Exploring Viewer Sentiment: Analyzing Viewer Feedback on ChatGPT Tutorial Videos on YouTube

Maya Deori **Bhagyashree Chetia**

Abstract

This study delves into the realm of viewer sentiment by conducting an in-depth analysis of viewer feedback on tutorial videos featuring ChatGPT on the popular video-sharing platform, YouTube. In this context, tutorial videos play a crucial role in disseminating knowledge and facilitating learning. However, the sentiments expressed by viewers in the comment sections of these videos can provide valuable insights into their perceptions, preferences, and areas of interest. Through this analysis, trends, sentiment strength, and recurring themes in viewer sentiment are identified and examined, shedding light on the effectiveness of tutorial videos in engaging and informing the audience. The findings of this study contribute to a deeper understanding of viewer sentiment in the context of AI tutorial content on YouTube and offer implications for content creators, educators, and researchers aiming to optimize the effectiveness of their instructional materials in the digital age.

Keywords: ChatGPT, Sentiment Analysis, YouTube, Artificial Intelligence (AI)

1. Introduction

Artificial Intelligence (AI) is becoming more common, and it has the potential to transform the field of education. The technological company OpenAI released ChatGPT on November 30, 2022. OpenAI created a chatbot named ChatGPT to respond to commands in a human-like manner. It is a significant creation that has captivated millions of users and swept the scientific and academic communities, as well as the general public. The most recent addition to OpenAI's (https://openai.com) Generative Pretrained Transformer (GPT) family of language models is ChatGPT (https://openai.com/blog/chatgpt). A language model is a statistical model capable of forecasting the likelihood of a word sequence. With this skill, a language model may be able to produce natural language in a human-like manner. Brown et al. used a corpus of 499 billion words to train the GPT-3 model, which served as ChatGPT's foundational model until its initial release. The GPT-4 is ChatGPT's more powerful and extensive model. As transformers, GPT models allow for downstream fine-tuning for more specialised tasks such as document categorization or conversations. ChatGPT fine-tuned conversations on top of GPT-3 to reduce damaging, dishonest, or worthless output from uncontrolled big language models.

Corresponding Author
Maya Deori
Email: mayadeori94@gmail.com

Around its release, initial enthusiasm and concerns about ChatGPT's impact on education swirled. Microsoft's announcement that ChatGPT will be available to all Office users suggests that AI could improve written communication. The growing use of generative AI tools like ChatGPT in the classroom requires teachers to consider how teaching and learning will change. Students need to understand the advantages and disadvantages of AI and learn how to apply it effectively without influencing training sets. Teachers should learn with pupils and encourage ethics, source verification, and critical thinking. AI is gaining popularity and could revolutionize education. In practice, ChatGPT and related language models may affect instruction and learning. The debate around ChatGPT stems from its ability to provide customised assistance and enhance academic performance. ChatGPT's lengthy discussions demonstrate its impact on artificial intelligence and natural language processing and its ability to alter AI system communication. People are fascinated that it can be used for study, amusement, and problem-solving, which makes it popular. Although this new revolution has numerous benefits, it has also raised issues, including academic dishonesty. ChatGPT may also impair pupils' critical thinking and creativity. Too much reliance on artificial intelligence tools may also impair students' critical thinking and other skills. Our daily existence requires following directions. Students' grades, comprehension, and skill execution might be affected by their ability to follow directions in school. Written instructions are helpful because they give students a lot of information in an easy-to-read manner. Thus, most electrical products have disassembled instructions. There is a lot of material about reading comprehension, but a few key points must be highlighted.

ChatGPT's knowledge base and language comprehension allow users to create in-depth courses on any topic. Users choose a topic and create a set of prompt questions before starting. These prompts let users engage with ChatGPT and get intelligent, organised responses.

Sentiment analysis uses natural language processing to assess the positive or negative impact of data. Sentiment analysis was initially done manually using surveys and interviews. However, new tools and technology have made data collection and processing easier and faster. Due to new technology and trends, we can now collect data from several social media networks using a variety of apps. Dealing with social media datasets is now easier. Sentiment analysis helps users understand human emotions using many software programs. Today, people's opinions, likes, and dislikes matter. Its growing popularity and widespread adoption by large audiences have given it enormous effect and importance. It's more important to analyse before making a decision or buying a service, and sentiment analysis has become popular and relevant by mining people's thoughts to understand their feelings.

2. Literature Review

The study of reviews has garnered a substantial amount of attention in recent years, mostly due to the extensive use of social media platforms. These online communities serve as a central meeting place for conversations about a wide range of subjects, thereby supplying researchers with important information and insights. During the COVID-19 pandemic, for example, Mujahid et al. carried out a study to investigate the perception of the general population towards online education. By analysing the data collected from

social media platforms, the researchers intended to gain an understanding of the feelings and perspectives that are associated with online education during this difficult period. The research underlined the significance of data analysis on social media platforms in terms of obtaining useful information and gaining insights into a variety of topics. Through the use of Mozdeh software, Thelwall (2014) investigated the sentiment and time series analysis of the Twitter corpus concerning the UK Riots of 2011. The purpose of this investigation was to evaluate the growing and diminishing interest with time, as well as any consistent changes in the overall pattern. It also exhibited a graph that compared the average strength of positive sentiment to the average strength of negative emotion and reported the results accordingly. Through the use of a webometric analyst, Thelwall et al. (2012) analysed the YouTube comments that were separated by using 65,536 phrases that were chosen at random from a collection of English blogs and Really Simple Syndication (RSS) channels. Using the SentiStrength programme, the age, sex, area, length, and feelings of the remarks were evaluated. For example, the majority of the positive remarks were submitted by males who were 29 years old and had 58 characters. Additionally, around 23.4% of the remarks were responses to the remarks. Music, comedy, and how-to style were the categories of recordings that received the most positive feedback. These were the most transcendent categories. Using Webometrics Analyst for data retrieval and Parallel Dots for sentiment analysis, Deori et al. (2021) conducted a second study in which they investigated the characteristics of the videos on YouTube that were about the software Koha and DSpace. They also investigated the user sentiments that were expressed in these movies. YouTube is a platform that allows users to troubleshoot the most recent content for users who have specific questions, and the content creators of Koha and DSpace have been instructed to improve the videos by using their creativity. It was discovered by Bhuiyan et al. (2018) that a natural language processor was the most effective method for locating the videos that were the most relevant and popular. The experiment was conducted on a total of one thousand videos that were available on YouTube. Additionally, almost one million comments were analyzed by the natural language processor.

3. Scope of the Study

The current research investigation only focuses on analyzing the sentiments of learners towards the tutorial videos on ChatGPT broadcast through YouTube. ChatGPT has altered how users engage with virtual assistants, social networking, and customer support. While this has increased efficacy, it has also brought up privacy and reliability concerns (Zhao, 2023). That is why it is necessary to investigate the views and opinions of individuals towards ChapGPT. Regarding the study, the dataset is bound to the data that is readily accessible until February 20th, 2024, from Webometric Analyst and May 8th, 2024, from Mozdeh. The dataset is solely confined to the tutorial videos on ChatGPT published on the YouTube platform.

4. Objectives

1. To evaluate the growth trends of the videos on ChatGPT on YouTube
2. To know the durations of the selected YouTube tutorials videos of ChatGPT

3. To rank the highest number of comments from the selected videos of ChatGPT

4. To investigate the sentiment strength of the comments

5. To visualize the top depicted terms in the comments of selected videos

5. Methodology

The goal of the current study project is to assess learners' attitudes exclusively regarding the ChatGPT instructional videos that are posted on YouTube. The videos' contents are assessed to determine which of the authors' posts are the most popular and highly favoured.

Phase 1: The data was accessed by using a query 'ChatGPT' in the free software i.e., Webometric Analyst software 1.0 (http://lexiurl.wlv.ac.uk/) on February 19th, 2024. When executing the queries, the "keywords-matches title, description, and keywords" option was picked, and the YouTube API keys were entered as a gateway for data extraction. the YouTube API keys were obtained from Google Cloud Console (https://console.cloud.google.com/). Nevertheless, the study is focused on ChatGPT's English-language tutorial videos alone, with no time or location constraints. By double-checking on YouTube (https://www.youtube.com/), the acquired video ID is manually confirmed.

Phase 2: Afterwards, Mozdeh (http://mozdeh.wlv.ac.uk/) software is utilized to collect extensive data about the comments, and also to analyze the sentiment of those comments. With the use of Mozdeh software, datasets may be retrieved using searches such as keywords, video IDs, and Channel IDs. Sentiment analysis of tweets, YouTube comments, and Reddit posts can also be performed. The data extraction process has been undertaken on May 8th, 2024. The data has been analysed and interpreted through various tables, and graphs using MS Excel and Google Spreadsheets. As for the representation of the top term depicted within the comments of the selected videos, WordItOut (https://worditout.com/) has been used.

6. Data Analysis

6.1 Depiction of selected videos for the study

Figure 1 visualizes the number of videos selected for the present investigation. The free software Webometric Analyst has extracted a total of 524 videos. The contents of those videos however were not relevant for the investigation. Among those 524, 178 videos are YouTube shorts which means that their duration is generally < 1 minute. This investigation also pulled out the videos of different languages other than English. The present study has nominated only the tutorial videos on and through ChatGPT.

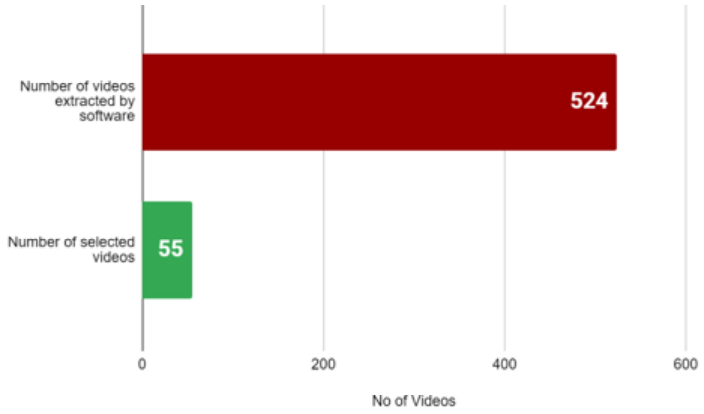
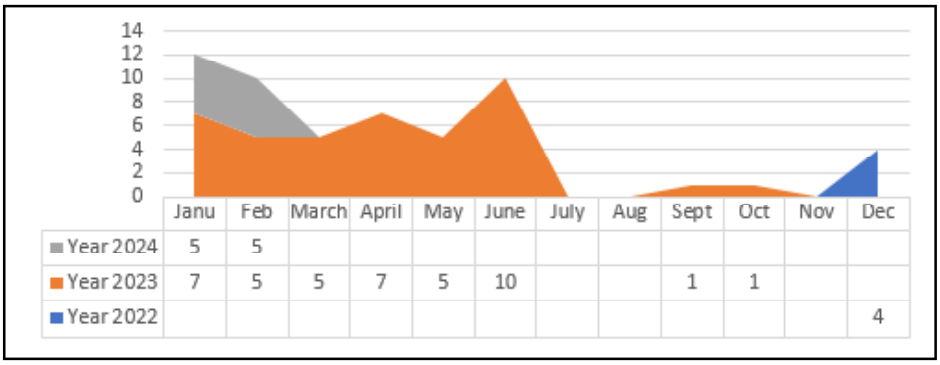


Figure 1: Display of selected videos for the study

6.2 Year-wise distribution of the selected videos

Figure 2 represents the distribution of selected videos by year and month. ChatGPT was officially unveiled to the public on November 30, 2022 (OpenAI, 2024). However, the inception of ChatGPT has been closely linked with the ongoing progress of natural language processing (NLP) research and OpenAI's insistent endeavours to advance the edges of artificial intelligence technology. Since then, there has been a growing desire to produce tutorial videos about ChatGPT, aiming to shed light on its usage and capabilities for learners. The tutorial videos encompass a wide range of categories, including trading, Excel, computer tips, 3D model design, language learning, and numerous others.



	Janu	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Year 2024	5	5										
Year 2023	7	5	5	7	5	10			1	1		
Year 2022												4

Figure 2: Distribution of selected videos by year/month

6.3 Duration of the selected videos

Figure 3 apprehended the time duration of the selected videos. The time segment selected for the study has been divided into seven categories. Among these 19 videos are under the time segment of 1-10 minutes, followed by 11-20 minutes with 18 videos. However, despite having more than of videos in the category 1-10 minutes, the view count and like count of these videos are less than the category 11-20 minutes. There are two videos which have categorized under the time segment of more than 60 minutes which are majorly discussed on coding and tips on using ChatGPT.

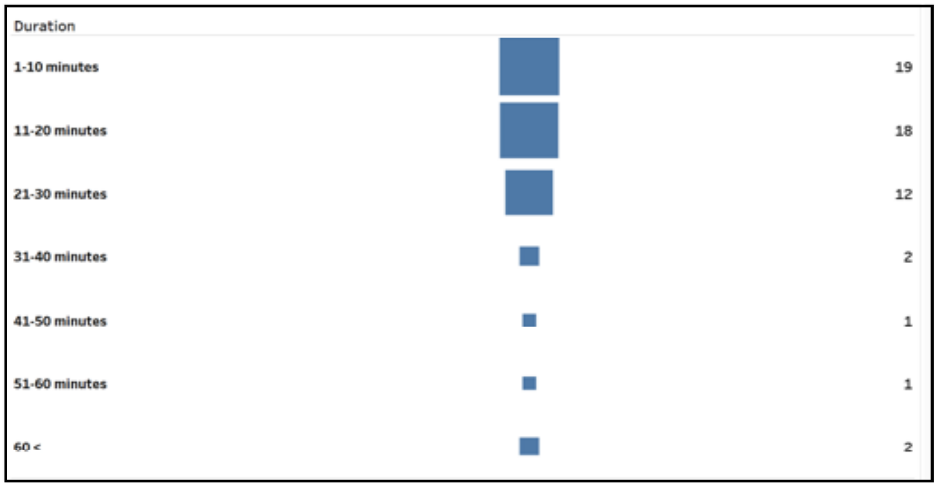


Figure 3: Visualization of the duration of the selected videos

6.4 Ranking of most prolific videos based on comments

Table 1 displays the top videos based on the maximum number of comments. Comments play a crucial role in the YouTube journey, aiding in engaging viewers, providing creators with feedback, fostering community connections, and ultimately, enhancing the video's success on the platform (Shoufan and Mohamed, 2022). The video to receive the highest number of comments is "ChatGPT Trading Strategy Made 19527% Profit (FULL TUTORIAL)" with 2237. Yet, "How to use AI Art and ChatGPT to Create Insane Web Designs" has the highest view count with 3758085 and simultaneous has a more like count with 112016 but had the ranking position of sixth in terms of comments.

Table 1: Ranking of videos based on comments

Rank	Title	Comment	View Count	Like Count
1	ChatGPT Trading Strategy Made 19527% Profit (FULL TUTORIAL)	2237	2499490	45677
2	ChatGPT Tutorial - A Crash Course on Chat GPT for Beginners	2094	5536508	82307
3	How to use ChatGPT to easily learn any skill you want	2092	1759633	87711
4	Bulk Create Content with ChatGPT & Canva	1974	977303	31913
5	How to learn to code FAST using ChatGPT (it's a game changer seriously)	1601	2229744	79556
6	How to use AI Art and ChatGPT to Create a Insane Web Designs	1515	3758085	112016
7	How ChatGPT Works Technically for Beginners	1292	1058497	21938
8	ChatGPT Tutorial for Developers - 38 Ways to 10x Your Productivity	1251	3493539	53920
9	I Built a Trading Bot with ChatGPT	1126	1694880	27022
10	Complete ChatGPT Tutorial - [Become A Power User in 30 Minutes]	1105	2658476	45105

6.5 Sentiment Strength of the comments

Figure 4 depicts the Sentiment strength of the comment extracted from the software. The sentiment analysis findings for the comments are classified into five segments: none, weak, moderate, strong, and very strong. Within the very strong segment, the positive sentiment strength (0.29%) overshadows the negative sentiment strength (0.20%). The average positive sentiment of the comments is 1.9437 and the average negative sentiment is 1.4031 which suggests that positive comments expressing enthusiasm have outweighed negative sentiments about the tutorial uploads on ChatGPT. The figure illustrates a significant difference in the strength of negative and positive sentiments.

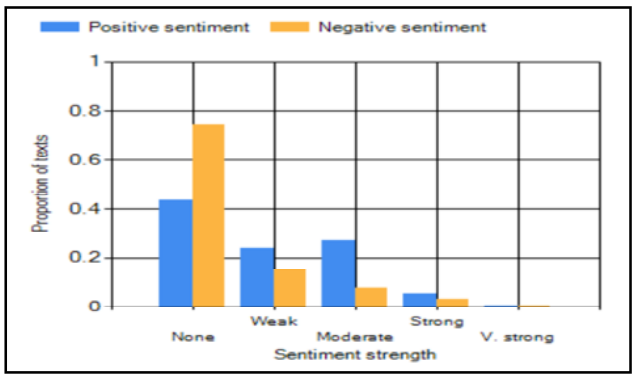


Figure 4: Sentiment Strength of the comments

6.6 Most prolific word frequency

Word frequency refers to a categorized list of characters arranged by how often they occur in the corpus. This aids in discerning commenting trends and intentions, as well as the buzz surrounding content created on YouTube. In this article, the software Mozdeh was utilized to extract the top 1,000 terms straightforwardly. The loathsome terms are manually excluded, and the leading terms are selected and visualized using WordItOut from the word cloud. The figure demonstrates mostly the technical corpus such as great, code, prompt, learning, etc. The corpus represents the positive terms from the entire comment section.

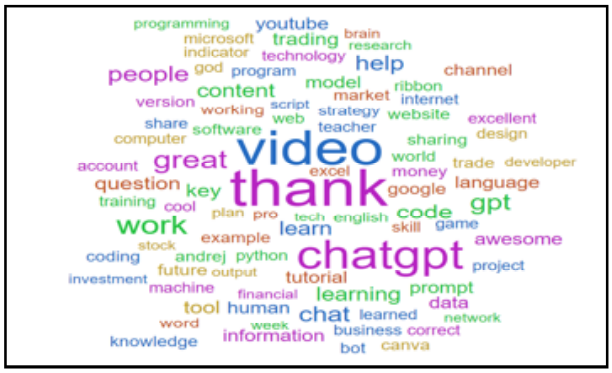


Figure 5: Most prolific word frequency of the comments

7. Conclusion

Generative Pre-trained Transformer, or GPT, is the foundation for ChatGPT, an AI language model developed by OpenAI. It has undergone many versions, the most recent of which being GPT-4. The model is useful for a variety of applications as it is excellent at comprehending and producing writing that appears like human. ChatGPT is used in customer service, education, content production, and as a programming aid. It provides prompt and correct replies, produces technical and creative material, and also offers tutoring on various subject matters. ChatGPT can increase productivity by automating repetitive processes like creating articles, sending emails, and offering customer service. Furthermore, becoming proficient with technologies like ChatGPT is crucial for being competitive in the job market and keeping up with revolutionary developments. In general, people who learn ChatGPT can fully employ refined AI, which promotes creativity and work efficiency.

The current study was conducted solely for the goal of assessing user or learner perceptions towards ChatGPT instructional clips that have been uploaded to YouTube. A thorough examination of the videos' contents is carried out to determine which of the authors' postings is the most popular and highly favoured. Learners, educators, and members of the general public are all very interested in ChatGPT or Artificial Intelligence right now because it is one of the most prominent topics being discussed. It has a tremendous impact and influence on everyone's lives, whether directly or indirectly. Because of the important role that ChatGPT plays in academicians' daily lives, the burden of their workload and other critical responsibilities has been decreased, making it easier for them to do their work. While it has great effects, we cannot ignore its detrimental effects on students and academics. The study found that people generally have a positive sentiment towards ChatGPT tutorials. The tutorials' practical advice is highly appreciated by users as it improves their understanding and efficient utilization of the AI model's characteristics. They embrace detailed guidelines and specifications, practical examples, and advice on how to improve productivity and innovation. However, a few users have worries about the learning curve, misconduct, exploitation possibilities, and moral challenges. Most people agree that learning ChatGPT can improve both their personal and professional activities, resulting in an optimistic perspective altogether. Various approaches like determining how numerous teaching approaches affect user happiness, evaluating the usefulness of tutorials for a range of demographics, and examining user feedback to spot frequent problems and opportunities for development can be treated as areas for future studies in segments of ChatGPT. The psychological and emotional reactions of users, particularly regarding trust and involvement with AI, can also be the subject of research. Furthermore, as ChatGPT develops, longitudinal research may be used to monitor sentiment fluctuations as time passes.

ChatGPT will be extensively utilized in the future for smooth human-computer interactions, tailored education, sophisticated customer service, and the creation of creative content. AI will become a commonplace tool in daily life and the workplace as a result of its integration with cutting-edge technologies like augmented reality and the Internet of Things. These developments will boost productivity and creativity across various industries, education fields and other sectors.

Reference

1. Chetia, B., Lalthlamuapuii, R., Ahamed, Y. & Lalngaizauli (2023). Sentiment analysis on the Union's Budget 2023: An evaluation based on YouTube comments. Qualitative and Quantitative Methods in Libraries (QQML) 12(4). 635-651.

2. Deori, M., Kumar, V., & Verma, M.K. (2023). What news sparks interest on YouTube? A study of news content uploaded by India's top five Hindi news networks. Online Information Review, 47(3), 550-566. https://doi.org/10.1108/OIR-01-2022-0007

3. Deori, M., Kumar, V., & Verma, M. K. (2021). Analysis of YouTube video contents on Koha and DSpace, and sentiment analysis of viewers' comments. Library Hi Tech, 41(3), 711-728. https://doi.org/10.1108/lht-12-2020-0323

4. Deori, M., Nisha, F., Verma, N. K., & Verma, M. K. (2023). Consumption Patterns of Female Lifestyle Influencers During Covid-19 Pandemic: A Thematic Sentiment Analysis Based on the Comments of Selected YouTube Videos. Journal of Creative Communications, 0(0). https://doi.org/10.1177/09732586231168489

5. Deori, M., Verma, M. K., & Kumar, V. (2021). Sentiment Analysis of Users' Comments on Indian Hindi News Channels Using Mozdeh: An Evaluation Based on YouTube Videos. Journal of Creative Communications. https://doi.org/10.1177/09732586211049232

6. Deng, J. & Lin, Y. (2022). The Benefits and Challenges of ChatGPT: An Overview. Frontiers in Computing and Intelligent Systems, 2(2), 81-83. https://doi.org/10.54097/fcis.v2i2.4465

7. Futterer, T., Fisher, C., Alekseeva, A., Chen, X., Tate, T., Warschauer, M., & Gerjets, P. (2023). ChatGPT in education: global reactions to AI innovations. Scientific Reports, 13, 15310. https://doi.org/10.1038/s41598-023-42227-6

8. Google Cloud Console (2022) Google Cloud Platform. https://console.cloud.google.com/

9. Hornikx, J., & Hendriks, B. (2015). Consumer tweets about brands: A content analysis of sentiment tweets about goods and services. Journal of Creative Communications, 10(2). https://journals.sagepub.com/doi/full/10.1177/0973258615597406

10. Katsurai, M., & Joo, S. (2021). Adoption of data mining methods in the discipline of library and information science. Journal of Library and Information Studies, 19(1), 1–17. https://doi.org/10.6182/jlis.202106_19(1).001

11. Korkmaz, A., Akrurk, C., & Talan, T. (2023). Analyzing the User's Sentiments of ChatGPT Using Twitter Data. Iraqi Journal for Computer Science and Mathematics, 4(2), 202-214. https://doi.org/10.52866/ijcsm.2023.02.02.018

12. Mozdeh (2021) Mozdeh. http://mozdeh.wlv.ac.uk/

13. OpenAI, 2024. https://openai.com/index/chatgpt

14. Shoufan, A., & Mohamed, F. (2022). YouTube and Education: A Scoping Review. IEEE Access, 10, 125576 – 125599. https://doi.org/10.1109/ACCESS.2022.3225419

15. Su, Y., & Kabala, Z. (2023). Public Perception of ChatGPT and Transfer Learning for Tweets Sentiment Analysis Using Wolfram Mathematica. Data, 8. https://doi.org/10.3390/data8120180

16. Sudheesh, R., Mujahid, M., Rustam, F., Shafique, R., Chunduri, V., Villar, M.G., Ballester, J.B., Diez, I.T., & Ashraf, I. (2023). Analyzing Sentiments Regarding ChatGPT Using Novel BERT: A Machine Learning Approach. Information, 14(9), 474. https://doi.org/10.3390/info14090474

17. Thelwall, M., Sud, P., & Vis, F. (2012). Commenting on YouTube videos: From Guatemalan rock to El Big Bang. Journal of the American Society for Information Science and Technology, 63(3), 616–629. https://doi.org/10.1002/asi.21679

18. Webometric Analyst (2017) Webometric Analyst. http://lexiurl.wlv.ac.uk/

19. WordItOut (2022) WordItOut. https://worditout.com/

20. ZiZhang Zhao (2023). The Impact of ChatGPT on Human Society. Proceedings of the 2023 7th International Seminar on Education, Management and Social Sciences (ISEMSS 2023). https://doi.org/10.2991/978-2-38476-126-5_221

About Authors

Dr. Maya Deori, Librarian, Central Library, Dhakuakhana College, Assam
Email: mayadeori94@gmail.com
ORCID: https://orcid.org/0000-0003-4456-0475

Bhagyashree Chetia, Research Scholar, Department of Library and Information Science, Mizoram University, Mizoram
Email: bshree1411@gmail.com
ORCID: https://orcid.org/0000-0002-8355-648X