# Research on CHATGPT Tools in Learning – Perspective from Students in Accounting and Auditing

Nguyen Thi Nhinh[1], Tran Minh Hieu[2], Hoang Thi Cam Ly[3],
Nguyen Khanh Ly[4], Doan Thi May[5], Vu Hoang Minh[6]

[1]*Dept.of Management Accounting, Thuongmai University, Vietnam*
[2,3,4,5,6]*Student of accounting and auditing department, Thuongmai University, Vietnam*

**Abstract:** ChatGPT, an artificial intelligence platform built on a large language model, has emerged as a remarkably unprecedented growth application in terms of user base despite being released only at the end of 2022 (Street & Wilck, 2023). This application has spurred a global user explosion across all societal domains, including the academic realm of accounting and auditing students. Based on our research overview, studies on the application of ChatGPT in the learning processes of learners in developing countries such as Vietnam remain limited. Thus, this study aims to provide experimental evidence to supplement the missing puzzle piece. The research findings, based on a survey of nearly 300 accounting students at universities within the economic sector in Vietnam, demonstrate a significant increase in self-learning ability, self-motivation, and learning effectiveness when students incorporate ChatGPT into their learning processes. Additionally, our results provide learners' assessments of other benefits as well as limitations and risks associated with the application of this artificial intelligence tool. Finally, the study also offers discussions and recommendations to help accounting and auditing students utilize ChatGPT effectively and safely.
**Keywords:** ChatGPT, accounting, auditing, accounting training

## 1. Introduction

In recent years, artificial intelligence (AI) has made significant advances in the field of Natural Language Processing (NLP). One of the most notable achievements is the development of Large Language Models (LLMs), such as ChatGPT. ChatGPT (full name Chat Generative Pre-training Transformer), a chatbot language learning model that has garnered significant attention for its ability to answer user questions (Wood, 2023), was released in November 2022 and is free to use through the OpenAI website. Just two months after its release on November 30, 2022, more than 500 English-language articles about ChatGPT were published in the newspaper (Wood, D., 2023). This figure shows ChatGPT's strong integration into the global economy. The articles mentioned the application of ChatGPT in many fields from education and training, in the enterprise, such as advertising, entertainment and digital, and the ability to generate ideas quickly (Beerbaum, D. O., 2023).

From a research and learning perspective, ChatGPT can support the learning of students, giving answers that have been refined immediately to answer students' questions. This tool can help students better understand the concepts they are struggling with by providing customization, interactive explanations, ChatGPT helps students look up and find information, supports problem solving and develops critical thinking (Lund, B. D., & Wang, T, 2023). Therefore, ChatGPT can help students know and understand many contents in the fields. When receiving questions from students, the answers will be answered quickly and accurately.

The study was conducted with a survey sample of accounting and auditing students at Vietnam's universities of Economics. In particular, with the characteristics of the profession, accounting and auditing students can learn about learning contents, study professional tasks, and apply ChatGPT as an effective support tool in understanding theory and practical work (Xu Joyce Cheng et al., 2023). Based on recent studies on the same topic of ChatGPT, the article collects the surveyed information from this group of subjects to assess the popularity of ChatGPT use, the assessment of accounting and auditing students in aspects such as searching for learning information, developing digital competence, and improving thinking ability. In addition, ChatGPT has provided information on current accounting standards, regimes, and concepts related to the financial sector through support to solve assignments and issues of concern. In particular, the article also deals with surveying students' perceptions of the professional ethics of the current accounting and auditing industry in the trend of impact by technology and artificial intelligence (AI).

Therefore, in addition to the introduction, the article comprises Section 1 providing an overview of the ChatGPT tool, Section 2 presenting a review of relevant studies, Section 3 outlining the research methodology employed by the author group, Section 4 demonstrating statistical results from the survey questionnaire administered to the study sample, and finally, the author group offers conclusions and recommendations regarding the application of ChatGPT in the academic pursuits of accounting and auditing students, as showcased in Section 5 of the research.

## 2. Literature review

### 2.1. Overview of ChatGPT

**\*Introduction of ChatGPT:**

ChatGPT itself claims to be a machine learning model based on OpenAI's GPT -3.5 architecture, specifically designed to perform tasks related to natural language. This model has the ability to read, understand and generate natural text through exposure to large amounts of linguistic data from the Internet. ChatGPT is often used as a chatbot, capable of interacting with users through chat, providing information, solving problems, and performing other tasks related to natural language. The main goal of ChatGPT is to provide a natural and flexible communication experience in a variety of application contexts. Ouyang et al. (2023) and Deng, J., & Lin, Y. (2022) both state that ChatGPT is an OpenAI developed intelligent chat machine based on InstructGPT, trained to follow instructions quickly and give detailed feedback. Liu, J., Wang, C., & Liu, S. (2023) introduced the concept of ChatGPT as a large language model developed by OpenAI. It is based on GPT architecture and uses deep learning techniques to generate natural language text. The model has been developed using supervised and reinforcement learning strategies. ChatGPT can produce coherent, grammatically correct text, which is an important development in artificial intelligence (AI). Built on a revolutionary transformer deep learning architecture, ChatGPT is trained from a wealth of data, including diverse texts, documents, and conversations. ChatGPT's strength helps it overcome many natural language challenges, such as question answering, paragraph creation, text classification, and smooth translation.

Thus, there is no specific, homogeneous concept of ChatGPT. However, most agree that ChatGPT is a large language model developed by OpenAI. By establishing expertise as well as practical knowledge, ChatGPT can answer users' questions quickly by setting up input questions quickly and accurately. In addition, it will also provide documents relevant to the issue in question.

**\*How ChatGPT works and features:**

Users make questions or requests into ChatGPT, the system will analyze the system and separate the question into small documents, called "tokens". ChatGPT then uses these tokens to create a vector that represents the question, called "embedding." After the embedding of the question, ChatGPT uses the Transformer model to analyze and understand the meaning of the question. This model allows ChatGPT to learn how to systematize the relationships between the words in the question, thereby giving appropriate answers. Finally, ChatGPT gives the answer by creating a chain of tokens and converting them into full text. ChatGPT responses can be given in either text or voice, depending on how the user interacts.

ChatGPT can be tailored to the user's needs and preferences, and can customize the tone (tone and style) of ChatGPT's feedback, as well as the types of information and topics that ChatGPT can discuss. On the other hand, ChatGPT can use machine learning algorithms to personalize responses based on user interactions and preferences, which means making the conversation more natural and tailored to the user's needs and interests. ChatGPT can understand and respond to input in multiple languages, making it a useful tool for international users or for people who want to communicate in multiple languages. At the same time, ChatGPT can handle large volumes of traffic and can be used to promote conversations with multiple users at the same time, it has the ability to integrate with many different platforms to increase usability.

### 2.2. Documentation on ChatGPT in Accounting and Auditing

There is a considerable alignment of viewpoints when analyzing the value of ChatGPT tools in the accounting and auditing environment. For instance, Coman et al. (2023) and Street and Wilck (2023) indicate that machine learning models can understand and generate accounting texts, but they may not perform complex tasks requiring expertise or specialization. ChatGPT can analyze and comprehend large amounts of data, present data, provide clear and concise explanations, and also have predictive analysis capabilities (Hacker, 20230). Aydin and Karaarslan (2022) have highlighted the potential integration of ChatGPT into the accounting profession, leading to significant improvements in efficiency, accuracy, and timeliness.

Eulerich, Wood (2023), and McGee (2023) all point out that ChatGPT has many useful capabilities in various stages of internal auditing – such as testing, report writing, proposing interview question steps, and risk assessment. By leveraging ChatGPT, internal auditors have enhanced many stages of the audit process to actual audit procedures and data analysis. Gu, Schreyer, Moffitt, and Vasaehelyi's (2023) research demonstrates that the support of ChatGPT tools can improve auditors' decision-making.

The use of ChatGPT and other artificial intelligence in accounting is increasingly impacting tax accounting (Robert W. McGee, 2023). Research by Coman et al. (2023) suggests that accounting experts can use ChatGPT to extract information, answer questions related to tax laws, and apply tax laws in specific cases. Zhao and Wang's (2023) research shows that this model has the potential to reshape various accounting processes, enhance financial reporting and analysis, improve audit and tax activities, and simplify interactions

with clients. Street and Wilck's (2023) study emphasizes ChatGPT's support for accountants in drafting memoranda for clients, even technical memoranda.

AI algorithms can be trained on large financial datasets to understand models and relationships between different financial figures (Beerbaum, 2023), helping identify anomalies, trends, or potential risks and making informed business decisions. Thus, internal auditors can enhance their ability to analyze large text data, automate daily tasks, and generate valuable insights for risk assessment and mitigation (Emett et al., 2023). Fotoh and Mugwira (2023) use dynamic capability theory and social presence theory to highlight ChatGPT's support in financial data analysis, processing large volumes of unstructured data, conducting risk assessments, making predictions, and automating specific audit processes.

Investigations by Xu Joyce Cheng et al. (2023) on applying ChatGPT to evaluate situational processing abilities in accounting education show the impacts of ChatGPT on education from the perspectives of both educators and learners. Instructors create lecture content, assess students' exercises, and provide answers to students' queries. Learners have the opportunity to familiarize themselves with tools to enhance professional skills and marketing capabilities, explore ethical issues, and improve working abilities and motivation in learning environments. Although there are differences between versions (GPT-3.5 and GPT-4.0), overall, this machine learning model is still modest and limited in assisting and advising students, for example, in providing inaccurate results or insufficient authoritative documents. However, despite these limitations, the authors point out that ChatGPT has created many potential directions for accounting education, promising to bring many positive effects to the teaching environment in the future.

In the same vein of research, Ghatrifi et al. (2023) believe that ChatGPT can enhance accounting teaching and learning in various ways such as increasing interaction and natural language-based responses, saving time and costs. Learners can quickly search for information, provide appropriate responses, and increase motivation for learning. This tool acts as a device to facilitate effective interaction between instructors and learners, motivating teaching and learning for both parties. This encourages universities and colleges to apply new technologies more in accounting training processes to provide valuable learning sessions for students.

Overall, ChatGPT can support both educators and learners in accounting education by helping instructors address students' queries, increasing interaction between teachers and learners, motivating students to learn, and saving time and costs. Researchers also encourage universities and colleges to apply this tool to teaching models to develop not only accounting skills but also machine learning and rapid information processing skills.

## 3. Research Methodology

The article synthesizes literature, previous research by authors inside and outside the country regarding ChatGPT in the fields of accounting and auditing. Studies from teaching and learning perspectives as well as practical work of accountants and auditors serve as the basis for constructing interview questionnaires and survey forms to answer the following questions: First: What is the current prevalence of ChatGPT tools among accounting and auditing students? Second: How do accounting and auditing students evaluate the application of ChatGPT in research and learning?

The survey instrument was derived from interview results with accounting and auditing students and internationally published studies such as those by Cheng (2023), Ghatrifi (2023), Liu Z. (2023), Fotoh (2023). It was designed to assess accounting and auditing students at universities within the economic sector. Subsequently, descriptive statistical techniques using SPSS 2.0 software were employed to analyze certain information from the survey questionnaire to address the research questions. The survey consisted of two parts: besides general participant information, the critical section included questions probing the awareness of accounting and auditing students regarding issues related to the application of the ChatGPT tool in research and learning, such as enhancing learning ability, fostering motivation for learning, providing information and answers to related questions, as well as ethical and professional awareness. The survey instrument was designed using forms, then conveniently distributed directly to groups of accounting and auditing students at several universities within the economic sector. A total of 229 questionnaires were sent out through various groups and channels, and after one month, 224 valid responses were obtained after discarding 5 invalid questionnaires, which were subsequently analyzed to achieve the research objectives. Specifically, the in-depth analysis of accounting and auditing students' awareness when applying ChatGPT to their learning, considering those who knew and used ChatGPT, comprised 159 survey responses, while the remaining 65 responses had not yet utilized ChatGPT for accounting and auditing research exploration.

## 4. Research results
### 4.1. General information results of the survey form

With the results of 224 votes obtained, the percentage of men accounted for 30.9% with 69 votes, the percentage of women accounted for 69.2% with 155 votes. This result is completely consistent with the

characteristics of the accounting and auditing profession with the female sex ratio often accounting for a higher proportion than men because of the carefulness and meticulousness of the profession. In particular, students from schools of Economics accounted for 60.27% (135 votes) from the University of Commerce, 11.6% (26 votes) from students of the National Economics University, 8.9% (20 votes) from the Academy of Finance, 5.4% (12 votes) from the University of Foreign Trade, 3.6% (8 votes) from students of the Banking Academy and other universities accounted for 10.3% (23 votes). These are all schools with tradition and experience in specialized accounting and auditing training in the field of Economics, with training programs suitable to the trend of integration and 4.0 technology, with training modules on technology application and digital economy today. Therefore, students have the opportunity to access specialized knowledge in application, digital analysis, and wider use of current technology applications.

**Table 1: Statistics of the number of students in each year**

|  |  | Frequency | Percent (%) | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| **Valid** | First year | 17 | 7.6 | 7.6 | ***Valid*** |
|  | Second year | 30 | 13.4 | 13.4 | 21,0 |
|  | Third year | 151 | 67.4 | 67.4 | 88,4 |
|  | The fourth year | 24 | 10.7 | 10.7 | 99,1 |
|  | Graduated | 2 | 9 | 9 | 100,0 |
|  | Total | 224 | 100.0 | 100.0 |  |

*Source: output of Spss.20*

The goal is to be able to further evaluate students' perceptions with the contents mentioned in the survey of students majoring in accounting and auditing, so the research team sends more intent to the groups of students who have approached and completed many specialized courses, so most of them are sent to the group of students from the 3rd and 4th year. The results according to Table 1 show that the number of 3rd year students accounted for 67.4% (151 votes), 2nd year students accounted for 13.4% (with 30 votes), 4th year students accounted for 10.7%, 1st year students accounted for 7.6% and graduated accounted for 0.9% with 02 collected votes.

### 4.2. Results on the level of ChatGPT application in learning

With the question "*Have you ever known or used ChatGPT tool?*", according to Chart 1, the percentage of known and used ChatGPT is quite high, with 192 votes (85.78%), showing the high popularity of this tool in practice. The known but unused results have 28 votes (12.44%), the remaining few votes with 1.778% (4 votes) are unknown and have not used this tool.

In addition, the question "*Have you used ChatGPT to study and research accounting and auditing?*" results according to Chart 1 with 159 votes used and 65 votes (29,33%) without using ChatGPT tool. The level of use of this tool for the study of accounting and auditing majors is as high as 70,67%, which also shows that students are quite interested in this tool, as a tool to support a lot in the learning process.
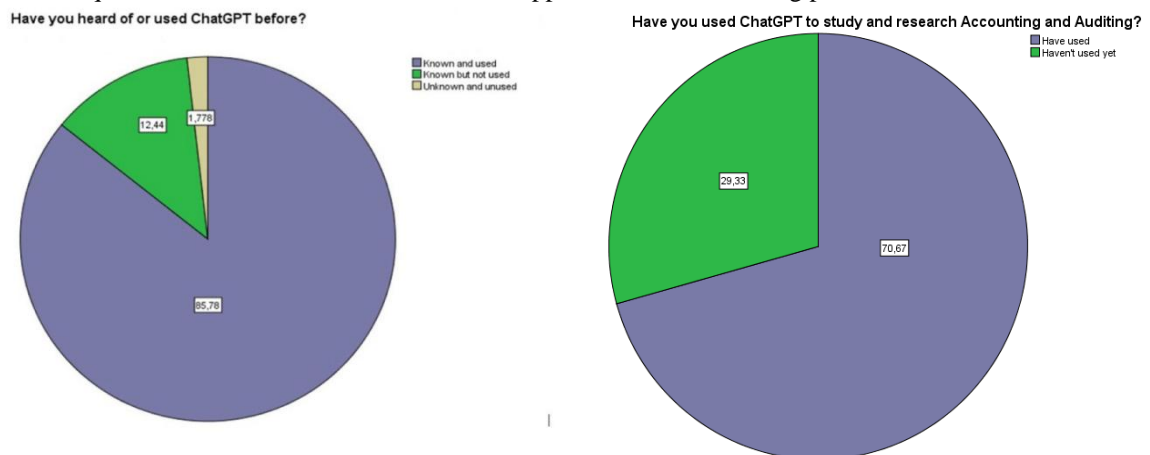


Chart 1: Usage Level of ChatGPT

**4.3. Cognitive results of accounting and auditing students when applying ChatGPT in learning**
**4.3.1. Results on improving learning ability**

Table 2: Average statistical results improve learning ability

| Observation variables | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| ChatGPT helps improve student scores majoring in accounting and auditing | 159 | 1,00 | 5,00 | 4,0818 | 1,05524 |
| ChatGPT helps accounting and auditing students find information easier and faster | 159 | 1,00 | 5,00 | 4,1006 | 1,02002 |
| ChatGPT helps accounting and auditing students save on learning materials costs | 159 | 1,00 | 5,00 | 3,8931 | ,97819 |
| ChatGPT helps save time searching and systemizing knowledge in the learning and creative process of students | 159 | 1,00 | 5,00 | 3,7610 | ,99020 |
| ChatGPT develops digital competencies for accounting and auditing students | 159 | 1,00 | 5,00 | 3,5786 | 1,13842 |
| ChatGPT enhances thinking and judgment | 159 | 1,00 | 5,00 | 3,8679 | 1,05009 |
| **Valid N (listwise)** | **159** | | | | |

*Source: output of Spss.20*

From the analysis results, it can be seen that in this survey, with Mean = 4.1006 students rated ChatGPT as helping them find information more easily and quickly, and then rated it as helping to improve their scores. students majoring in accounting and auditing (Mean = 4.0818). This is completely consistent with ChatGPT's fast processing method and speed when entering request commands. ChatGPT helps them save on learning materials costs and improve thinking and assessment abilities, and the average rating is not much different (Mean = 3.8679 and Mean = 3.8931); The evaluation of digital competency development for students reached the lowest average level (Mean = 3.5786), showing that when using ChatGPT, students clearly see other elements of the evaluation improving their learning ability. sharpest.

**4.3.2. Learning motivation results**
Table 3: Average statistical results motivate learning

| Observation variables | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| ChatGPT describes the benefits of achieving CPA, ACCA, CFAB... | 159 | 1,00 | 5,00 | 3,8365 | 1,01179 |
| ChatGPT supports accounting and auditing students to self-study and develop themselves | 159 | 1,00 | 5,00 | 3,5409 | 1,07763 |
| ChatGPT encourages critical thinking and creativity for accounting and auditing students | 159 | 1,00 | 5,00 | 3,5786 | 1,12162 |
| **Valid N (listwise)** | **159** | | | | |

*Source: output of Spss.20*

Table 3 gives an average statistical result on motivational variables, through the survey students rated the highest is ChatPPT which helps them describe the benefits of earning advanced accounting certifications such as CPA, ACCA or CFAB certifications (Mean = 3.8365). This shows that in addition to students ensuring to study and fully complete the training program at the school to complete a specialized diploma, students also pay a lot of attention to career certificates to help them create motivation to improve the competitiveness of the profession in the future. The remaining assessments are equally average but also quite high because Mean>3.5 claims that ChatGPT also helps them learn and develop themselves and encourages critical thinking and creativity for students.

**4.3.3. The results provide information and answers to questions related to the lecture**

Table 4: Average statistical results of providing information and answering questions

| Observation variables | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| ChatGPT provides information about current policies, norms, regimes | 159 | 1,00 | 5,00 | 3,8679 | 1,06208 |
| ChatGPT explains concepts related to the financial sector | 159 | 1,00 | 5,00 | 3,7170 | 1,19138 |
| ChatGPT supports solving assignments and problems | 159 | 1,00 | 5,00 | 3,7421 | 1,14855 |
| **Valid N (listwise)** | **159** | | | | |

*Source: output of Spss.20*

Student assessments of the ability to provide information and answers to questions related to the lecture all have an average of Mean>3.7, showing that students highly appreciate this function of ChatGPT. With Mean = 3.8679, they think that ChatGPT gives them information about current accounting policies, standards and regimes. The remaining rating is not much different as it helps them analyze concepts in the field. finances and assistance with homework and problem solving. This result is also in line with the author Street (2023) who said that ChatGPT performed well in answering accounting questions that required less judgment and that accounting standards were consistent over time. This result is in contrast to studies in accounting teaching and training in the overview inherited from the authors because students surveyed in their studies rated ChatGPT as a great support for them in their work to solve exercises and problems.

**4.3.4. Results of assessment of professional ethics awareness**

Table 5: Average statistical results assessing perceptions of professional ethics

| Observation variables | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| ChatGPT explains the importance of ethical behavior in accounting and auditing | 159 | 1,00 | 5,00 | 3,7358 | 1,08763 |
| ChatGPT brings cases of professional ethical violations | 159 | 1,00 | 5,00 | 3,7233 | 1,06683 |
| ChatGPT outlines the consequences of violating professional ethics | 159 | 1,00 | 5,00 | 3,7862 | 1,08712 |
| **Valid N (listwise)** | **159** | | | | |

*Source: output of Spss.20*

Ethical issues in accounting and auditing practice are important content and are also mentioned in specialized modules. Table 5 with students' evaluation of whether the ChatGPT application helps them be aware of these issues. With the survey results, the average statistical levels all show Mean at above 3.7 and not much different. The evaluation results showed that they all learned about ethical issues in the profession through ChatGPT and found that this tool helped them see cases of violations and consequences of violations of professional ethics, as well as assess the importance of the profession. The importance of this ethical behavior in accounting and auditing.

**5. Conclusion**

Through the statistical tables of average results for the perception of accounting students when applying ChatGPT in research and learning in section 4, the students' assessment levels for the survey contents reached the average from Mean = 3.5409 to Mean = 4,1006.The lowest level shows that ChatGPT has not shown much to students about their self-development ability, which is also quite understandable when ChatGPT performs through statements with the subjective intention of the questioner, dialogues with the questioner through the way of answering commands,participating in normal conversations, not having an impact to help students develop personal aspects. The highest average level for the information search variable is easy and fast; it is one of the main roles of ChatGPT because of the speed of processing large volumes of information, integrated on many utility platforms for information users with very fast processing speed. The remaining assessment levels all show the usefulness of ChatGPT tool for students to motivate learning, improve their learning ability and help them solve specialized problems and assignments as well as awareness of professional ethics in accounting and auditing.

At the current rapid pace of development, ChatGPT is changing more advanced versions day by day. Updating the processing functions is more diverse, accordingly, the application not only stops through normal dialogue but also enhances the functions of updating and processing data from the input of information sources from users, with many different applications such as ChatGPT Chatbot, ChaGPT Plus, ChatGPT Excie...can help accountants on demand with commands to perform tasks in an in-depth way of the industry such as how to make estimates, analyze cost fluctuations, read and analyze data or can help them make commands from uploading available files to perform many tasks on demand (Eulerich (2023), Liu (2023), Fotoh (2023)…). From these aspects, students can fully apply to better understand their work and apply practical situations.

However, many studies show that ChatGPT still has many limitations in application. ChatGPT possesses general knowledge, but it is not easy to distinguish between specific contexts unless specifically asked to do so (Street, 2023). Its knowledge is also not as applicable as that of a trained professional, since its data is not specific to the accounting field. ChatGPT may not be able to distinguish which accounting method will be used on a case-by-case basis. Fotoh (2023) argues that the lack of data source transparency makes it more difficult to evaluate data reliability using ChatGPT. In addition, Liu (2023) said that, in order to be able to control ChatGPT well at work, accountants need a solid financial knowledge base and sharp professional judgment to be able to effectively monitor and make decisions. At the same time, they also need to improve their technological knowledge to be able to maximize the value that science brings to their business. Sometimes ChatGPT makes suggestions that are somewhat redundant or lacking in specific situations, if you do not know how to select the right results, it will make the audit process less effective. Fotoh (2023) points out that, when using ChatGPT, security can become a concern if the chat history function is not hidden. Even if the historical function is hidden, there are concerns about the security of large machine learning language models, in data storage. Liu, Z. (2023), ChatGPT may infringe intellectual property rights, rely on data of illegal origin, challenge ethical boundaries, disclose business secrets, or even involve sensitive personal information and privacy concerns. It may also cause certain security vulnerabilities. Moreover, the decisions made by this tool can be prone to errors. Because ChatGPT's limitations have been surveyed by studies, accounting students who apply ChatGPT in research and learning also need to be properly aware of and consider the results from the answers carefully, not too dependent on the tool and use, as an active and effective support tool in the future research and learning process.

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