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Exploring the Influencing Factors of College Students' Willingness to Use Artificial Intelligence Built on TPB Theory

Songxuan Li

College of Humanities & Arts, Xi'an International University, Xi'an, China
lsx2943563854@outlook.com

Abstract. The issue of using AI to search for information has received widespread attention, but existing research on the motivations and mechanisms of influence among college student groups is still insufficient. The current paper is based on the theory of planned behavior (TPB) and analyzes university students' propensity to utilize AI to search for information and the influencing factors. Through questionnaire surveys and regression analysis, this paper concludes that behavioral will is positively subject to the effects of attitude, subjective norms and perception behavior control. Research results analyzed comprehensively prove that college students' willingness to use AI for information retrieval is mainly influenced by attitude, subjective norms, and perceived behavioral control. Based on this, this paper proposes that universities should systematically strengthen the general education of students' artificial intelligence information literacy, guide students to continuously optimize subjective norms to rationally use AI tools, and that college students should systematically cultivate critical thinking and prudently control the extent of using artificial intelligence.

Keywords: Theory of Planned Behavior, Artificial Intelligence Search, Behavioral Intention, College Students

1. Introduction

Since 2018, pre-trained large models have continuously made breakthroughs. Under the combined effect of breakthroughs in basic theory, support from the information environment, and the pull of economic and social demand, artificial intelligence technology and applications have developed rapidly. Artificial intelligence technology and applications are showing a new trend of accelerated breakthroughs, and they have become an important driving force for the new round of scientific and technological revolution and industrial transformation [1].

From the results of cross-cultural research, there are evident differences in the adoption logic of generative artificial intelligence between students of Chinese and foreign universities. The usage decisions of Chinese university students are more easily constrained by campus management systems and guidance from course instructors, whereas foreign students' choices to use AI rely more on their own judgment of the tool's practical value and personal willingness to explore [2].

Existing research based on TPB has empirically demonstrated that attitude, subjective norms, and perceived behavioral control are the three core dimensions that can all positively promote college students' willingness to utilize large language models (LLMs). The driving effect of subjective

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norms on usage intention is the most prominent among the three variables [3]. This paper, based on the TPB theory framework, constructs a model of factors influencing university students' use of artificial intelligence for information search, and thoroughly explores the mechanisms of action of each influencing factor.

2. Research based on assumptions and conceptual models

2.1. Research basis and hypotheses

Developed by Ajzen back in 1991, the TPB was built upon and further improved from the Theory of Reasoned Action (TRA) [4]. is a classic social psychological theory for explaining and predicting individual decision-making behavior. It became necessary due to the limitations of the original model in dealing with people's actions under incomplete voluntary control. In order to further enhance the explanatory power of TPB, Ajzen supplemented and revised the theory. In Ajzen's view, the core of perceived behavioral control lies in self-efficacy, which describes how confident an individual feels about their capacity to engage in a given behavior, and it is an important antecedent variable for predicting behavioral intention [5]. Focusing on the group of university students, these 'post-2000' university students are a key group in determining the direction of Chinese society. The ideological condition and value concepts of the college student group are not only key factors determining the long-term development of the socio-economic system, but also have an important impact on social harmony and stability [6]. Currently, the Theory of Planned Behavior has been widely applied and studied in multiple behavioral fields. For example, management, education, psychology, information science, and economics. Planned behavior theory has been proven to significantly enhance the explanatory and predictive ability of behavioral research [7].

Based on the theoretical reasoning and evidence outlined in this article, the following hypothesis is developed:

H1: The attitude towards using artificial intelligence to search for information shows a strong positive link with one's decision to engage in artificial intelligence information searching behavior.

H2: The subjective norm of using artificial intelligence to search for information shows a strong positive link with one's decision to engage in artificial intelligence information searching behavior.

H3: Perceived behavioral control over using artificial intelligence to search for information shows a strong positive link with one's decision to engage in artificial intelligence information searching behavior.

From on the above assumptions, a conceptual model of the factors influencing university students' use of artificial intelligence to search for information is proposed, based on the TPB theory. Its construction is shown in Figure 1.

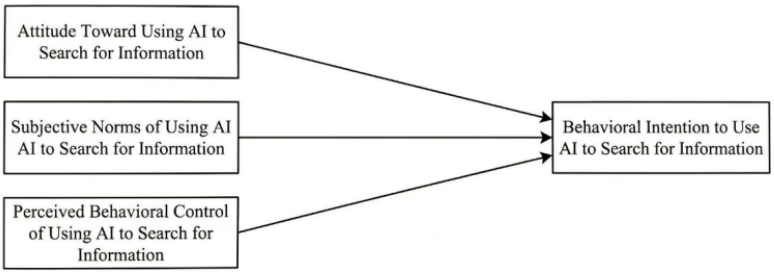

Figure 1. A conceptual model of determinants of university students' AI information-searching behavior

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2.2. Research methods

This study constructs a research model based on TPB, draws on established scales both domestically and internationally, and makes moderate adaptations in the context of research involving the use of artificial intelligence information search. All questions are scored using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The specific sources and measurement content of the instruments for each dimension are as follows:

First, the behavioral attitude dimension consists of four measurement items. The scale was adapted from the study by Liaw and Huang [8]. The scale comprehensively judges students' attitude towards the use of AI to retrieve information through the three points of perceived value, information quality and emotional experience.

Second, the subjective norm part consists of 4 measurement questions. The study follows the classic TPB scale of Ajzen, focusing on how the external environment, such as students, teachers, online platforms and campus academic atmosphere, will affect students' behavior in finding information with the help of artificial intelligence [4].

Third, three questions are set up in the perceptual behavior control dimension, referring to the classic TPB scale and making appropriate modifications, which are used to examine the difficulty of operation, resource acquisition, and information discrimination ability when students use AI to retrieve information [4].

Fourth, the behavioral intention dimension consists of four measurement items, comprehensively referencing the established scales of Liaw and Huang and Davis [9]. This scale mainly examines the willingness of students to continue to use AI to retrieve information and recommend the tool to others in the future.

The final questionnaire contains 15 questions, and each item is theoretically supported. In order to fit the research topic, it only slightly modifies the text expression and completely retains the original core structure to ensure that the questionnaire has a good measurement effect and is applicable to this data analysis.

2.3. Survey subjects and survey process

A total of 298 valid college student questionnaires were collected. Among them, the number of girls is obviously more than that of boys. The respondents are mainly undergraduates, as well as some junior college and graduate students. The average age of everyone is about 20.69 years old. This sample includes students of all genders and levels of education, and the coverage is relatively comprehensive. The demographic structure is reasonably distributed, and the sample has good representativeness, meeting the data requirements for subsequent empirical analysis.

This study adopted SPSS 27.0 for statistical analysis to conduct an empirical analysis of the process: as the first step, internal consistency and reliability of the scale were measured by means of Cronbach's alpha coefficient. Second, Use the Pearson correlation test was employed to identify the correlation between variables such as attitudinal factors, subjective normative factors, behavioral control perceptions, and user behavioral willingness; third, a multiple linear regression model was constructed to calculate regression coefficients, t-statistics, and p-values, to analyze the influence and statistical significance of each core independent variable on the dependent variable, providing data support for the confirmation or rejection of the research hypotheses. Referring to general standards in the field of social sciences, this research specified $f^2 = 0.15$ as the effect size, adopted $\alpha = 0.05$ as the significance criterion, and set the statistical power to $1-\beta = 0.95$ and a number of independent variables set at 4.

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3. Analysis of statistical results

3.1. Empirical evaluation of questionnaire measurement quality

In order to ensure the quality of the data, this study carried out a credibility analysis of the recovered questionnaires, and the test found that the questions of each dimension were logically unified and the results were stable.

The Cronbach's α values corresponding to each latent dimension were calculated as 0.795, 0.887, 0.736 and 0.876. All of these figures surpassed the commonly recognized threshold of 0.7 for acceptable reliability. Values of coefficients for some dimensions fall between 0.8 and 0.9, a result that points to outstanding reliability. In summary, the overall credibility of the questionnaire is good, which can support the next data analysis and hypothesis testing.

3.2. Pearson correlation analysis

Pearson correlation analysis was utilized in this research to initially explore the correlation between independent and dependent variables. The data shows that these variables will change synchronously, and one side will rise with the other side. The specific details of the Pearson correlation analysis are shown in Table 1.

Table 1. Correlation of all variables

	M	SD	a)	b)	c)	d)
ATT	4.12	0.67	-			
b) SE	3.90	0.80	.753**	-		
PBE	4.14	0.73	.660**	.606**	-	
BE	4.22	0.73	.678**	.646**	.745**	-

Note:**. P<.01

The average score of all indicators is between 3.90 and 4.22. Hereinafter referred to as artificial intelligence to search for information, it is used to search for information, which is AI search. The score is generally high, the data fluctuates little and the distribution is relatively uniform. Analysis of the correlations confirms the presence of significant positive links between the factors, correlations among attitudes toward using AI search (ATT), subjective norms regarding the use of AI search (SE), perceived behavioral control over using AI search (PBE), and behavioral intention to use AI search (BE) ($r = 0.606–0.753$, $p < 0.01$). Among them, the correlation coefficient between attitudes toward using AI search and subjective norms for using AI search was the highest ($r = 0.753$, $p < 0.01$), and the correlation between individuals' perceived capability to regulate using AI search and the intention to use AI search was also relatively strong ($r = 0.745$, $p < 0.01$). In addition, attitudes toward using AI search are significantly positively correlated with perceived behavioral control of using AI search ($r = 0.660$, $p < 0.01$) and the inclination toward practical use of AI search ($r = 0.678$, $p < 0.01$). Subjective norms regarding the use of AI search are also significantly positively correlated with perceived behavioral control of using AI search ($r = 0.606$, $p < 0.01$) and the behavioral intention to use AI search ($r = 0.646$, $p < 0.01$). The overall data shows that the correlation of various indicators is very high, which is initially in line with the research idea.

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3.3. Multiple linear regression analysis

With the help of the SPSSAU platform, the main hypothesis of multivariate regression analysis is tested [10]. Three major factors, including attitude, subjective norms and perceived behavioral control, exert a notable positive influence on users' behavioral tendency, and all relevant outcomes reach statistical significance. Detailed data of the multiple linear regression can be found in Table 2.

Table 2. Linear regression analysis results

	Non-standardized coefficient		Standardized coefficient	t	p	Collinearity Diagnosis	
	B	Standard Error	Beta			VIF	Tolerance
Constant	0.252	0.317	-	0.794	0.429	-	-
Attitude	0.277	0.106	0.237	2.619	0.010*	2.124	0.471
Subjective Norms	0.274	0.085	0.274	3.239	0.002**	1.870	0.535
Perceptual Behavior Control	0.422	0.084	0.411	5.021	0.000**	1.743	0.574
R 2	0.631						
AdjustR 2	0.620						
F	F (3,96)=54.824,p=0.000						
D-W Value	2.143						

Note: Dependent variable = Behavioral intention

* p<0.05 ** p<0.01

The academic community takes 0.05 as the boundary: P<0.05 means that the result is significant, P<0.01 means that the result is highly significant, and P>0.05 means that there is no obvious effect. The larger the absolute value of the t value, the higher the reference value of the variable.

R^2 in the model is 0.631, that is to say, attitude, subjective norms, and perceptual behavior control can explain 63.1% of the changes in behavioral intentions. The adjusted value is 0.620, which is very different from the former, indicating that the effect of this model is good and the result is stable. Among them, the influence coefficient of attitude is 0.277, and the test P value is 0.010, which is less than 0.05, which is enough to show that the attitude will obviously affect everyone's intention to use it. For subjective norms, its regression coefficient stood at 0.274, with $t = 3.239$ and $p = 0.002$ ($p < 0.01$). It is thus concluded that subjective norms also exert a prominent positive effect on behavioral intention. According to the regression analysis, perceived behavioral control has a coefficient of 0.422 ($t = 5.021$, $p = 0.000 < 0.01$), which indicates this factor can remarkably promote behavioral intention at a statistical level. The summary analysis indicates that behavioral intention receives a significant positive contribution from attitude, subjective norms, and perceived behavioral control.

4. Discussion

4.1. Recommendations for universities

First, general education on AI information literacy should be systematically strengthened. Based on the talent training programs of different majors at the institution, hierarchical and categorized incorporation of the compliance guidelines for the use of generative AI tools, their technical

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advantages and potential drawbacks, as well as academic ethical standards, should be fully integrated into the regular curriculum system.

Second, targeted teaching by major: liberal arts students learn AI to retrieve literature and optimize manuscripts, and science and technology students learn AI programming and data application. Help everyone recognize the use and risks of AI, use it rationally and in compliance, and do not go to extremes.

Third, give more guidance to students in different learning scenarios at ordinary times, make full use of the strength of teachers, professional tutors and excellent students, so that everyone can drive and guide each other.

Fourth, drawing on TPB (TPB), the positive constraints and guidance from teachers and peer groups in the campus environment can continuously optimize subjective norms, with the help of the opinions and attitudes of people around you, drive everyone to be willing to use AI, and at the same time guide everyone to use it reasonably according to the rules.

Fifth, the school can cooperate with AI enterprises to hold short-term training courses, invite industry practitioners to share practical application experience, bring classroom knowledge and workplace practice closer, and also let students learn more practical AI-related knowledge.

4.2. Advice for university students

First, university students should abandon the passive mode of receiving knowledge and actively formulate phased learning plans, gradually improving their comprehensive ability to use generative AI tools.

Second, enhance the level of perceptual behavior control at the capability level, proficiently master practical skills to distinguish the quality of AI-generated content and identify information errors, and steadily strengthen one's ability to use artificial intelligence tools.

Third, systematically cultivate critical thinking skills, maintaining a habit of cautious verification when encountering AI-generated texts, data, and conclusions. Actively consult authoritative literature and educational materials to cross-check and verify questionable content, thereby avoiding excessive psychological and usage dependence on artificial intelligence.

Fourth, students can master the skills of using AI and control the use process more calmly; at the same time, establishing an objective and rational cognition will also form a positive use mentality. The combination of these two points can make everyone more willing to use AI and achieve standardized and reasonable practical applications.

Fifth, students can also leverage online public welfare courses and academic community exchanges to continuously keep up with AI technology iteration trends. They should constantly update their knowledge base to adapt to the changes in usage brought about by the continuous development of artificial intelligence.

5. Conclusion

Adopting the theoretical framework of the planned behavior model, this research investigates the core factors influencing university students' adoption of artificial intelligence in information retrieval activities. The research results confirm that college students' willingness to adopt artificial intelligence for information retrieval is significantly shaped by three core factors: personal attitude, social subjective norms, and perceived behavioral control. The relationships among the variables align with theoretical expectations, and the overall explanatory power of the model is good. The study not only validates the applicability of TPB in the context of emerging intelligent tools but also

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supplements empirical evidence of AI information behavior among Chinese college students. The relevant conclusions can provide reference for colleges and universities to carry out AI literacy education, help students standardize the use of AI search, and make people more aware of how such usage behaviors are formed.

References

[1] Gao, W. (2025). Seizing the historic opportunity of artificial intelligence development - deeply understanding General Secretary Xi Jinping's important expositions on artificial intelligence. *People's Daily*, 2025-02-24(09).

[2] Ma, D., Akram, H., & Chen, I. H. (2024). Artificial intelligence in higher education: A cross-cultural examination of students' behavioral intentions and attitudes. *International Review of Research in Open and Distributed Learning, 25*(3), 134-157.

[3] Ngo, T. T. A., Vo, T. T. A., & Phan, M. T. (2025). The psychology of AI adoption in education: University students' intentions to use Large Language Models for learning from a TAM and TPB perspective. *Acta Psychologica, 261*, 105789.

[4] Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211.

[5] Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology, 32*(4), 665-683.

[6] Li, C., & Gao, Y. (2024). The social mentality characteristics of college students under the pressure of academic and employment competition: Based on the analysis of data from the 2023 "Chinese College Student Tracking Survey". *Youth Exploration*, (5), 17-24.

[7] Wang, J., Liu, S., Zhang, X., & Zhao, Z. (2025). Strategies for enhancing artificial intelligence literacy in university libraries based on the theory of planned behavior. *Communication and Copyright*, (5), 43-47.

[8] Liaw, S. S., & Huang, H. M. (2003). An investigation of user attitude toward search engines as an information retrieval tool. *Computers in Human Behavior, 19*(6), 751-765.

[9] Davis, F. D. (1989). A technology acceptance model for empirically testing new end-user information systems: Theory and results. *MIS Quarterly, 13*(3), 319-340.

[10] The SPSSAU project (2026). *SPSSAU* (Version 26.0) [Online application software]. Retrieved from https://www.spssau.com.