



Pre-service Teachers' Awareness and Use of AI tools for Learning

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ABSTRACT

The study aimed to find out awareness of AI tools among pre-service teachers. A questionnaire developed through Google forms consisting of 20 questions was administered on pre-service teachers after seeking their permission. It came to light that they are mostly aware of ChatGPT and less aware of other AI tools like Google Gemini and Grammarly. It has also come to light that AI tools make learning interesting but also diminishes their ability to analyse things critically. There are various sources from where they get to know about AI tools, they are professors, social media or friends. With AI, comes the concern of plagiarism because they heavily use AI for completing their assignments on time. The study also highlighted, in the future, AI will become increasingly significant and will play a pivotal role in education.

Introduction

AI has taken over the world completely and is transforming Education in an unimaginable way. Pre-service teachers have access to AI platforms like ChatGPT which allows them to take help for their assessments which has resulted in plagiarism and lower cognitive skills but in addition to these negative effects, AI also has positive effects like access to a plethora of ideas and personalized learning for them.



When learning gets personalized with the help of AI, their academic performance improves. Whether AI is used effectively depends on its awareness and usage level.

Pre-service teachers extensively use AI in the field of Education. The availability of Learning Management System (LMS) and Open Educational Resources (OER) allow them to interact with AI. The emergence of AI in the Educational context helps both pre-service teachers and teachers. It helps pre-service teachers to gain access to a wide range of sources and ideas and complete their work on time and on the other hand, helps teachers to detect plagiarism by using plagiarism detection softwares. The use of AI has raised serious concerns about their cognitive skills and their reliability on AI platforms which has resulted in the emergence of the problem of plagiarism and copying content from different AI platforms. Thus, it's important to gauge the awareness of AI tools among pre-service teachers. It is important to see that these AI tools are used effectively and efficiently to meet the objectives of the teaching-learning process without any gaps.

The government of India realized the importance of AI in transforming Education and hence, our government has launched many digital initiatives which facilitates the integration of AI in Education. One of the most important policies, the National Education Policy (NEP) 2020, has stressed on the importance of technology in Education to ensure equity and equality for all. NEP 2020 stresses on the fact that the use of digital tools including AI in Education has transformed Education for pre-service teachers by enhancing their cognitive skills and creative thinking skills. This policy has a vision that pre-service teachers are prepared for the 21st century demands by keeping up with technology that is used in Education.

The policy also stresses on the fact that the emerging technology and AI should be used ethically and this technology should not be misused. All the Ethical considerations have to be kept in mind while using AI in Education.

NEP 2020 also stresses on the fact that the knowledge of technology in the field of Education should be developed in both teachers and students as today, technology surrounds us.

Teachers can make use of AI to meet the individual needs of pre-service teachers and make learning personalized for them so that they enjoy the teaching-learning process. Ethically using AI is important for ensuring responsible citizenship. Thus, to fulfil the vision of NEP 2020, it is important to understand the drawbacks and ethical considerations while using AI.



Alongside NEP 2020, there are several government initiatives like DIKSHA, SWAYAM which shows India's commitment to using technology in the field of Education so that all pre-service teachers get the same benefits. These initiatives support innovation and thinking skills. AI plays a pivotal role in the making of our nation. Therefore, it is important for pre-service teachers to be aware of AI tools and their benefits, their drawbacks and the ethical considerations. Despite the growing use of AI, pre-service teachers don't understand the effective use of AI. They do not understand the threats associated with AI such as information security.

Higher institutions play a central role in shaping their lives by making them aware about AI and other digital tools. Higher institutions gauge their awareness level regarding AI which helps them to design effective educational programs and make necessary changes to the curriculum in order to meet the needs of the 21st century.

As there are differences in the socio-economic background and digital learning resources of the pre-service teachers, it becomes crucial to gauge their awareness levels. The key goals of NEP 2020, Equity and Inclusion, aren't always met adequately as the learning outcomes might be different for everyone due to the difference. Therefore, research into the awareness of AI tools by pre-service teachers can help to understand their perception of AI tools and their understanding of AI tool's benefits and drawbacks.

Therefore, the following study on 'Pre-service Teachers' awareness in using AI tools' provides a deep insight into their perception in line with NEP 2020 and other government initiatives. By researching their perceptions about AI tools, the following study contributes to the widespread integration of technology in Education. The findings of the research aim to portray AI as a facilitator of education that can help in achieving great milestones.

Research Questions:

1. To what extent are pre-service teachers aware of AI tools?
2. What is the most popular AI tool amongst pre-service teachers and what other AI tools are they aware of?

Objectives:

- To investigate pre-service teachers' perceptions of AI learning tools.



- To investigate the use of AI tools by pre-service teachers in their academic work.
- To comprehend pre-service teachers' opinions, experiences, and worries about AI-assisted learning.

Literature Review:

Kuleto, V. (2021) explored the problems faced by the students of higher education institutions in relation to AI. Sagin, F.G. (2023) This paper tried to give both the perspectives towards AI in the education field and how it is a boon as well as a bane if not used correctly. Shrestha, N.K. (2025) This study directed towards the ethical use of AI in education. Nebojsa, S. et al (2024) offered a combined examination on how AI has drastically changed the educational field and how it expected to change in the near future. Ngo, T.T.A (2023) A research was held to understand the potential of ChatGPT for the university students. It aimed towards learning the benefits as well as the shortcomings of ChatGPT in students learning process. Sova, R. (2024) the paper showed the significance and power of AI in improving the education field and how awareness of AI can improve the teaching learning process. Khanduri, V. & Jeotia, A. (2023) a research was conducted among 19 participants in a group of 4-5 members each, which showed some important pointers related to the potential as well as the drawbacks of the enhanced technology based learning process. Phua, J.T.K (2025) The paper reflected a research conducted to understand the rise of AI in the education field and how it impacted and reshaped the education system. Stohr, C. (2024) the study aimed to find the impact of ChatGPT in the education field digging more into how it differ among the genders and stream of study. Jadhav, S. (2025) the paper explored the increasing use of AI tools in higher education and recommends its ethical use should be installed with proper framework in place.

Shu. Z (2025) gave a study on the use of AI by college students in the Educational field. Educational content should teach students about such platforms and their ethical use. Students should take care about their use of ChatGPT and other AI tools. The study by Ventura A. & Lopez L. (2024) focused on the impact of AI on Education. It has both positive and negative impact. A study was conducted through an online survey by getting a Google Form filled by students taken as Sample. The study revealed that students were aware of AI tools used in Education but their awareness depends on the extent of their use. This study focused on the use of AI tools in Education. While students use AI in Education and AI transforms Education, there is a concern for academic integrity. The research conducted on students of Slovenia revealed that while AI is slowly entering into Education, it posed serious concerns as well. (Fosner A., 2024)



According to Delello J. et al, (2023) students were aware about AI platforms like ChatGPT. While such platforms are extensively used by students as these platforms personalize learning, students also recognized that plagiarism was a serious threat posed by them. Jia H. and Tu J. (2024) published a study that focused on changes in Education during the pandemic. The pandemic negatively affected the academic capabilities of students as learning transitioned to the online platform. The study focused on how should AI be used in the field of Education to transform learning and help students overcome their learning gaps. The following study is about AI's influence on the world especially, in the Education domain. As it is being widely used in the field of Education, it is being integrated into the University curricula so that students get a hang of AI and its benefits and disadvantages. Parra. J et al (2024)

Albayati H. (2024) highlighted the use of ChatGPT by college students, especially undergraduates. The study highlighted users' actual experiences of using ChatGPT.

Hua. J (2023) highlighted the growing dishonesty in the field of Education by college students. Dishonesty in college students is due to the fact that they use platforms like ChatGPT to do their online assessments. The attitudes of students revealed that they are dependent on such platforms. According to Wang. D et al. (2024) the thinking skills of college students have diminished because of use of AI. AI generates content easily and makes the task of students easy. Teachers are advised to monitor students and their use of AI.

This study focused on the use of ChatGPT and its benefits and disadvantages. It highlighted that when students are under pressure of completing work within a specified time, they are more likely to resort to ChatGPT. (Abbas. M et al. 2024)

Research Methodology

- ❖ **Research Design:** Descriptive survey research design
- ❖ **Population of the Study:** Pre-service teachers of India
- ❖ **Sample:** 80 pre-service teachers of an institution
- ❖ **Sample and Sampling Technique:** Convenience Sampling technique
- ❖ **Tool for Data Collection:** Structured questionnaire of 20 questions developed through Google Forms.
- ❖ **Data Analysis Techniques:** The results were presented using pie charts to facilitate easy interpretation.

Results and findings

The main aim of this study was to find out whether pre-service teachers are aware of usage of AI tools in the teaching-learning process.

The questionnaire pointed out to the fact that they are mostly aware of ChatGPT which is the most popular tool, nowadays. College students are aware about AI to a great extent but it has also come to light that tools besides ChatGPT are not being used because they have not been explored yet.

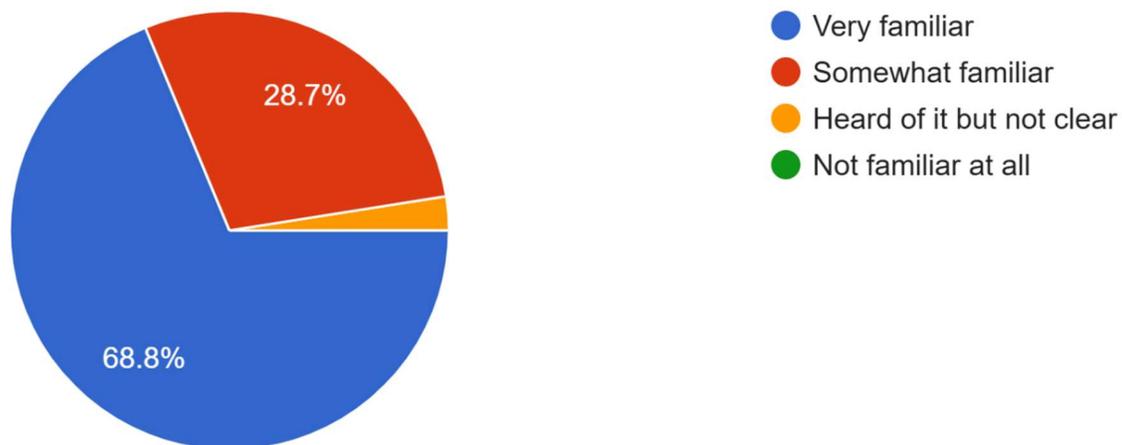


Fig. 1: Distribution of responses to familiarity with the concept of AI

The following pie chart points out that most of the respondents are familiar with the concept of AI while 2.5% have heard of it but are not fully clear about the concept. On the other hand, 28.7% are somewhat familiar. This points to the fact that most of the respondents are aware about AI.

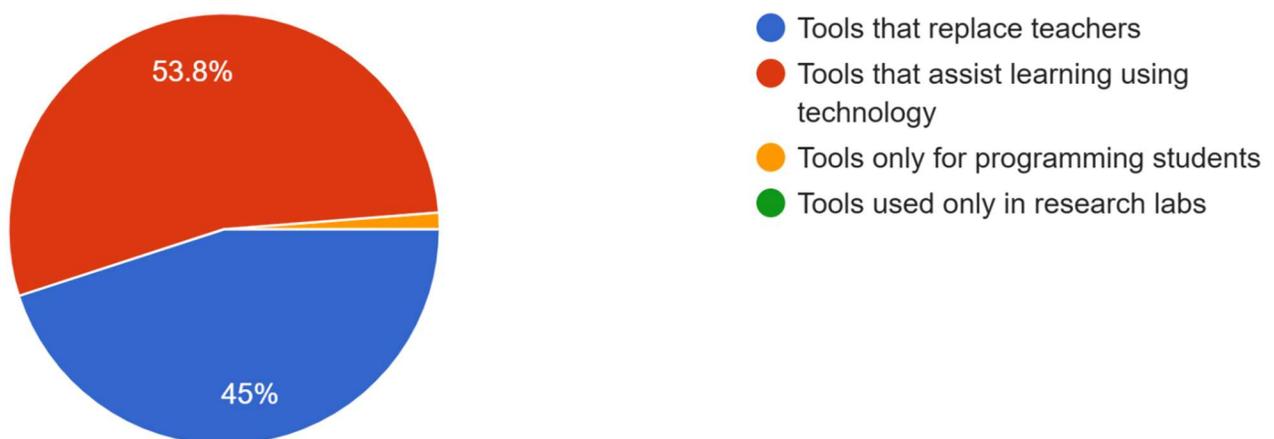


Fig. 2: Distribution of responses to the usage of AI tools in education



Most of the participants of the study, 53.8%, believe that AI tools assist learning using technology while the other majority of participants, 45%, believe that AI tools replace teachers. 1.2% participants believe that these tools are only meant for programming students.

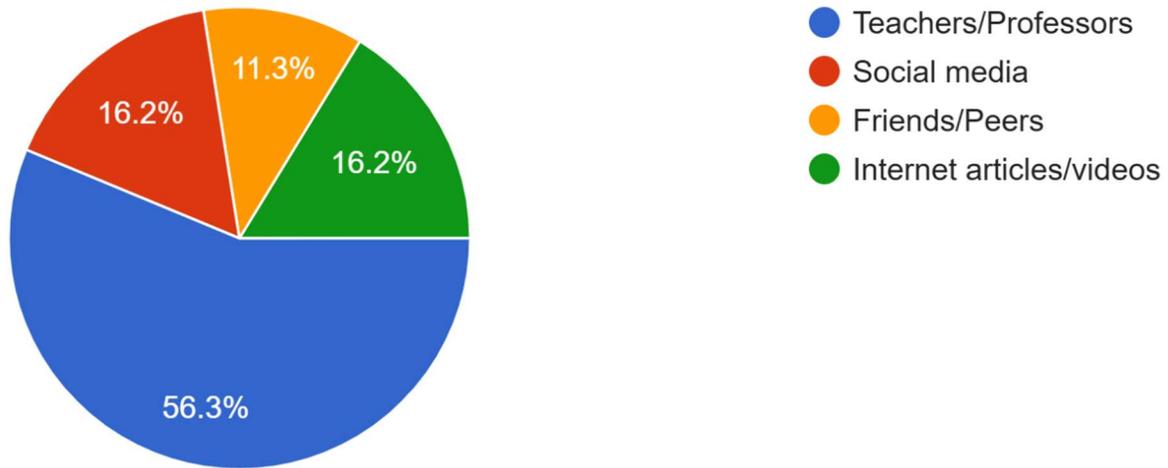


Fig. 3: Distribution of responses to the source of knowledge of AI tools

The above chart shows that 56.3%, the largest share, got to know about AI from their professors while the next two shares got to know from internet articles/videos and also from social media and last from their friends/peers.

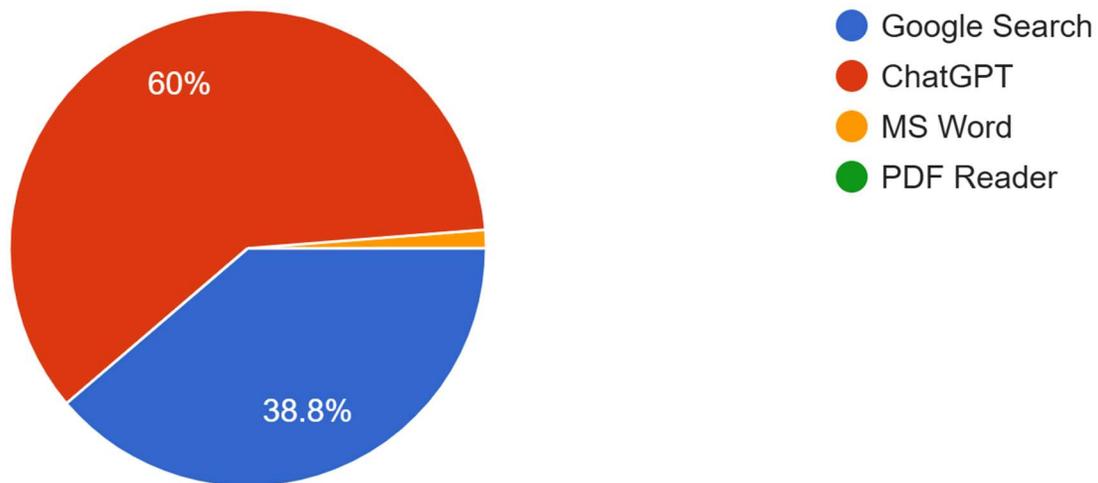


Fig. 4: Distribution of responses to the question, which is an AI tool

60% think ChatGPT is an AI based tool while 38.8% think Google Search is an AI based tool and only 1.2% think MS Word is an AI based tool.

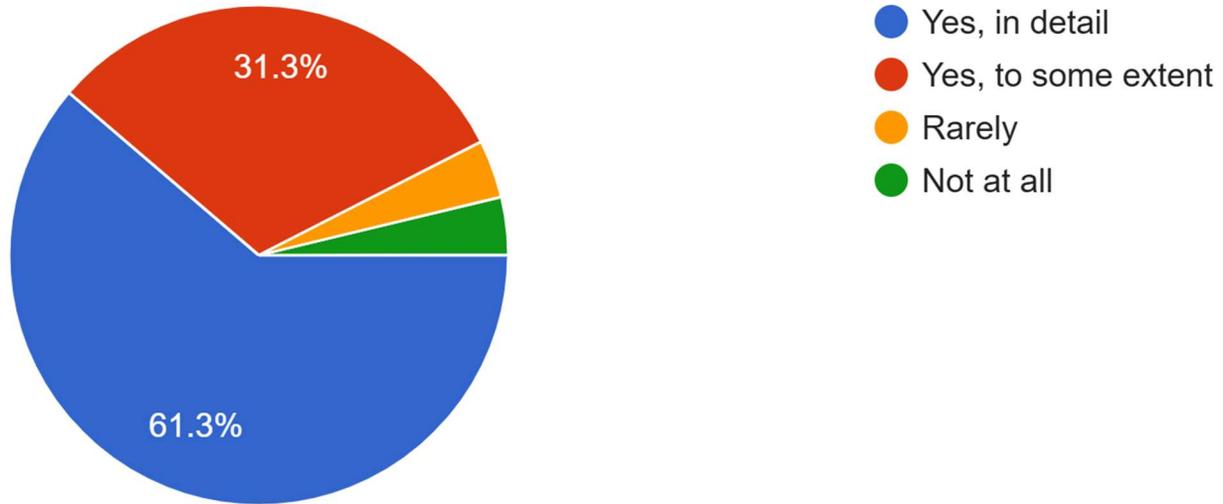


Fig. 5: Distribution of responses to the inclusion of AI tools in the college curriculum

61.3% agree to the fact that AI tools are discussed in detail in their curriculum while 31.3% say that they are discussed to some extent and 3.7% say that it is rarely discussed and the other 3.7% say that it is not at all discussed.

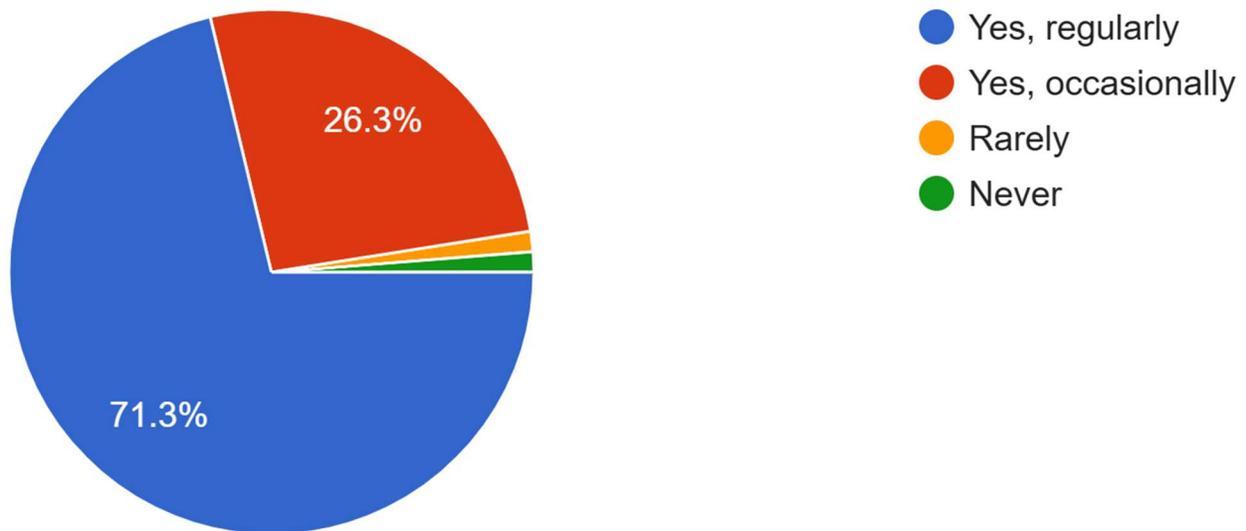


Fig. 6: Distribution of responses to the usage of AI tools for academic purposes

The largest share, 71.3%, say that they regularly use AI tools for academic purposes while the next largest share, 26.3%, say that they use occasionally. The percentage of respondents who say that they rarely or never use AI tools is 1.7%.

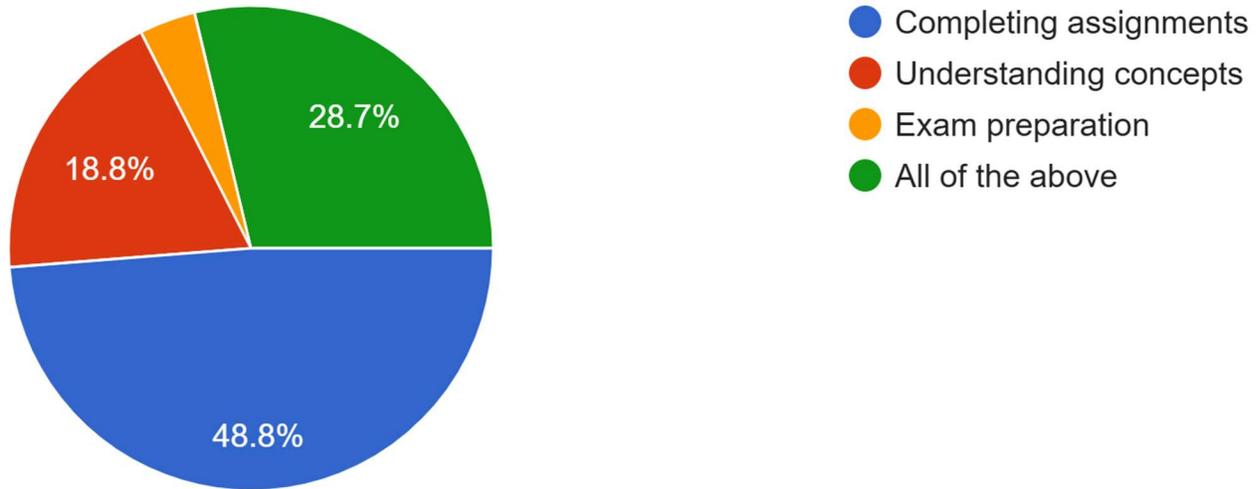


Fig. 7: Distribution of responses to the question of how AI tools are being used in day-to-day life

48.8% say that they use AI tools for completing their assignments while 28.7% say that they use AI tools for completing assignments, understanding concepts and exam preparation. 18.8% say that they use AI tools for understanding concepts. The remaining, 3.7%, say that they use AI for exam preparation.

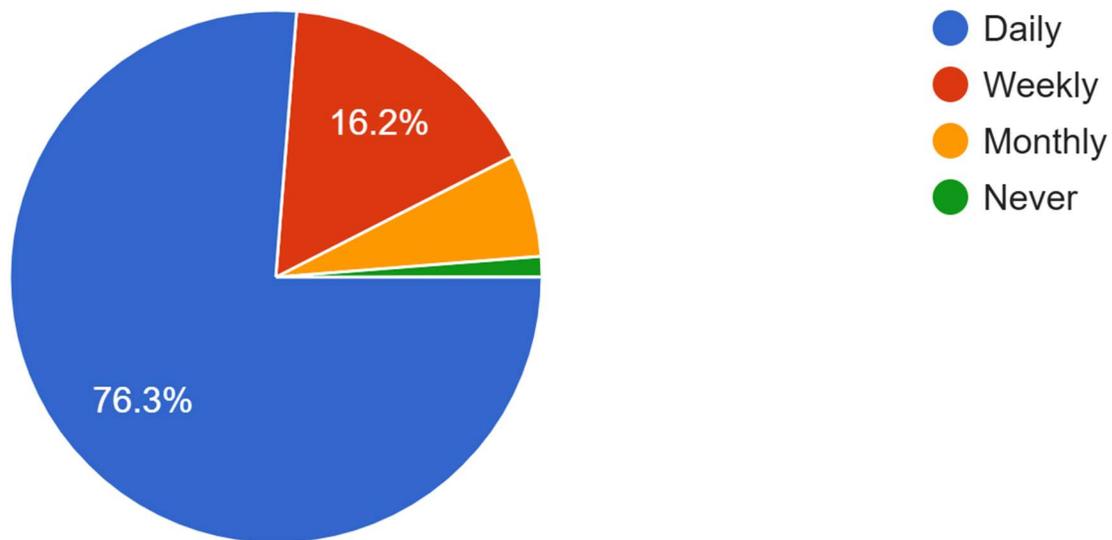


Fig. 8: Distribution of responses to the extent of usage of AI tools for learning by college students

76.3% say that they use AI on a daily basis while on the other hand, 16.2% say that they use AI on a weekly basis and for monthly basis, it is 6.3% and 1.2% students never use it.

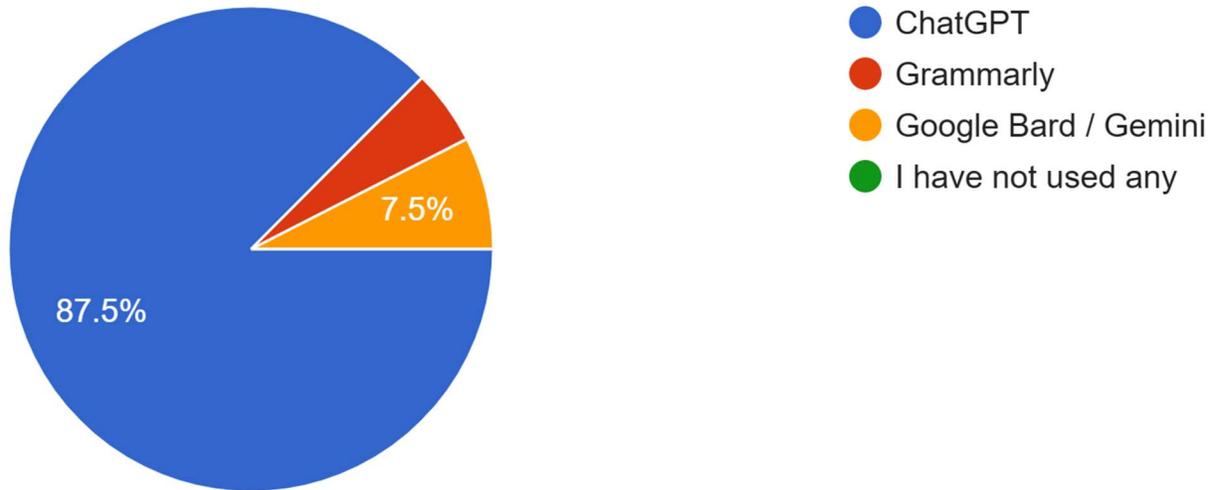


Fig. 9: Distribution of responses to the platform widely used for learning

87.5%, the highest percentage, use ChatGPT, making it the most popular platform. The next widely used is Google Bard/Gemini which is 7.5%. The lowest, 5% use Grammarly.

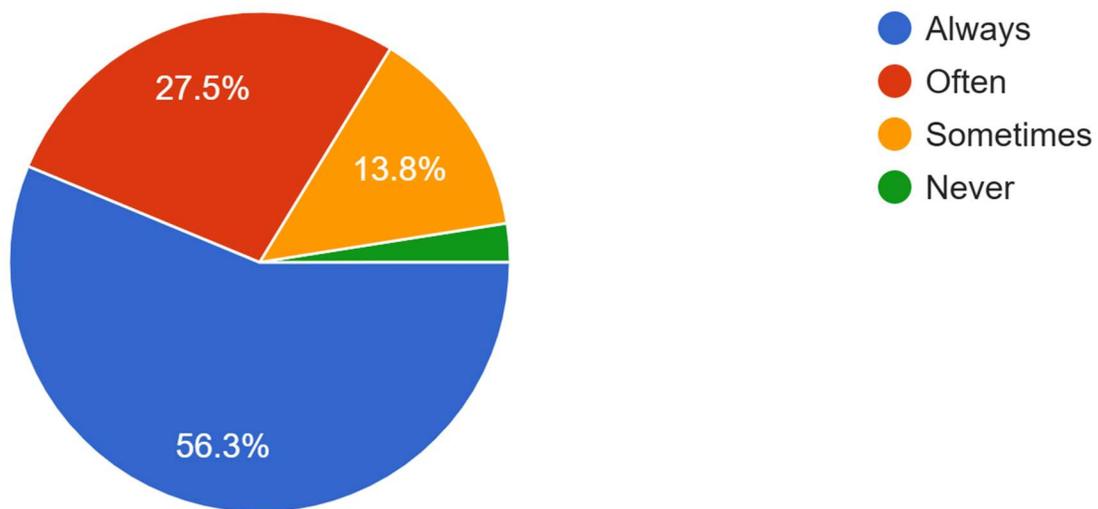


Fig. 10: Distribution of responses to the usage of AI tools for improving writing or language skills

56.3% use AI everyday. The people who use AI often constitute 27.5%. 13.8% people sometimes use AI while 2.5% people never use AI for improving language or writing skills.

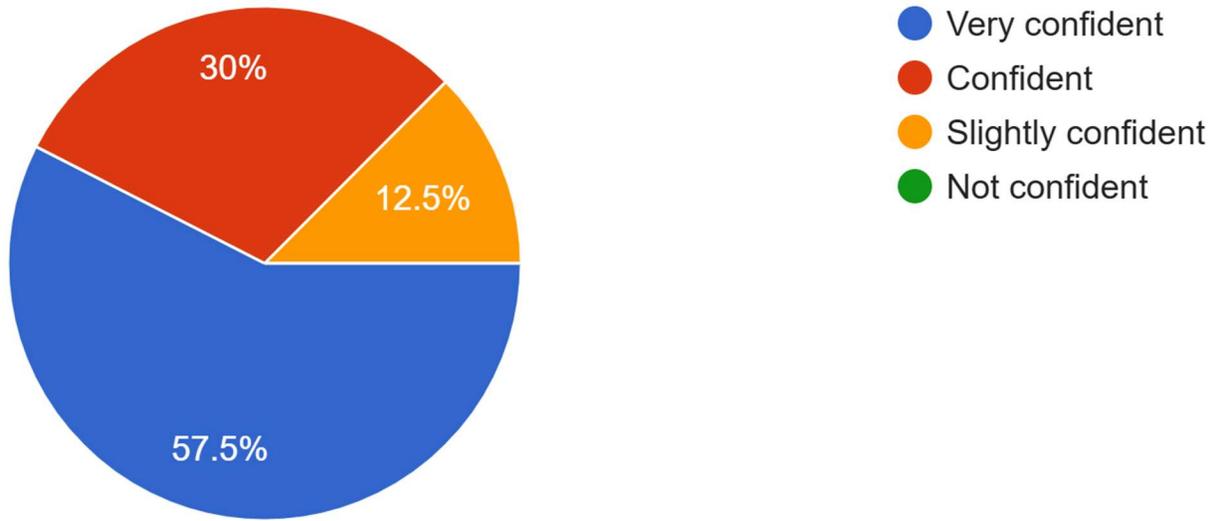


Fig. 11: Distribution of responses to the level of confidence of college students for using AI in academic work

Most of the participants, 57.5%, are very confident whereas 30% are confident and the rest, 12.5%, are slightly confident.

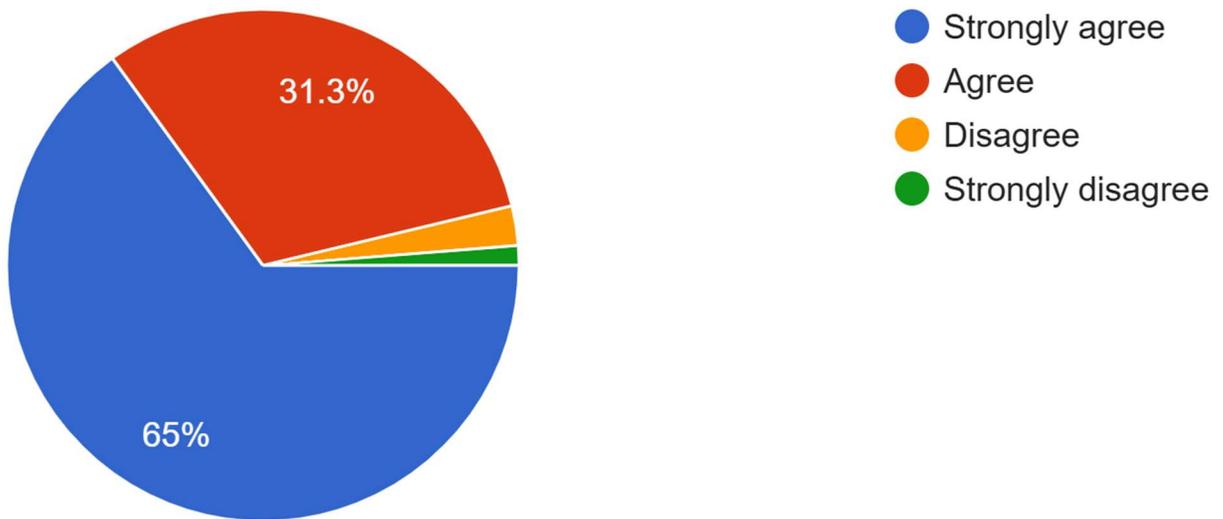


Fig. 12: Distribution of responses to the question of using AI tools for making learning interesting and engaging

65% strongly agree that AI tools make learning interesting. 31.3% agree that AI tools make learning interesting and engaging. 2.5% disagree with the fact and 1.2% strongly disagree.

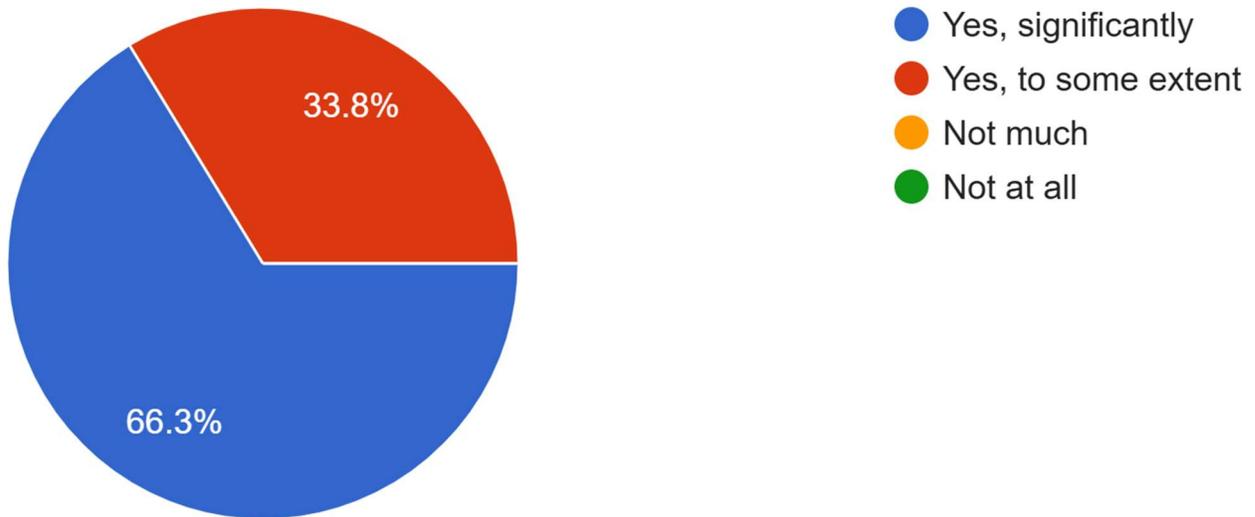


Fig. 13: Distribution of responses to the question of whether AI tools improve our academic performance

The largest percentage, 66.3%, believe AI tools significantly improve our academic performance whereas 33.8% believe AI tools improve our academic performance to some extent.

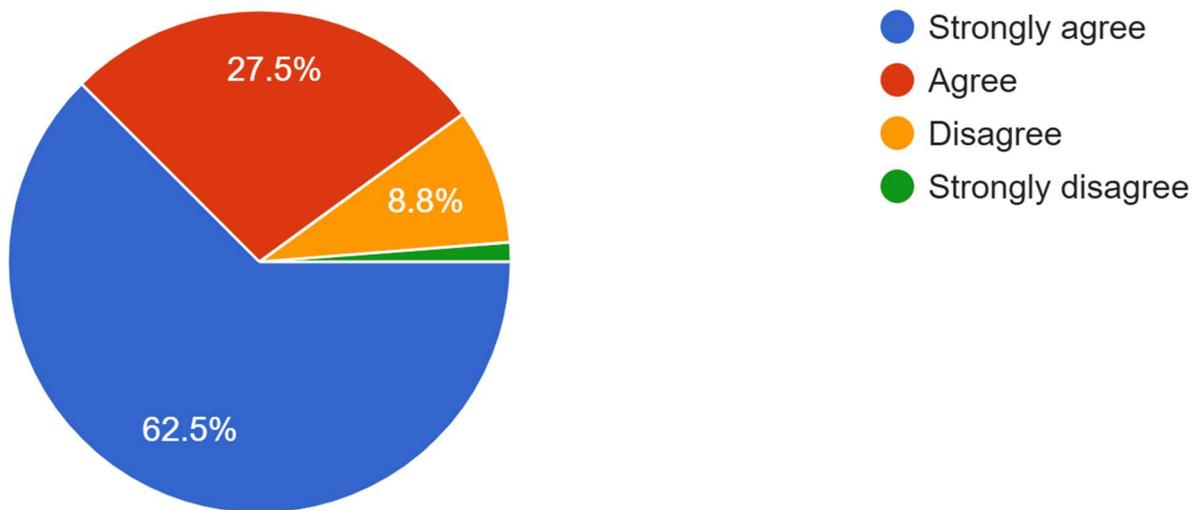


Fig. 14: Distribution of responses to the question of whether AI encourages independent learning among students

62.5% strongly agree that AI encourages independent learning among pre-service teachers whereas 27.5% agree to the fact. 8.8% disagree and only 1.2% strongly disagree.

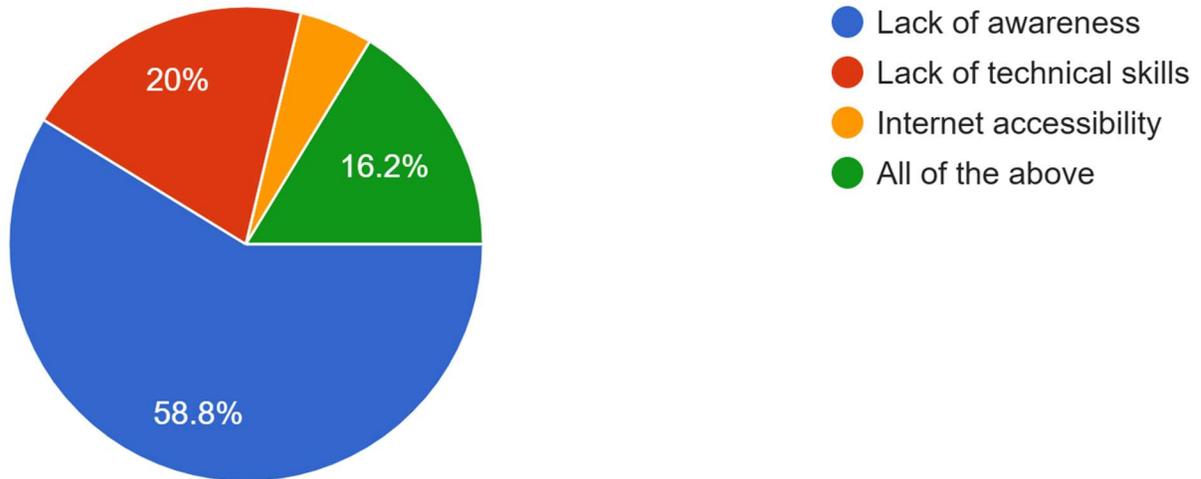


Fig. 15: Distribution of responses to see what is the main challenge in using AI tools

58.8% think that due to the lack of awareness, pre-service teachers face difficulty in using AI tools. 20% think it's due to the lack of technical skills, 5% think internet accessibility is the main problem and 16.2% think all of the above factors contribute to the problem of using AI tools.

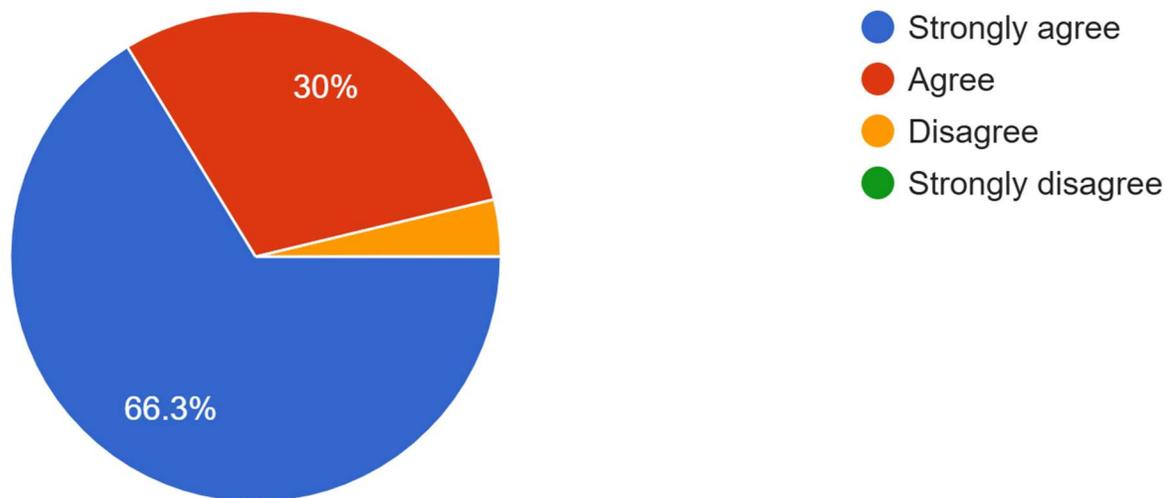


Fig. 16: Distribution of responses to see whether AI contributes to reduction of students' critical thinking skills

66.3% strongly believe that AI reduces our critical thinking ability because of our dependence on it and 30% agree to the fact and 3.7% disagree.

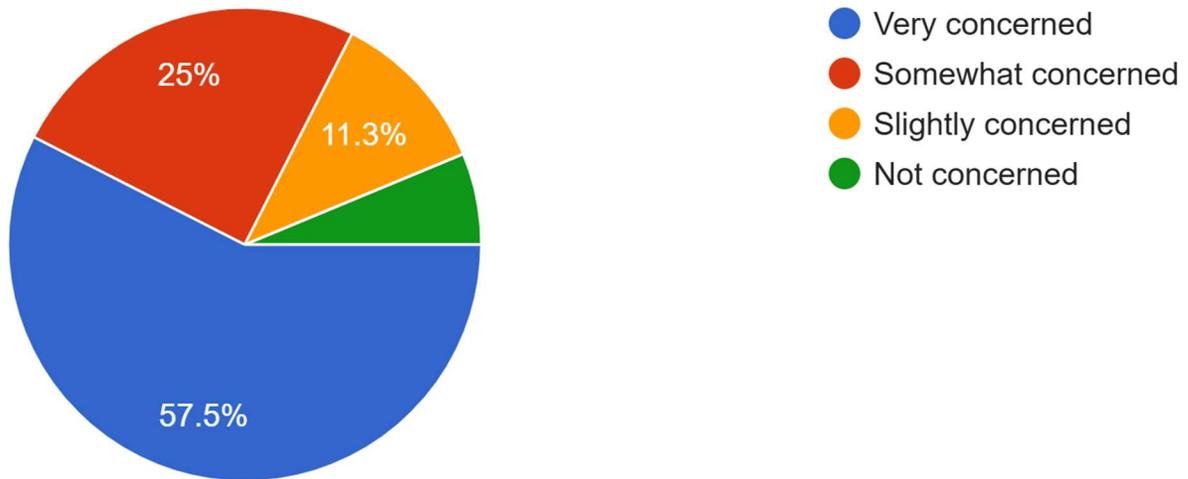


Fig. 17: Distribution of responses to see how concerned college students are, about plagiarism while using AI tools

57.5% are very concerned while 25% are somewhat concerned and 11.3% are slightly concerned but 6.3% are not at all concerned.

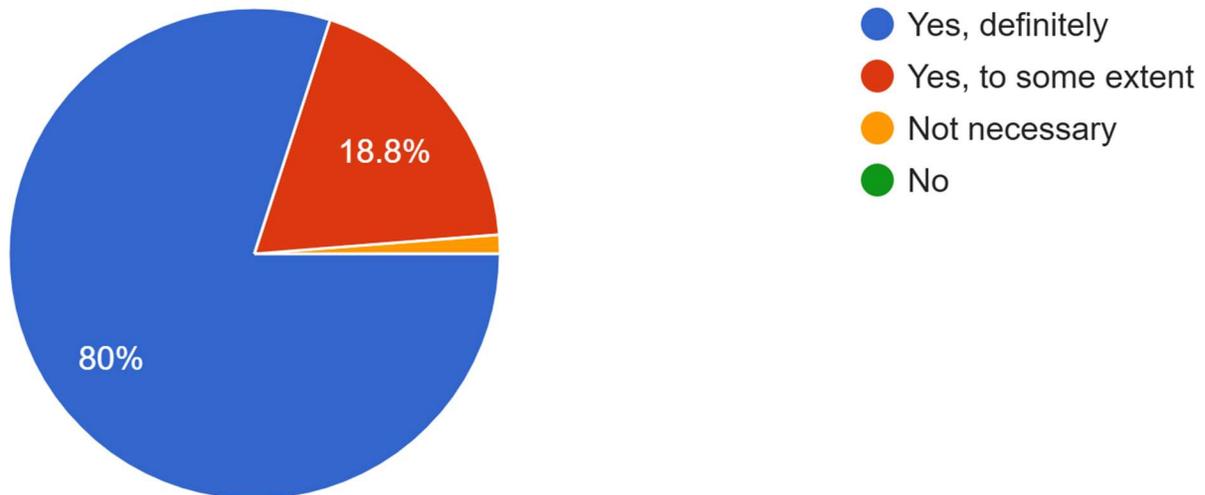


Fig. 18: Distribution of responses to see whether college students should be trained to use AI tools ethically

The highest percentage, 80%, definitely agree to the fact that pre-service teachers should receive formal training to use AI tools ethically. 18.8% believe that training is required to some extent and 1.2% believe that it is not required.

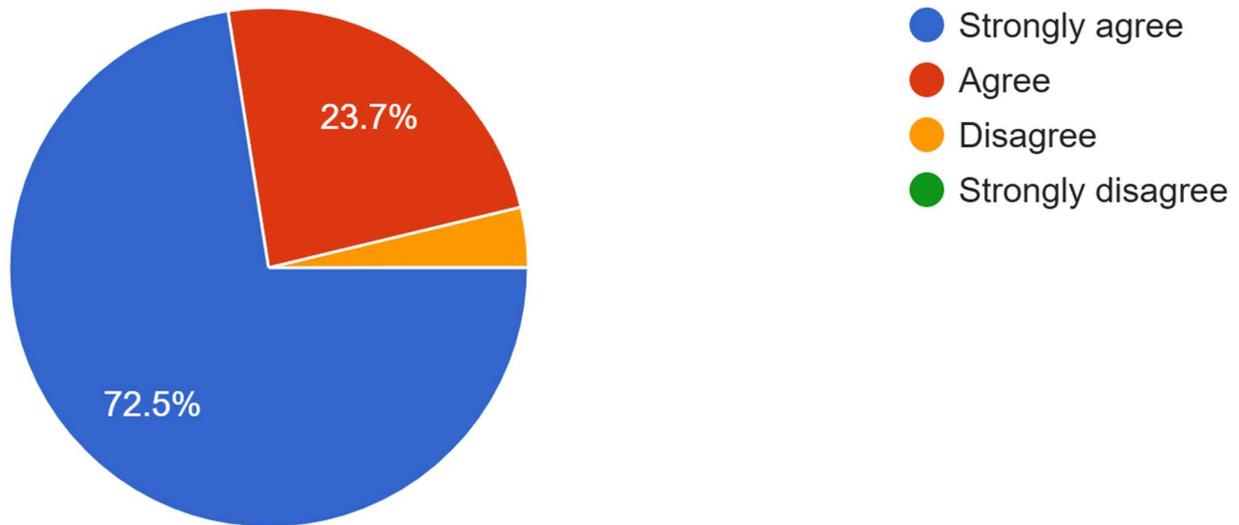


Fig. 19: Distribution of responses to see whether college students think that AI tools should be officially included in their curriculum

72.5% strongly think that AI tools should be officially included in their curriculum and 23.7% also agree to the fact. 3.7% disagree to the fact.

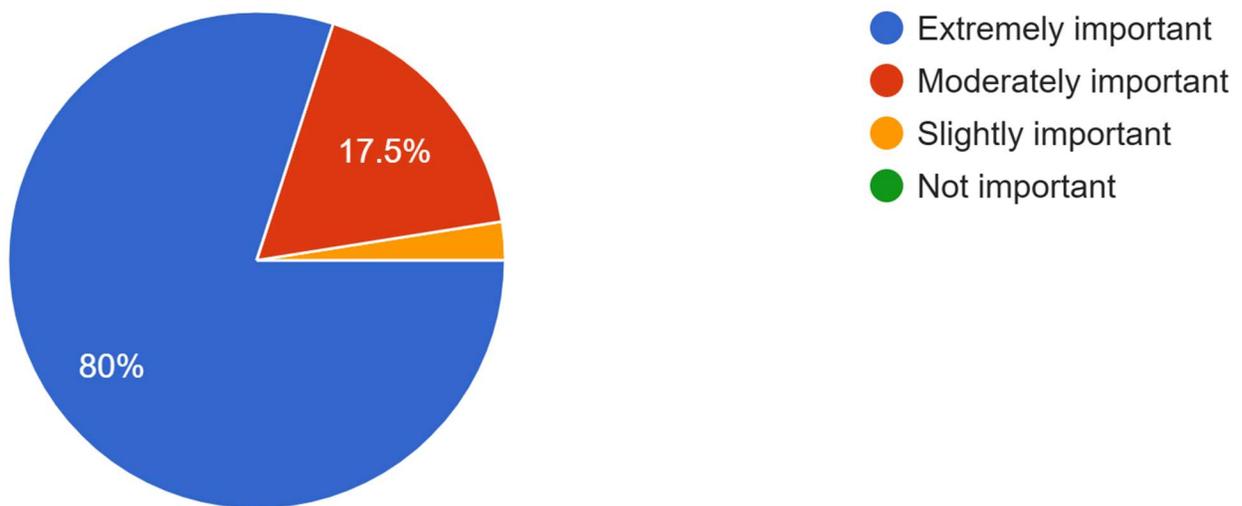


Fig. 20: Distribution of responses to see how important AI tools will be in future in higher education

80% pre-service teachers think that AI tools will be extremely important in the future whereas 17.5% believe that they will be moderately important and 2.5% believe that it will be slightly important.

Conclusion



This study highlights the fact that AI tools, especially ChatGPT, are gaining prominence in today's world.

Many pre-service teachers were very familiar with the concept of AI while some were somewhat familiar which points to the fact that AI tools are gaining popularity. Many believe that AI tools assist in learning and make learning effortless. They got to know about AI from various sources, the primary source were their teachers, then comes social media and then friends.

Besides ChatGPT, the tools that are gaining prominence are Google Bard/Gemini, Grammarly etc. Slowly, they are shifting to other platforms, as well.

Then came the question of AI being discussed in their college curriculum, to which, it was discovered that AI was widely discussed in their curriculum but some disagreed. It also came to light that pre-service teachers were extensively using AI tools for academic purposes like completing assignments, understanding concepts and exam preparation. It was found out that AI tools were being widely used on a daily basis as compared to weekly, monthly or never. Along with academic purposes, AI tools were also used for improving language or writing skills.

It was also found out that pre-service teachers were very confident in using AI tools while others were slightly less confident. There were no students who were not confident at all. Many respondents thought that AI tools significantly improved academic performance by making learning engaging and interesting. This, in turn, encourages independent learning among them.

Talking about the challenges of using AI tools, many thought that it was due to the lack of awareness or lack of technical skills or due to lack of internet accessibility or due to all of these. A new problem is arising, due to heavy dependence on AI, students' critical thinking skills are getting diminished. Use of AI tools also raises the concern of plagiarism. To resolve this issue, students should be given formal training so that they learn how to use AI tools ethically and how to avoid plagiarism.

In the future, AI tools will become indispensable and will be used widely, in the teaching-learning process. It makes the process interesting, creative, engaging and effortless.

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