of their research. Tools such as Google Scholar and Covidence are also powerful tools which can greatly assist researchers and scholars with their works. These tools can immensely change the ways in which researchers can learn and understand the context and significance of various studies.

3. Mizoram University

Mizoram University (MZU) is located in the outskirts of Aizawl, Mizoram, India. It is a central university established by an Act of Parliament (No. 8 of 2000), with the goal of providing quality higher education to the people of Mizoram and the neighbouring states. As a university located in the north-eastern region of India, it plays a crucial role in the educational landscape of the region. Accredited 'A' grade by NAAC in 2014 and 2019, the university attracts students and scholars not just from the north-east region of India, but from all over the country and even from abroad. The university was also awarded Grade 'A' by Mizoram State Pollution Control Board in 2013 and is one of the first universities in India to run effectively on a solar power system. MZU has a wide range of courses offered with the university consisting of 8 schools of study under which 33 different departments are established (MZU Annual Report 2018-2019).

4. Significance and Scope

The study on the use of online tools by the research scholars of MZU is a significant topic which deserves careful study. The affect these digital tools have on the academic research and integrity of the university, as well as the integration of various technological advancements including AI in higher education is an important field needing fresh research. MZU being an imperative university in the north-eastern region of India pose as a unique representation of the region as an academic environment where scholars base their research on various fields of study. These fields of study may range anywhere from indigenous knowledge, to regional, social and political administration, to modern scientific advancements and technology. A study on how online research aiding tools are utilized by scholars can provide understanding into the academic position of the region in many ways. Scholarly reading and writing practices through the use of powerful online tools may be best observed and studied by understanding the proficiency in its use by scholars as well as understanding the acceptance and the integration level of such tools in the university.

This article aims to understand the utilization of online tools by the scholars of the university, and the perceived drawbacks and ethical considerations presented by the scholars. This study covers the level of AI-powered and other online research tools use by the scholars, the level of proficiency and understanding, the types of tools they use most and use the least, as well as the overall opinion on the use of such tools for research aid. Understanding such factors in an institution such as MZU will hopefully provide a strong foundation in understanding the use of these tools by scholars for their reading and writing practices in remote places, as well as in understanding their general use in academia.

5. Literature Review

Nicholas and Rowlands (2011) explore how researchers engage with social media throughout their research starting from idea conception and generation to dissemination of findings at the final stages. The study reveals that while the use of social media tools is widespread among researchers, actual professional use remains limited in many fields. The use of social media among researchers is mostly common among young researchers and among those who adopt new technology early. The study also finds that researchers are increasing the use of social media in each stage of their research. Both regular users and those who are not share similar preference for seeking information where they prefer open online searches, followed by content available through institutional libraries and repositories.

Pscheida, Koehler, and Mohamed (2013) conducted a study on scientists from Saxony, Germany on their use and view of Web 2.0 tools in their research work. The study shows that although many Web 2.0 tools are available, their use varies by discipline. Wikis and online databases were the most widely used tools across all disciplines. Tools like microblogs, social bookmarking, and academic social networking sites were used much less across all disciplines. However, social sciences and humanities researchers used a wider variety of these tools compared to natural sciences and engineering. Disciplines like social sciences and humanities showed slightly stronger support for using them in academic work even though the perception of their use was positive among all respondents. While these tools are becoming more common, their use is still dependent on personal preferences and disciplinary culture. The usefulness of these tools for academic tasks as perceived by the individuals also plays a great factor in its use.

Osmani, MZA, Ali, and Sabir (2016) investigate how Reference Management Software (RMS) tools such as Zotero, Mendeley, and EndNote are used by university researchers. The study reveals that RMS is widely used among academic researchers. However, most utilise these tools only at a basic level. There is no formal and institutionally guided approach to RMS usage. These online tools are often used informally by individual scholars to manage citations and bibliographies for their publications. Many advanced features available are often under-utilised or ignored completely such as annotation, collaboration, and tagging. This limited use reveals that many researchers do not use the RMS tools to their full capacities and capabilities often due to being unaware of the available features or because the scholars do not find them easily accessible or easily usable.

Halevi, G., Moed, H., & Bar-Ilan, J. (2017) reviewed comparative articles from Google Scholar to other databases with a focus on Web of Science and Scopus. The study aims to

determine the reliability of Google Scholar as a source for scientific information and evaluation. Google Scholar has largely widened its coverage and threshold since its inception to the point that it has become a powerful source of scholarly literature. However, it has various limitations and challenges in terms of advanced searching, data downloads, quality control and indexing guidelines. Due to these challenges and limitations present with the use of Google Scholar, careful considerations must be made when using it for citations and metrics.

Tenopir, Christian, and Kaufman (2019) conducted an international study on how researchers seek and use scholarly articles in the digital era. The study shows that on average scholars read nearly 20 articles per month. Despite the growth and development of digital resources, scholars still prefer to read journal articles to aid their research work. However, although traditional print materials and libraries remain the choice of scholars, the reliance on easily accessible resources is increasing. Google Scholar and other research sharing platforms are becoming common tools used frequently by scholars for seeking and retrieving information. This pattern is evident especially among researchers aged 30 to 39 who have high preference for online resources and research-based social networking.

Stacey (2020) examines how academic writing and the understanding of plagiarism are changing due to the influence of technology and easier access to information. The study suggests that in the current digital environment, known as Academia 4.0, there is a need to rethink how plagiarism is defined. Stacey argues that using paraphrasing tools does not consist of understanding of the work, and is simply a method of grammatically and structurally changing previous works with no real merit. The importance of focusing more on clearly stating one's own ideas and contributions to knowledge is important. The re-evaluation of Academia 4.0 and its impact on scholarly publication may decrease the number of publications, but the credibility and integrity of research needs to be upheld.

6. Aims and Objectives

- i. To investigate usage of online research tools by research scholars at MZU for scholarly reading and writing.
- ii. To identify changes in online tools usage by scholars within a year.
- iii. To identify specific online research-aid tools that are being used by research scholars at MZU, and the purposes for which these tools are being used.
- iv. To explore the potential benefits and drawbacks of using online tools in scholarly research and writing.

7. Methodology

The methodology for this study involves a repeated cross-sectional approach which focuses on gathering data on the utilization of online research tools among research scholars at MZU. The study was started off with the distribution of an online questionnaire through online chat groups to the MZU research scholars in March and April of 2019. The questionnaire of this study focuses on their current level of utility and understanding of online tools in their scholarly reading and writing. This first survey was aimed at understanding the levels in which scholars used these tools for their research and their initial thoughts on its use for research and in academia. Following the data collection done in 2019, a similar questionnaire was distributed to the same online chat group of MZU research scholars in April 2020, exactly one year later. This follow-up survey was done to assess and understand the changes, development and growth of use for their research work. Comparing the data from these two years of survey aims to understand the perceptions scholars at MZU have on the use of online research tools for their research and how its use have grown or diminished.

The data collected from the surveys were examined using descriptive analysis. This involves summarizing the collected data using statistical measures such as frequencies, percentages and preference of tools used by the scholars. This descriptive analysis provides clear and comprehensive understanding of the participants' tools usage, preferences for specific tools, benefits or drawbacks, and overall trends observed over the study period.

The survey also includes open-ended questions through which we can understand the participants' opinions and perception of AI-powered tools, their experience in using online research tools and to understand the influencing factors on the scholars' willingness or lack thereof to using such resources.

8. Discussion and Findings

8.1 General Information

In order to acquire a year-by-year comparative data on the use of online tools for scholarly reading and writing by the research scholars at MZU, the questionnaire for the study was distributed among scholars at MZU through online chat groups. While the first survey was conducted during the month of March to April 2019, the second survey to follow up on the study was conducted during the month of April 2020. This creates a gap of one year in between each survey. During the time of survey in 2019, the chat group where the questionnaire was sent had a membership of approximately 400 scholar members from MZU. During this survey, a total of 90 responses were received.

In the month of April 2020, when the second questionnaire was sent to the same group, the group had a membership of

approximately 450 scholars of MZU. In order to create a balanced proportion of data for the study, the first 90 valid responses received were used for the study of this year.

To create clarity while discussing the results from the two surveys, the following abbreviations are used henceforth, as – Y1 (Year 1 data) for the responses collected in the first year i.e. 2019, and Y2 (Year 2 data) for responses collected in the second year i.e. 2020.

In Y1, male population was the majority comprising of 60 (66.66%) of all responses, while Y2 survey shows a perfect 50:50 split in gender contribution. The age group in both years of data shows a homogeneous age distribution of 25-34 years among 78 (86.6%) of Y1 and 81 (90%) of Y2 respondents (Table 1). All participants in both Y1 and Y2 survey are Ph.D. students.

Table 1: Gender and Age distribution

Gender Distribution	Y1 (n, %)	Y2 (n, %)
Male	60 (66.66%)	45 (50%)
Female	30 (33.33%)	45 (50%)
Total	90	90
Age Group	Y1 (n, %)	Y2 (n, %)
24 and Below	0 (0%)	3 (3.33%)
25-34	78 (86.66%)	81 (90%)
35-44	9 (10%)	6 (6.66%)
45-54	3 (3.33%)	0 (0%)
Total	90	90

Source: Survey Data

Both Y1 and Y2 show a wide range of participation from various departments who are pursuing their doctoral degree on a vast array of fields (Table 2). Fields of study include a host of subject matters with a few examples being scientometrics, pharmaceuticals, material science, cultivation, machine learning, special libraries, foreign policy, poetry, gender studies, law, ICT, tourism, social psychology, and many other fields. It is important to conduct this study covering the most diverse fields of study since some scholars in particular fields of study may use AI tools more than others.

Table 2: Departments of Participants

Department	Y1	Y2	Total
Education	9	10	19
Library & Information Science	9	9	18
Social Work	5	6	11
Political Science	6	5	11

Environmental Science	5	5	10
Commerce	4	5	9
Zoology	4	4	8
Computer Engineering	4	4	8
Psychology	4	4	8
Economics	4	3	7
Physics	4	3	7
Botany	3	3	6
English and Cultural Studies	3	3	6
Geography	4	2	6
Management	2	3	5
Chemistry	2	3	5
Mathematics	2	2	4
Biotechnology	2	2	4
History and Ethnography	2	2	4
ECE	2	2	4
Tourism and Hospitality Management	2	2	4
Public Administration	2	2	4
HAMP	2	1	3
Forestry	1	2	3
Pharmacy	1	1	2
Electrical Engineering	1	1	2
Mizo (language)	1	1	2
Total	90	90	180

Source: Survey Data

8.2 Online Tools Awareness

Examining the familiarity of researchers on the use of online tools for their research work, 40 (44.44%) of Y1 participants were aware of such tools and incorporated the use of such resources for their research at a certain level. 45 (50%) of Y1 participants were aware of these tools and their potential use for helping in their research work. However, they have not used them to assist them in their work, while the remaining 5 (5.55%) were not aware of online research tools to help in their research. The trend of using these tools and their use by research scholars seem to have improved during Y2 where 58 (64.44%) of Y2 participants have used online tools in their research work in some capacity. Meanwhile, 27 (30%) of Y2 participants, while they are aware, have not used it to assist them in their research work, where the remaining 5 (5.55%) were not aware such resources (Table 3).

Table 3: Awareness of Online Tools for Scholarly Works

Q. Are you familiar with online tools for researchers /scholars, and do you use them?	Y1 (n, %)	Y2 (n, %)

Yes, and I use these tools	40 (44.44%)	58 (64.44%)
Yes, but I don't use these tools	45 (50%)	27 (30%)
No I do not know these tools	5 (5.55%)	5 (5.55%)

Source: Survey Data

Under a branching questionnaire, those who answered that they are aware of online and have incorporated these tools to assist them in their research were given extensive follow up questions. Those participants who were not aware of such tools and those who were aware but have not used them to help in their research were given an open-ended question to determine why they have not utilized these online tools for their work and if, in the future, they were willing to use such tools to assist their work. All participants who were already aware of online and AI-powered tools were willing to use these tools in their future research work for easier reading and writing of their research. Reasons as to why they have not used it includes answers such as a need to know more about the available tools, and some scholars felt their research were still in their early stages where they simply did not yet have the need to use such tools. Reasons from respondents who were not aware of online research tools point to ethical considerations of using external assistance for their personal research work, and in some cases lack of interest in online resources for their research.

8.3 Online Tools Use

Due to the branching question under the use of online tools, follow up questions on their use for research work by the scholars is limited to 40 Y1 participants and 58 Y2 participants. To understand the level of use by researchers, the form in which these tools are utilized needs to be determined. Under a multiple-response question, respondents report to using online tools for reading of literature, analysis and interpretation of data, writing and other uses. Under this study both Y1 and Y2 data seem to suggest a common theme among scholars in their use for reading and writing. Assistance in their writing seem to be the most prominent use with 31 (77.5%) and 38(66.51%) users from Y1 and Y2 respectively making a combined 69 (70.40%), while reading and researching materials using online tools does not seem too common in both Y1 and Y2 studies (Table 4). The use of plagiarism checkers and reference management tools are also common with a combined Y1 and Y2 users of 51 (52.04%) and 50 (51.02%). The data presented in Table 4 shows what type of online tools are utilized and how much they are utilized.

Table 4: Online Tools Use

What online tools do you use? (Multiple-response question)	Y1	Y2	Total (n, %)
Online Writing Assistant (eg. Grammarly)	31	38	69 (70.40%)
Plagiarism Checker (eg. Turnitin)	28	35	51 (52.04%)
Reference Management Software (eg. Zotero, Mendeley)	19	31	50 (51.02%)
Virtual Assistants (eg. Google Assistant, Alexa)	11	16	27 (27.55%)
Text-to-Speech tools (eg. Google TTS, NaturalReader)	4	10	14 (14.28%)
Research Data Management Tools (eg. OpenRefine, Qualtrics)	4	7	11 (11.22%)
Others	14	26	40 (40.81%)

Source: Survey Data

The comfort and ease with which scholars use technological tools for their work is important. In order to reap the benefits of such tools, one must also be well versed with the functionality, utility, capability and limits of these tools. Data on Y2 over Y1 data shows a significant surge in the comfort level of online use by the scholars. Among the 40 participants of Y1 respondents who use online tools for their work, 32 (80%) feel they are either comfortable or very comfortable in using online tools to their advantage and for assistance of their research work. Among the 58 participants of Y2 respondents, 53 (91.37%) feel they are comfortable or very comfortable with using these online tools for their research.

Respondents of the study in both years have used online tools in different ways to help with their reading and writing experiences. The ways in which they utilize these tools for their scholarly reading and writing practices seem to sway in a particular direction in both years while some variations exist between Y1 and Y2. The use of tools for literature review placed highest with 28 (70%) users in Y1 and 38 (65.51%) in Y2 with a total of 66 (67.34%) users. Citation management and formatting comes second with 25 (62.5%) Y1 and 32 (55.17%) Y2 with a combined 57 (58.16%) users. Reading, writing and editing using online tools has similar figures as citation management. These three forms seem to be the dominant ways in which scholars utilize online tools. Data collection and analysis, and language translation and proofreading,

while being used, scored lower than the others in both years of study (Table 5).

Table 5: Purpose of using AI tools for research work

For what reasons do you use online tools in your research work? (Multiple-response question)	Y1	Y2	Total (n, %)
Literature Review and Analysis	28	38	66 (67.34%)
Citation Management and Formatting	25	32	57 (58.16%)
Reading, Writing and Editing	25	30	55 (56.12%)
Language Translation and Proofreading	11	25	36 (36.73%)
Data Collection and Analysis	16	19	35 (35.71%)

Source: Survey Data

8.4 Benefits and Drawbacks

19 (47.5%) of Y1 participants believe that the use of online tools enhances their research productivity, while 9 (22.5%) do not think it helps in their scholarly productivity. In contrast, 37 (63.79%) of Y2 participants believe these tools and its use enhance their research productivity, while only 10 (17.24%) do not think it helps in their productivity (Table 6).

Table 6: Productivity through AI tools

Rate the usefulness of online tools for research productivity?	Y1	Y2
Very Helpful	3 (7.5%)	7 (12.06%)
Helpful	16 (40%)	30 (51.72%)
Unsure	12 (30%)	11 (18.96%)
Not very Helpful	9 (22.5%)	10 (17.24%)
Not at all Helpful	0	0
Total	40 (100%)	58 (100%)

Source: Survey Data

In an open-ended question, respondents share their use of, and hesitancy to using, online tools to aid in their work. Paraphrasing and expanding of vocabulary to writing scholarly works is a common reason of using online tools by research scholars among both Y1 and Y2 participants. However, the unreliability of using online tools to search for relevant literature is a common problem faced by both Y1 and Y2 participants. Answers on the unreliability of online tools being a negative factor is present in the answers of 22 (55%) Y1 and 39 (67.24%) Y2 responses. The overall use of various online research tools seems to be a net positive for

scholars. Y1 participants who use these tools also believe they can reap more of the benefits such as reading of literature, analysis, writing aid and many other advantages. Such advantages of these tools were listed by scholars in both Y1 and Y2 data. Reading of materials and analyzing literature and data is one of the highest listed answers given in Y1 study. The most common benefits which can be further utilized given by Y2 participants is the use of tools such as Grammarly for post writing correction and improvements.

8.6 Ethical Considerations

In another open-ended question where participants are asked about the ethical considerations present in using online tools for scholarly work, a common theme is present in both Y1 and Y2 studies. Among the 40 responses from Y1 data, the most common answer is the problem of plagiarism with 19 (47.5%) responses citing this problem. The second most answered response is on the use of paraphrasing tools and other writing assistants where the scholar's creativity and writing style are absent or diminished. This form of answer is mentioned by 12 (30%) respondents. Other answers include translation tools which tend to have numerous translation errors, and the inability of researchers to be well-versed in their own works due to the vast amounts of help they receive from online tools.

The responses gathered from Y2 are also similar to Y1 answers. As is the case under Y1 study, the most common ethical consideration given by Y2 participants is that scholars are required and expected to read through a large and vast quantity of existing literature on their field of study. According to participants, the use of online tools gives the scholars easy access to specific literature that they need without much need of reading through a multitude of resources. Other problems listed by Y2 participants align with those given by Y1 participants such as use of paraphrasing tools and writing assistant tools.

9. CONCLUSION

Comparative data of Y1 and Y2 shows an increase in the use of online tools for scholarly reading, writing and research analysis over the course of one year. While a considerable percentage in both Y1 and Y2 do not use online tools for their scholarly works, it is acceptable to say that the development of various powerful tools to aid researchers is also visible and incorporated within the scholarly community. While the data in both years show that a large portion of scholars use these tools for their writing, relatively small numbers are using these available tools to assist in their reading, as well as for data analysis and other technical works. This data is reasonable given the fact that writing assistants, paraphrasing tools, and grammar checkers are abundant in free to use forms. The use of online tools in data analysis, data

management, reading assistant and virtual assistant to create a better quality of life for the scholars are areas which need more development and improvement.

The ethical drawbacks and considerations presented by the participants is also a very legitimate concern when it comes to academia and scholarly research and publication. While it may not be possible to stop the use of these online tools by scholars, ethical use of such tools should be encouraged and practiced. As revealed in this study where all participants are researchers in pursuit of their doctoral degrees, such a prestigious degree should be met with certain standards for those who pursue the course. Originality and creativity in their works should be expected of scholars.

The findings of this study see a rise in the use of online tools in many aspects. This may be seen as a positive aspect in many cases, while the concerns of the participants cannot be understated. The use of these tools must be done ethically so as to not depreciate the works and publications of scholars in the long run. The findings of this study may be addressed in further studies and more comprehensive studies may be done to understand the long-term growth of online tools usage in higher institutions. Future research can be done to understand how the use of online research-aiding tools affects the quality of scholarly works and publications.

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