

The Influence of the Use of Artificial Intelligence on the Individual Growth of College Students

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Abstract: *The rapid development of artificial intelligence has gradually made it a new learning tool for students. Artificial intelligence is gradually entering the field of view of a large number of students, and more and more students are using it in their work to complete their study tasks and assignments. During this period, artificial intelligence not only solves students' homework problems and reduces their academic burden, but also has a profound impact on the growth of students' personal abilities. As a special tool resource, the impact of using artificial intelligence on students' academic performance and the role that individual students' growth plays in this process is a topic with both theoretical and practical significance.*

Keywords: Individual Growth, Artificial Intelligence, Education

1. Introduction

In the contemporary era, the rapid advancement of technology has propelled artificial intelligence (AI) into the forefront of numerous industries and aspects of daily life. Among these, its impact on education, particularly on the individual growth of college students, has emerged as a topic of significant interest and concern. This paper aims to delve into the influence of AI usage on the personal and academic development of college students, a subject that warrants thorough exploration due to its far-reaching practical significance.

In terms of personal development, college is a critical period for students to acquire skills that will serve them well in their future careers and lives. AI can offer opportunities for skill-building beyond the classroom. For example, students involved in AI-related projects or research can develop problem-solving, critical thinking, and technological literacy skills. These skills are highly valued in today's job market, where AI is transforming industries ranging from healthcare to finance. By examining the impact of AI on personal growth, we can identify ways to maximize these benefits and ensure that students are well-equipped to thrive in an AI-dominated world.

In this paper, our primary objective is to conduct a comprehensive analysis of the influence of AI usage on the individual growth of college students. We will achieve this by reviewing existing literature on the topic to gain a theoretical foundation. Then, through surveys with college students, we will collect first-hand data on their experiences with AI in various aspects of their college lives.

We aim to provide valuable insights for educators, policymakers, and students themselves, enabling them to make informed decisions about the integration and use of AI

in the college environment. Ultimately, our goal is to contribute to the development of strategies that can harness the power of AI to promote the holistic growth of college students.

2. Literature Review

Previous research on the influence of artificial intelligence (AI) on the individual growth of college students has shed valuable light on this important topic. Many studies have rightly emphasized the potential of AI to enhance academic performance through personalized learning experiences and access to vast educational resources. I largely agree with these findings as AI-driven tools like intelligent tutoring systems have shown promise in adapting to students' unique learning needs, which can lead to better understanding and retention of knowledge.

However, there are some problems with previous research. Firstly, most studies have focused primarily on the academic aspect, often neglecting the holistic growth of college students, including their psychological well-being, social skills development, and ethical values formation in the context of AI usage. Moreover, the long-term effects of AI on students' growth have not been thoroughly explored, leaving a gap in our understanding of how sustained AI exposure shapes students over time.

Table 1: Literature Review

Year	Scholars	Category	Sample	Conclusion
2007	Li	Positive impact	220 undergraduate students in their fourth year of study	Online interaction has a positive impact on college students

2024	Ma & Chen	Negative impact	1000 Collage students	The online environment has a negative impact on the learning state of college students
2024	Wan et al.	Positive impact	707 college students from a certain university in China	There is a positive correlation between college students' emotional perception and their expressive writing on social media.
2025	Li	Negative impact	250 Police academy graduate	Online games has a negative influence in law school students

3. Hypothesis

The use of artificial intelligence tools by college students (such as AI - assisted learning platforms, intelligent tutoring systems) can significantly enhance their learning efficiency, improve information -processing and problem - solving abilities, and promote the development of critical thinking and innovative thinking, thereby having a positive impact on their academic and personal growth

H1: The use of artificial intelligence has a positive correlation with the individual growth of college students.

4. Hypothesis

4.1 Sample and Data

This study conducted a pre-survey on the collected small sample data. The pre-survey mainly collected data through the "Wenjuanxing" platform and selected college students from different grades and regions as the survey subjects. A total of 36 questionnaires were distributed during the research period, and 34 questionnaires were retrieved, with a recovery rate of 94.4%. After excluding invalid questionnaires, there were 33 valid questionnaires, with an effective response rate of 97.1%.

4.2 Variables

4.2.1 Independent Variable

This article's IV is Artificial intelligence. According to the definition of artificial intelligence adopted in this article, artificial intelligence is a discipline that studies how to endow computer systems with intelligent behaviors. This study adopts one dimension from the communication satisfaction measurement scale compiled by Ji Xiaotong in 2024: "Research on the Impact of AI Use on Employee Innovative Behavior: An Emotional Mechanism Perspective", with the item number being the first part of Appendix B, such as "I use AI to perform most of my job functions". It is representative, has high reliability and validity, and is widely accepted by scholars.

4.2.2 Dependent Variable

This article's DV is personal growth. According to the definition of personal growth of college students adopted in this article, personal growth refers to the continuous development and improvement of an individual in multiple aspects such as physiology, psychology, and social skills throughout their life course. This study adopts the "Research on the Mechanism of the Impact of Online Interaction on Personal Growth of College Students" compiled by Li Yingying in 2007, with questions numbered 15 to 23 in the appendix, such as "I feel as excellent as others." It is representative and has high reliability and validity, and is widely accepted by scholars.

4.2.3 Control Variables

The CV is self-control, personal initiative, family environment. The following are from Appendix 3 of Tang's "The Impact of Self-Control on Proactive Growth: The Mediating Role of Perceived Social Support", questions 1-3 from Appendix 5, and questions 1-6 from the fifth part of the appendix of Han (2021) publication "The Impact of Family Environment Factors on Academic Growth of Middle School Students".

4.3 Model

$$\text{Growth} = b + a_1\text{AI} + a_2\text{Control} + a_3\text{Family} + a_4\text{Initiative} + a_5\text{Atmosphere}$$

- Growth: Personal growth of college students
- AI: The usage of artificial intelligence
- Control: The operation of self-control
- Family: Including parents' care, parents' control, and parents' praise
- Initiative: Personal growth initiative
- Atmosphere: School teachers, living environment, and teachers' care
- b: constant
- a: coefficient

5. Results and Discussion

5.1 Descriptive Statistics

The results of descriptive statistics for research sample are illustrated in Table 2.

Table 2: Descriptive Statistics

Variables	N	Min.	Maximum	Mean	Standard Deviation
AI	33	1.67	5	3.47	0.91
Growth	33	5	5	2.48	0.78
Control	33	1	5	3.39	0.97
Initiative	33	1	5	2.24	1.03
Family	33	3	5	3.88	0.78

5.2 Correlation Analysis

The correlation coefficients among all variables are less than 0.7, and there is no collinearity problem.

Table 3: Correlation Matrix

	AI	Control	Initiative	Family
AI	1			
Control	-0.018	1		
Initiative	0.163	-0.099	1	
Family	-0.137	0.107	-0.156	1

5.3 Regression Results

The following is the significance test for the slope table and the analysis of variance test for the model significance table.

Table 3: R-square

R2	0.3455
Adjusted R2	0.2520
Standard Error	0.6727
Y Intercept	2.9197

Table 4: Significance Tests of Slopes

	Slope (b)	SE (b)	t-stat	p-value	Confidence Interval 95%	
AI	0.382	0.134	2.852	0.008	0.108	0.657
Control	-0.265	0.124	-2.131	0.042	-0.519	-0.010
Initiative	-0.167	0.118	-1.410	0.170	-0.409	0.076
Family	-0.126	0.156	-0.811	0.424	-0.446	0.193

Table 5: ANOVA Test of Model Significance

Source	SS	df	MS	F	p-value
Regression	6.690	4	1.673	3.695	0.015
Residuals	12.673	28	0.453		
Total	19.362	32	0.605		

The use of artificial intelligence has a positive impact on the individual growth of college students ($\beta \approx 0.38, p < 0.01$). It indicates that the more correctly artificial intelligence is used, the better the individual growth of college students will be. The research hypotheses of this paper are supported by multiple literatures.

6. Conclusion and Recommendations

Artificial intelligence brings numerous positive impacts on the growth of university students, facilitating their studies and providing personalized teaching. However, there are also many other factors that influence the personal growth of college students, such as family environment. But it also brings challenges, such as leading to academic misconduct and cognitive regression. Overall, as long as it is used reasonably, artificial intelligence will become a powerful assistance on the path of university students' growth, promoting the improvement of their comprehensive qualities and laying a solid foundation for their future development.

Enhance intelligence literacy: Actively learn about artificial intelligence knowledge and skills, participate in relevant courses and training, master the usage methods of tools, and improve application abilities. **Cultivate thinking abilities:** Exercise critical and innovative thinking. When faced with information provided by AI, think independently, analyze and judge, not blindly accept, and actively innovate. **Use the tool for its purpose,** avoid excessive dependence. For

example, when using AI to assist in writing, maintain one's own thinking and creation. Follow academic norms: Eliminate academic misconduct such as AI cheating, establish a correct academic moral outlook, and maintain academic integrity.

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