

Analytical study of Chat GPT For Higher Education in Mumbai

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Abstract:

This empirical research paper aims to investigate the impact of Chat GPT (Generative Pre-trained Transformer) on higher education students, focusing on whether it is perceived as a blessing or a curse. The study collected data through a questionnaire administered to both MCA and MMS students as well as teachers. The questionnaire aimed to gather insights into the perspectives and experiences of these stakeholders regarding the use of Chat GPT in higher education.

The research findings provide valuable insights into the potential benefits and risks associated with Chat GPT usage. The results of the questionnaire responses were analyzed using statistical techniques, including frequency analysis and descriptive statistics. About 180 students and more than 30 teacher's responses have been collected. The paper discusses the implications of the findings for higher education institutions and provides recommendations for its effective and responsible use in the educational setting.

Keywords: Chat GPT, AI, higher education.

1. INTRODUCTION

Background and significance of Chat GPT in higher education:

ChatGPT, developed by OpenAI, is an advanced AI chatbot that was introduced in November 2022. OpenAI, a US-based company founded in 2015, is responsible for the development of this cutting-edge technology. Utilizing deep learning techniques, ChatGPT has undergone extensive training using a vast corpus of online text data. The acronym "GPT" stands for "generative pre-trained transformer," highlighting its ability to comprehend human-provided inputs and generate responses that closely resemble natural human language. The remarkable feature of ChatGPT lies in its capacity to produce text that is virtually indistinguishable from human-generated content, making it challenging to differentiate between responses generated by a human or an AI system.

The background of Chat GPT lies in the advancements in natural language processing and machine learning. GPT models, based on transformer architectures, are pre-trained on massive amounts of text data to learn patterns, grammar, and semantic understanding. This pre-training enables the model to generate coherent and contextually relevant responses in real-time conversations[1].

In higher education, the significance of Chat GPT is multifaceted. Firstly, it offers students an opportunity for personalized and adaptive learning experiences. With the ability to provide instant responses to queries, Chat GPT can act as a virtual tutor, assisting students in their studies, clarifying concepts, and offering guidance. This personalized support can enhance students' comprehension, engagement, and overall learning outcomes.

Secondly, Chat GPT promotes collaborative learning. It can facilitate real-time discussions and interactions among students, fostering peer-to-peer learning and knowledge sharing. By leveraging the collective intelligence of a group, Chat GPT can enable collaborative problem-solving and critical thinking, enhancing the overall learning experience.

Moreover, Chat GPT can extend the reach of education beyond the confines of the physical classroom. It enables asynchronous communication, allowing students and teachers to engage in discussions and seek assistance at any time, regardless of their geographical location. This flexibility in communication can support distance learning initiatives, continuing education, and lifelong learning.

However, the significance of Chat GPT in higher education also raises important considerations. Ethical concerns, such as the potential for plagiarism or the dissemination of misinformation, need to be addressed. Institutions must establish guidelines and policies to ensure responsible usage of Chat GPT, emphasizing academic integrity and the importance of critical evaluation of information.

In conclusion, the background and significance of Chat GPT in higher education lie in its potential to revolutionize communication, collaboration, and personalized learning experiences. By leveraging the power of natural language processing and machine learning, Chat GPT opens

up new frontiers for education, but its implementation should be accompanied by ethical guidelines and pedagogical considerations.

2. PURPOSE OF THE STUDY

This research study investigates the impact of Chat GPT (Generative Pre-trained Transformer) on higher education students and teachers. It aims to explore whether Chat GPT is perceived as a blessing or a curse in the context of higher education.

3. OBJECTIVE OF THE STUDY

1. To assess the perspectives of MCA and MMS students regarding the use of Chat GPT in higher education.
2. To examine the viewpoints of teachers regarding the use of Chat GPT in higher education.
3. To compare the perceptions of teachers from different disciplines regarding the impact of Chat GPT in higher education.
4. To offer recommendations for responsible implementation and usage of Chat GPT in higher education.

4. LITERATURE REVIEW

TareqRasul, Sumesh Nair: Using ChatGPT and other large language models (LLMs) in higher education offers advantages and challenges. On the positive side, ChatGPT can support students in generating ideas, improving their learning experiences, and assisting with assessments, research, analysis, and writing tasks. However, risks such as academic misconduct, bias, falsified information, and inadequate assessment design can hinder crucial graduate skill development and promote superficial learning. To address these concerns, higher education institutions need to prioritize educating students on responsible and ethical use, devise assessment strategies that cannot be easily replicated by ChatGPT, address bias and falsified information, and enhance students' AI literacy as part of their graduate skills. Striking a balance between preventing academic misconduct and promoting academic freedom and innovation is crucial. By doing so, ChatGPT can be a valuable tool that enhances students' learning experiences rather than hindering them[1].

Noorhan Abbas, Jenni Whitfield, Eric Atwell ORCID Icon, Helen Bowman, Thomas Pickard & Aisha Walker: The study found that using Differ, an online platform, had a positive impact on social integration among standard age and mature students in higher education. Differ facilitated initial connections, improving students' sense of belonging and engagement. The majority of students actively engaged with and found Differ useful, with many indicating they would recommend it to others. It was particularly effective for non-standard student cohorts, such as international students and those in interdisciplinary programs. Student moderators (DSMs) played a crucial role in ensuring safety and fostering conversations within online communities. Setting norms and rules for these communities was advised. Having a separate MIM tool exclusively for university use helped students separate their academic and private lives. To enhance future uptake, applicants will be invited to join Differ during a pre-entry program, and SMS invitations will be utilized for smoother onboarding. A training program will provide clear instructions on using Differ's features, and efforts will be made to encourage less formal and more engaging interactions. Institutions should integrate support information into the curriculum and incorporate MIM tools into their educational systems to better support mature students and reduce the learning burden[2].

Stephen Atlas: In the context of higher education and beyond, ChatGPT serves as a versatile tool for learning, writing, and content creation, offering various applications. However, it is crucial to employ ChatGPT responsibly and ethically while taking measures to mitigate the risk of plagiarism. Students and entrepreneurs should have a comprehensive understanding of the technology's capabilities and limitations, utilizing it as a tool to augment critical thinking and creativity. Educators, in turn, can embrace the advancements in technology, integrating ChatGPT into their curriculum in a meaningful manner. By adhering to these principles, the responsible and ethical use of ChatGPT can be ensured, facilitating the preparation of future leaders for an AI-driven workforce[3].

Chen, Y., Jensen, S., Albert, L. J., Gupta, S., & Lee, T.(2023): This literature review addresses the scarcity of empirical studies in the field of Information Systems (IS) regarding the use of pedagogical chatbots in higher education. The research aims to explore the opportunities,

challenges, efficacy, and ethical concerns associated with utilizing chatbots as educational tools in business education. The study consists of two parts: a chatbot-guided interview with 215 undergraduate students and the development of an experimental chatbot assistant to teach AI concepts to 195 students. The findings indicate that chatbots have the potential to enhance learning by providing responsive, interactive, and confidential assistance to students. The results also highlight the engagement and effectiveness of chatbots as conversational learning tools. The literature review discusses the implications of these findings and emphasizes the promising opportunities and ethical considerations of incorporating chatbots to support inclusive learning in higher education[4].

Brady D. Lund and Ting Wang(2023):This literature review provides an in-depth examination of ChatGPT, a highly sophisticated chatbot. It explores the technology, capabilities, and potential impact of ChatGPT in academia and libraries. The review highlights the benefits of ChatGPT, including improved search, reference services, cataloging, metadata generation, and content creation. It also emphasizes the importance of responsible and ethical usage, considering factors such as privacy and bias. The review concludes by emphasizing the need for professionals to collaborate with ChatGPT to enhance scholarly knowledge and education while being mindful of potential challenges. Responsible and ethical use of ChatGPT can lead to positive outcomes in the field[5].

5. METHODOLOGY

Research Design and Approach:

The research design for the said study involved gathering data from students and teachers through a questionnaire. The target population consisted of 160 students, including 130 MCA students and 30 MMS students, as well as 27 teachers. The purpose of the research was to analyze the use of Chat GPT in the context of higher education.

To collect data, a survey questionnaire was developed specifically for this study. The questionnaire consisted of 10 questions designed for both students and teachers. The questions were carefully crafted to obtain insights into the participants' experiences, perceptions, and attitudes towards Chat GPT in the higher education setting. The questionnaire might have

included items related to the benefits, challenges, and potential applications of Chat GPT in teaching and learning.

To ensure ease of data collection and convenience for participants, an online survey platform, specifically Google Forms, was utilized. The survey questionnaire was hosted on Google Forms, and the participants were provided with the survey link. They could access and respond to the questionnaire at their convenience using any device with internet access.

A total of 160 students, comprising 130 MCA students and 30 MMS students, along with 27 teachers, responded to the questionnaire through Google Forms. The responses received from the participants will be used to analyze and evaluate the perceptions and experiences of students and teachers regarding the use of Chat GPT in higher education.

It is important to acknowledge that the research design has certain limitations. The sample size, while representative of the target population, may not be generalized to the entire population of students and teachers in higher education. Additionally, the use of a self-reported questionnaire may introduce biases, such as social desirability bias or response bias. These limitations should be taken into account when interpreting the findings of the research.

6. RESULTS AND DISCUSSION

For the said study researcher uses primary and secondary data both. The primary data is collected from students and teachers of MCA (Master of Computer Application) and MMS(Master of Management Studies) from NMITD institute in the Mumbai region. The total targeted population is 200 students of MCA and MMS.

No. of questions in the questionnaire	Stakeholders	No. of respondents	Medium for collecting responses
10	Students	MCA :130	Google form
		MMS: 30	
10	Teachers	27	Google form

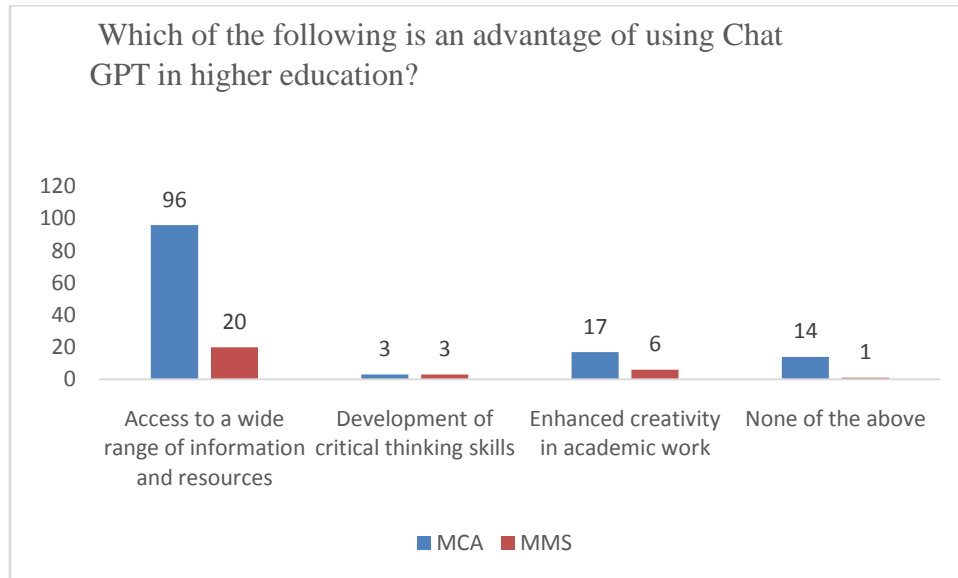
Table 1: Data Sample

The data collected from primary sources is analyzed by MS Excel and analysis is represented in two ways Graphical representation or quantification.

6.1 Analysis of Response:

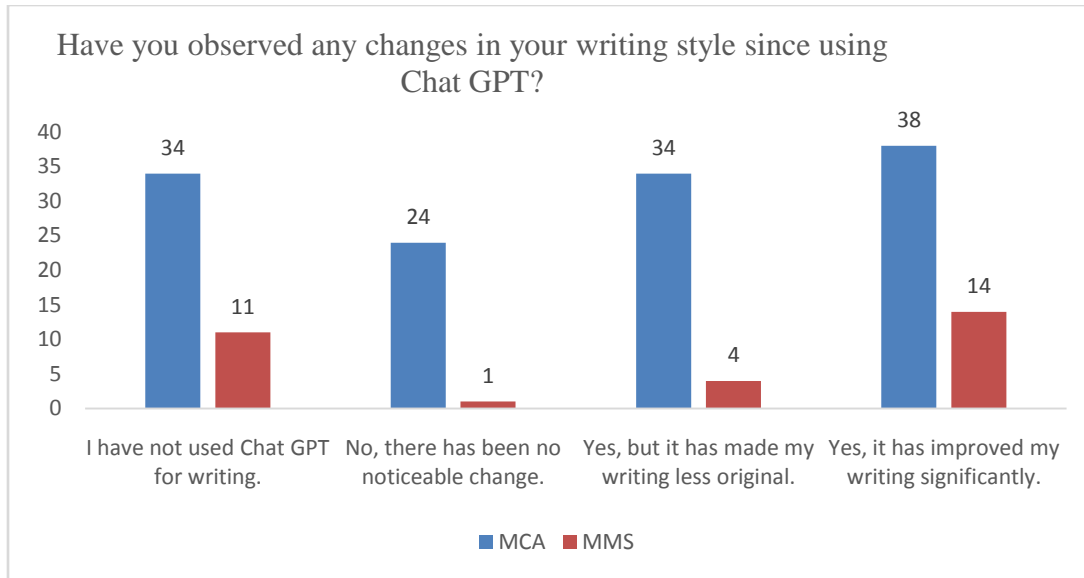
Following is the analysis of a few important responses received from MCA and MMS students in the form of a pie chart regarding the use of Chat GPT in academics.

1.



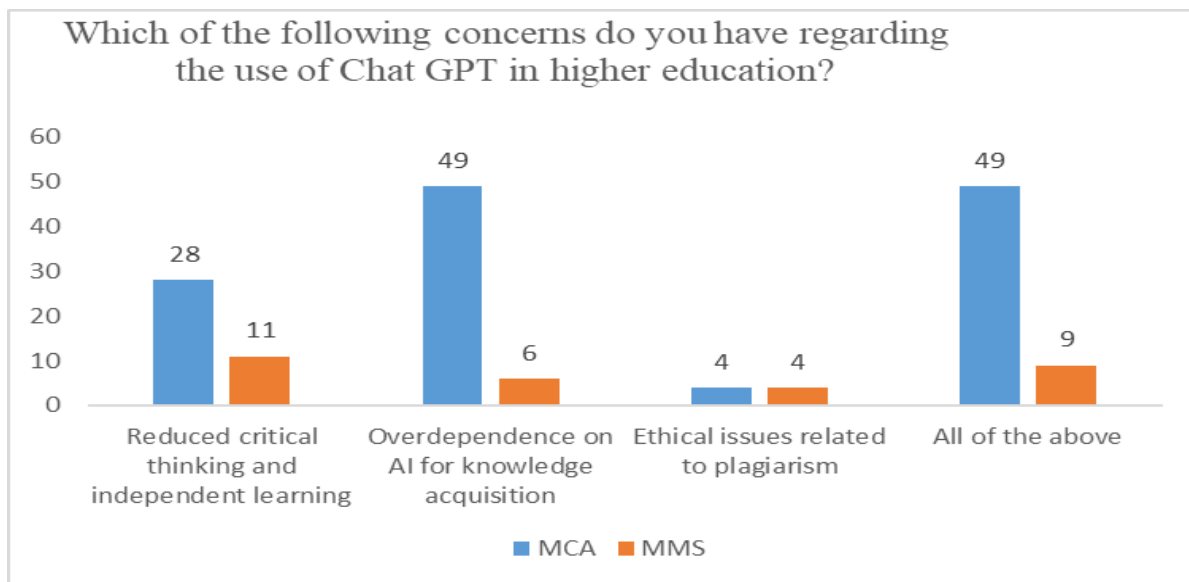
The analysis clearly shows that the majority of both MCA and MMS students agree that Chat GPT allows them to access a wide range of information and resources. Only a few of them think that it helps in the development of critical thinking skills. A moderate number of students think that Chat GPT enhances creativity in academic work.

2.



From the above diagram, it can be concluded that 30-40% of students are still not using Chat GPT for writing purposes. The majority of MCA students feel that this application makes their writing less original, while very few MMS students share the same sentiment. On the other hand, the majority of students have experienced a significant improvement in their writing using this AI tool.

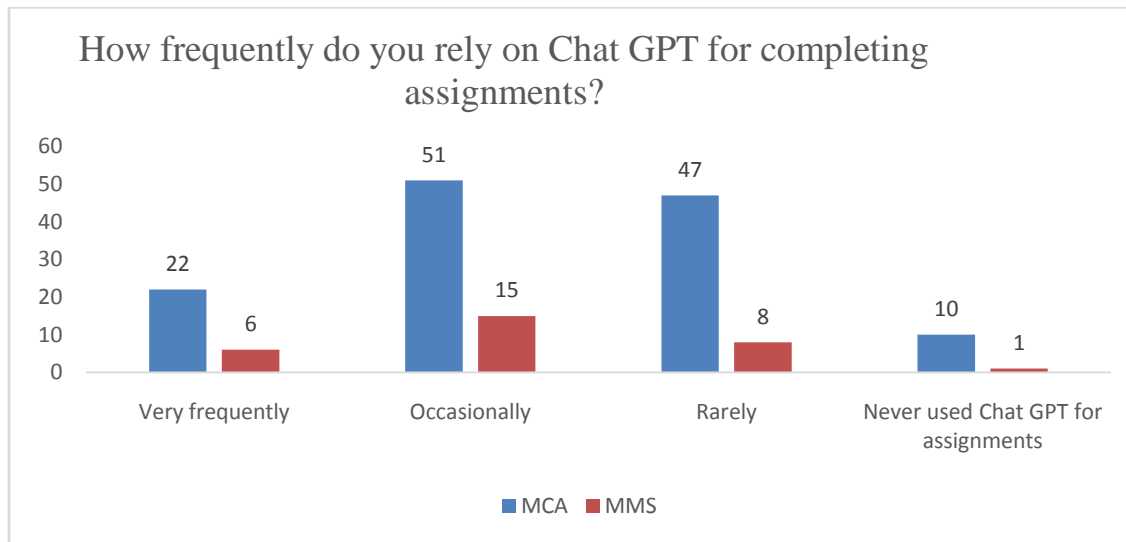
3.



From the above chart, it can be concluded that approximately 21% of MCA and MMS students believe that Chat GPT has reduced their critical thinking and independent learning. Additionally,

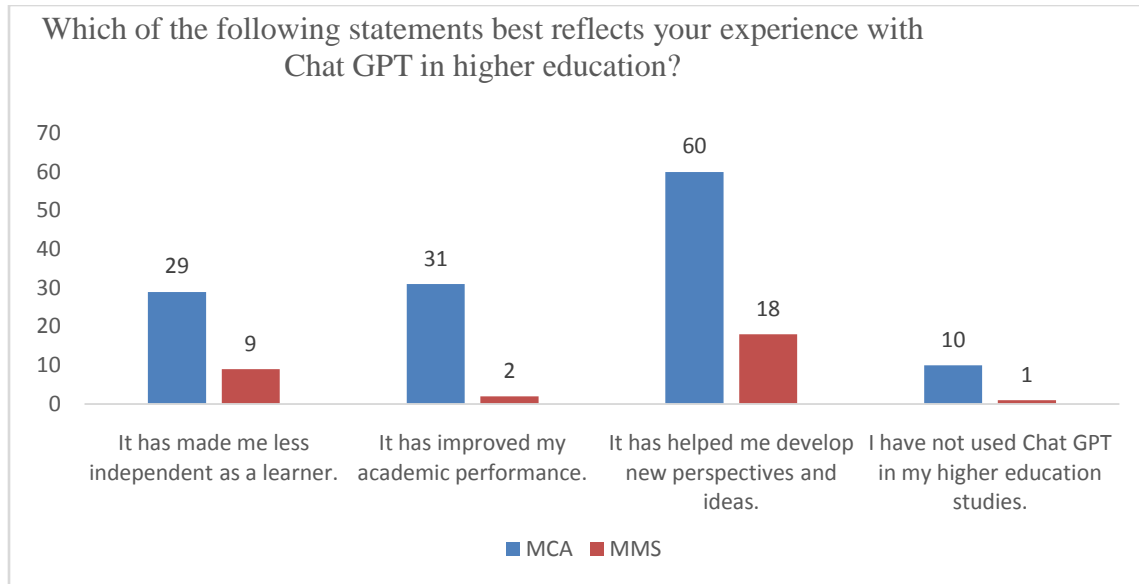
37% of MCA students agree that they have become overly dependent on this application for knowledge acquisition, whereas only a few MMS students share the same sentiment. Interestingly, an equal number of students from both streams agree that there are ethical issues related to plagiarism associated with Chat GPT.

4.



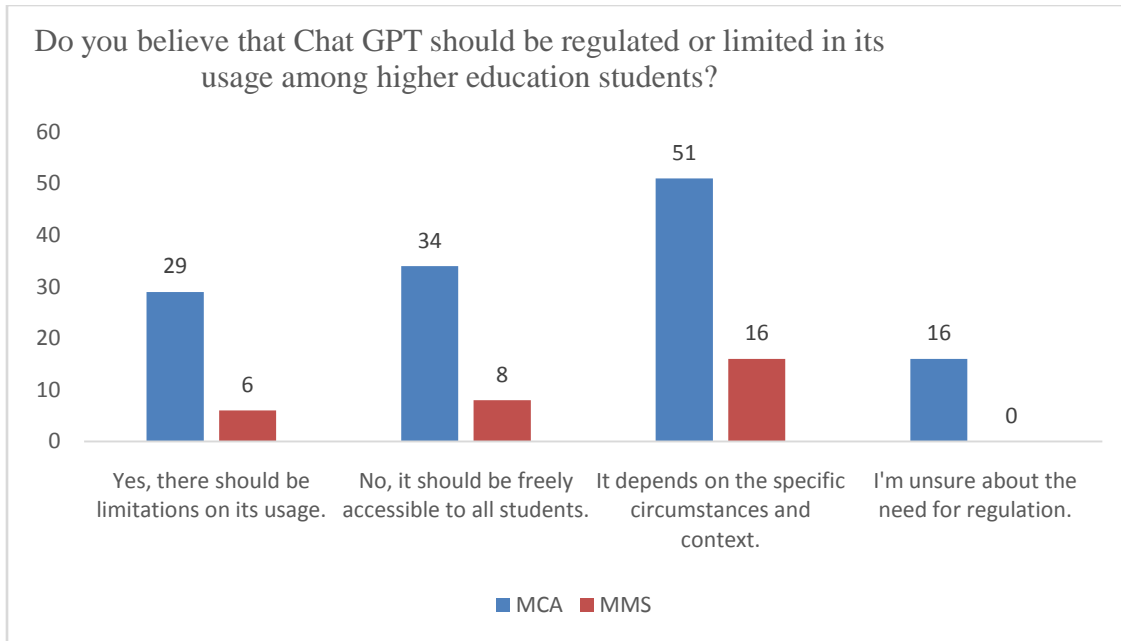
When asked about the frequency of Chat GPT usage, approximately 50% of students reported using it occasionally, while only 16% stated they use it frequently. Most MCA students rarely use this application, whereas only a small percentage of MMS students agree with that statement. It is worth noting that there are still a few students in both streams who have never used this app for any purpose.

5.



When sharing the overall experience of using Chat GPT, approximately 31% of MCA students agree that this application helps improve their academic performance, while MMS students disagree with this statement. On the other hand, an equal percentage of MCA and MMS students agree that this app makes them less independent as learners. Additionally, around 50% of students from both streams agree that this AI tool has helped them develop new perspective ideas.

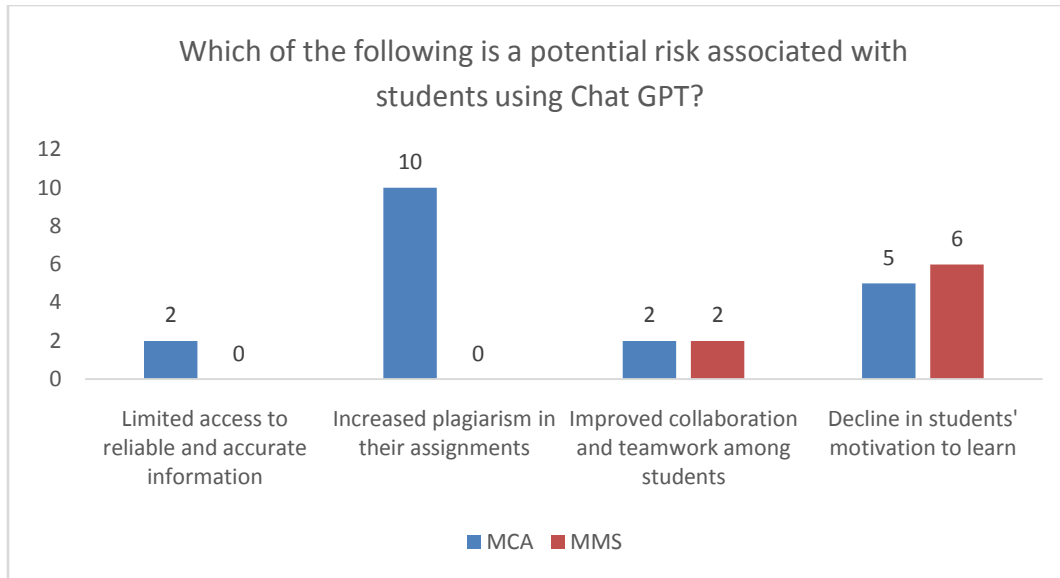
6.



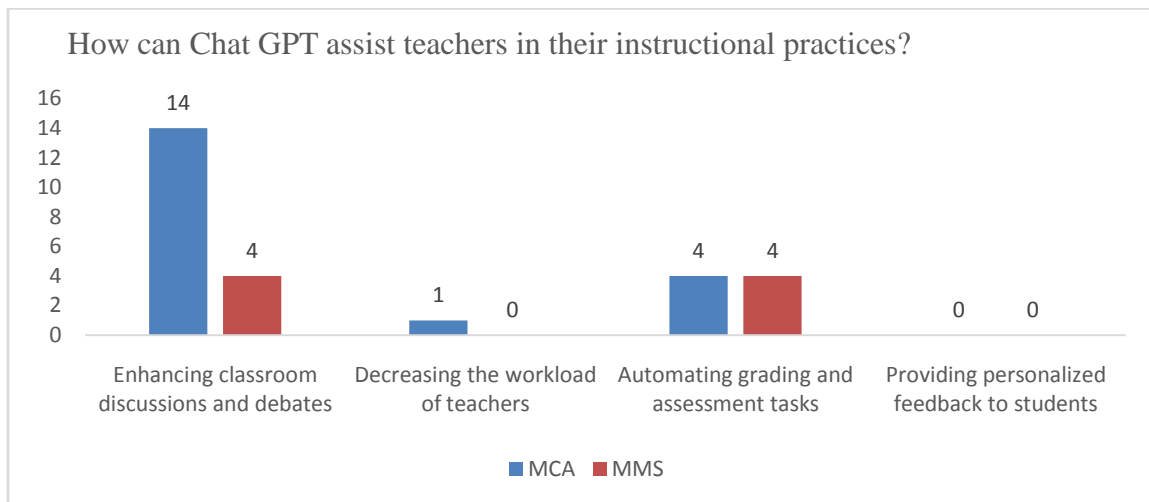
When addressing the limited use of Chat GPT by students in higher education, over 40% of students from both streams agree that its usage depends on specific circumstances and context. However, 25% of MCA and MMS students support the idea that Chat GPT should be freely accessible to higher education students. The remaining students are uncertain about the need for regulation in this regard.

Following is the analysis of a few important responses received from MCA and MMS teachers in the form of a pie chart regarding the use of Chat GPT in academics.

1.

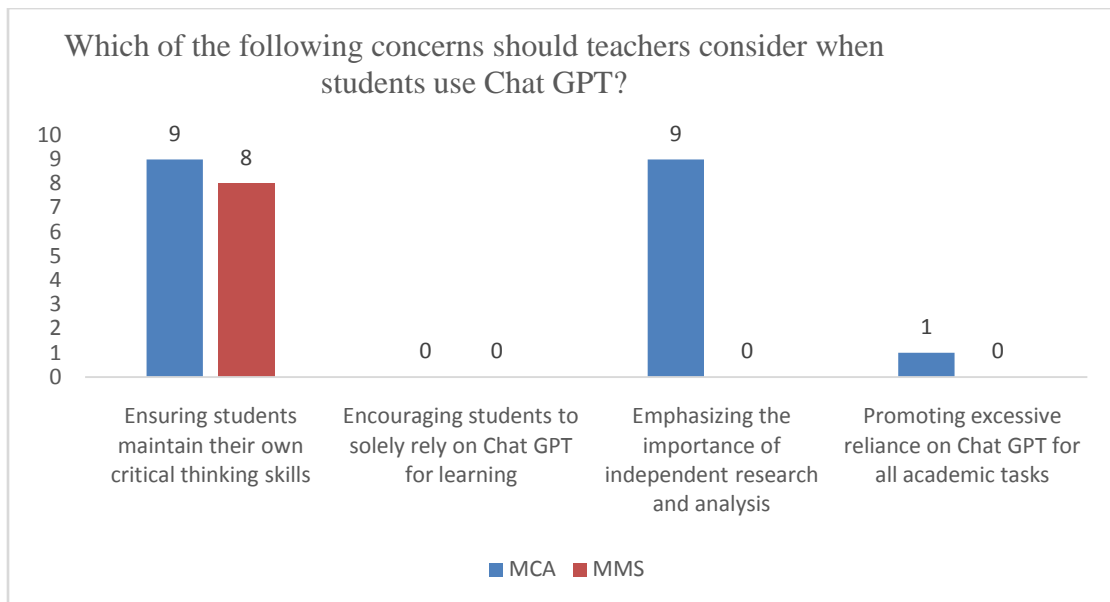


When addressing the risks associated with students using Chat GPT, the majority of MCA faculty members agree that it has increased plagiarism in student assignments. However, MMS faculty members do not agree with this perspective. On the other hand, an equal number of faculty members agree that the use of this tool has improved collaboration and teamwork among students. Furthermore, the majority of MMS faculty members agree that the use of Chat GPT decreases students' motivation to learn, while only 26% of MCA faculty members agree with this viewpoint. Additionally, only 10% of MCA faculty members believe that the use of Chat GPT results in limited access to reliable and accurate information for students.



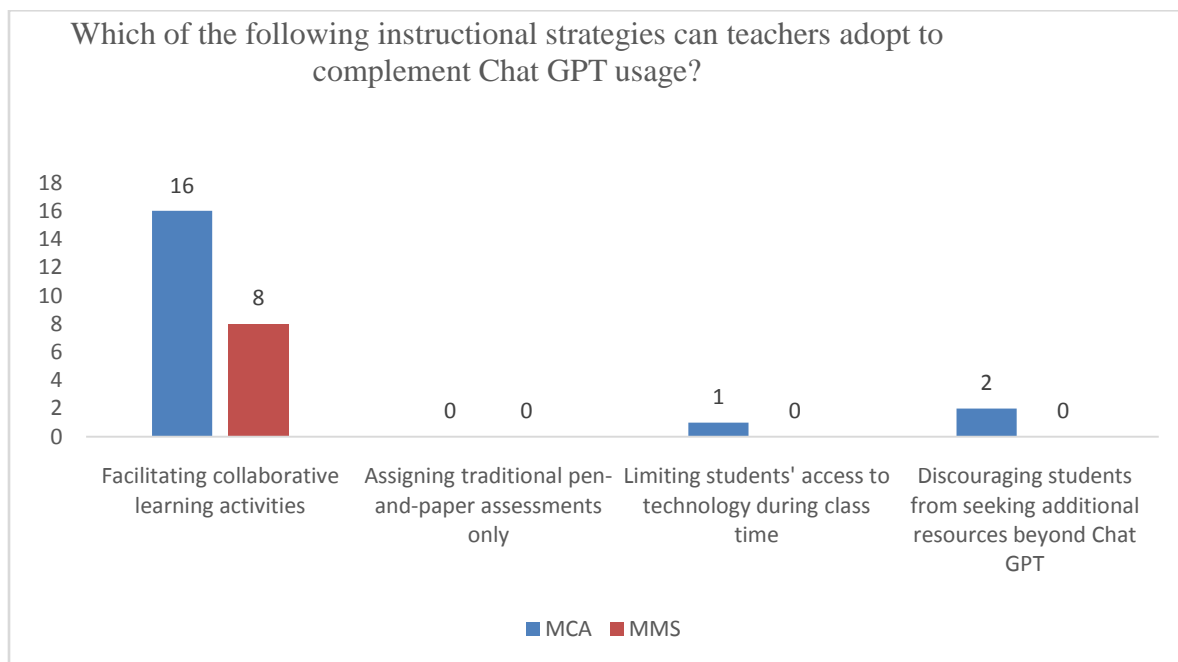
From the above bar chart, it can be concluded that neither MMS nor MCA faculties believe that Chat GPT can provide personalized feedback to students. Only 1% of MCA faculty members agree that this application can help in reducing the teacher's workload. An equal number of faculties from both streams agree that Chat GPT can automate grading and assessment tasks. Approximately 73% of MCA faculty members and 50% of MMS faculty members agree that this application helps enhance classroom discussions and debates.

2.



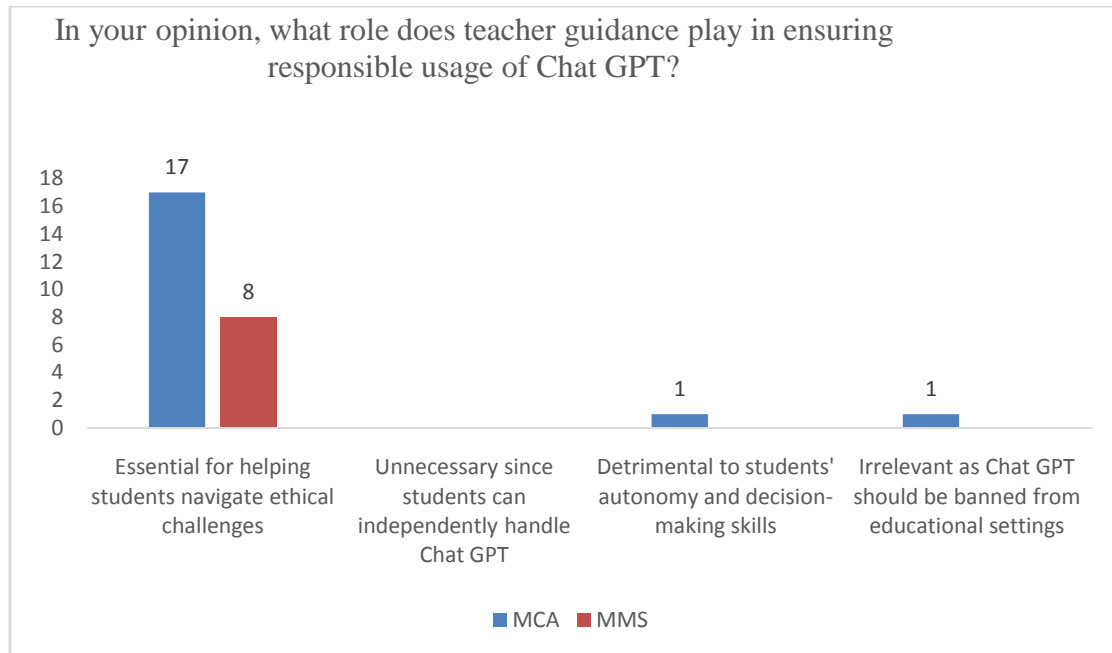
When addressing the concerns of teachers when students are using Chat GPT, approximately 90% of MMS faculties and 50% of MCA faculties agree that teachers should ensure students maintain their own critical thinking skills while using this application. Moreover, faculties from both streams agree that teachers should not encourage students to solely rely on Chat GPT for learning. Additionally, 50% of MCA faculties agree that teachers should emphasize the importance of independent research and analysis. In contrast, MMS faculties completely disagree with this statement.

3.



When answering about the strategies teachers adopt to complement Chat GPT usage, the majority or all of the faculties from both streams agree that they should facilitate students with collaborative activities. None of the faculties agree with opting for a traditional pen-and-paper assessment pattern. Only 1-2% of MCA faculties responded positively to limiting students' access to technology during class time and discouraging them from seeking additional resources beyond Chat GPT.

4.



When answering the question regarding the role of teacher guidance in ensuring responsible usage of Chat GPT, all MMS faculties and 90% of MCA faculties agree that the teacher's role is essential for helping students navigate ethical challenges. All teachers agree that students should not handle this app independently. However, only 1% of MCA faculties feel that Chat GPT should be banned from higher education.

7. CONCLUSION

The analysis reveals that the majority of MCA and MMS students agree that Chat GPT allows access to a wide range of information, but it has a limited impact on critical thinking. Some students perceive enhanced creativity in academic work. Around 30-40% of students do not use Chat GPT for writing purposes, and MCA students feel it makes their writing less original. However, most students experience significant writing improvement using the tool. About 21% of MCA and MMS students believe Chat GPT reduces critical thinking, while 37% of MCA students feel overly dependent on it for knowledge acquisition. Ethical issues related to

plagiarism are acknowledged by both streams. Usage frequency shows approximately 50% use it occasionally, with 16% using it frequently. The experience varies, with some MCA students reporting improved academic performance and reduced independence, while MMS students differ. Both streams agree it helps develop new perspective ideas. Students express differing opinions on limited usage, with support for context-dependent usage and freedom of access. These findings illuminate the perceptions and experiences of students regarding Chat GPT in higher education.

The analysis reveals differing perspectives among MCA and MMS faculty members regarding the usage of Chat GPT in education. While MCA faculty members believe it has increased plagiarism, MMS faculty members disagree. Both streams agree on the benefits of collaboration and automated grading. MMS faculty members express concerns about decreased student motivation, while a smaller percentage of MCA faculty members share this concern. Limited access to reliable information is believed by only 10% of MCA faculty members. Personalized feedback provision is not perceived by faculties from either stream. Collaborative activities are favored, and traditional pen-and-paper assessments are not preferred. Teacher guidance is deemed crucial for navigating ethical challenges, discouraging sole reliance on Chat GPT, and emphasizing independent research. Limiting technology access and discouraging additional resource-seeking receive support from only a small percentage of MCA faculties. Banning Chat GPT from higher education is supported by only 1% of MCA faculties. These findings reflect the complex dynamics and varying opinions among faculty members regarding the use of Chat GPT in education.

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