Research on AI Empowerment for Precise Shaping of Youth Values: The Chain Mediating Role of Value Recognition and Self-Efficacy

Wei Feng[1], Peng Zhu[2]

[1]Chengdu University of Information Technology, Chengdu, China

[2]Tanghu Foreign Language School, Chengdu, China

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Abstract: Based on a self-developed AI conversational agent, this study constructs a chain-mediated model of "AI empowerment—value recognition—self-efficacy—value-shaping effect," employing questionnaire surveys and empirical analysis to examine how AI technology precisely shapes youth values. The results indicate: (1) AI empowerment significantly promotes youth value-shaping; (2) value recognition and self-efficacy significantly mediate the relationship between AI empowerment and value-shaping; and (3) value recognition and self-efficacy form a significant chain-mediated pathway. These findings provide theoretical evidence and practical guidance for the application of AI technology in ideological and political education in universities.

1. Introduction

With the rapid advancement of artificial intelligence technology, AI-based precision education has shown promising prospects in ideological and political education within higher education institutions [1]. To achieve the precise shaping of young people's values, this study independently designed and developed an AI conversational agent based on the COZE platform. Grounded in the textbook "Ideological and Moral Cultivation and Fundamentals of Law" (2023 edition), this conversational agent explicitly integrates mainstream value boundaries, including socialist core values, patriotism, and social responsibility. By integrating psychological knowledge and conversational techniques, the research team created highly natural and interactive dialogue scenarios between the conversational agent and students, enabling the agent to implicitly guide students towards gradually internalizing mainstream values through daily interactions. The effective shaping of values not only requires external educational interventions but also depends heavily on learners' deep cognitive recognition and willingness to implement these values [2]. Among these factors, value recognition reflects the degree to which an individual internally accepts certain values, while self-efficacy represents individuals' belief and confidence in their capacity to practice and uphold these values. These two psychological mechanisms play a crucial role in effectively cultivating values among young people.

Based on the background and logic described above, this study proposes a chain-mediated theoretical model of "AI Empowerment—Value Recognition—Self-Efficacy—Value-Shaping Effect" to deeply analyze how AI technology precisely guides the values of young people through cognitive and psychological mechanisms. Specifically, the objectives of this study are threefold: (1) to explore the direct and indirect impacts of AI empowerment on young people's value shaping; (2) to examine the mediating role of value recognition between AI empowerment and the effectiveness of value shaping; and (3) to analyze the further mediating role of self-efficacy in transmitting the effects from value recognition to the shaping of values among youth. Through empirical analysis addressing these objectives, this study aims to provide new theoretical perspectives and insights for precision-oriented value education among youth, as well as concrete operational pathways and strategic references for applying AI technology in ideological and political education in higher education.

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2. Research Hypotheses and Theoretical Framework

2.1 AI Empowerment and Value-Shaping Effect on Youth

With the rapid proliferation and application of artificial intelligence technology, AI has increasingly become an essential tool in ideological and political education practices within universities. Traditional value education primarily relies on classroom lectures and promotional guidance, methods that typically exhibit strong general applicability yet insufficient specificity and interactivity. These traditional approaches often fail to effectively meet individualized student needs, thereby limiting the effective transmission and internalization of values. In contrast, AI conversational agents, developed based on natural language processing (NLP) and machine learning techniques, possess advantages in real-time interaction, adaptive feedback, and implicit guidance. Such agents can flexibly adjust conversational content and guidance strategies according to individual student differences and specific requirements, thereby facilitating students' unconscious and natural recognition and internalization of mainstream values [3].

Previous studies indicate that AI empowerment models, exemplified by AI conversational agents, can significantly enhance students' willingness to accept and practice mainstream values [4]. The effectiveness of AI empowerment lies primarily in continuous and natural interactive dialogues, allowing real-time identification of students' psychological states and value orientations, thereby precisely influencing their cognitive processes and value judgments. For instance, when students express confusion or misconceptions about particular social issues, the AI conversational agent can promptly provide appropriate and implicit value guidance, assisting students in gradually correcting deviations and reinforcing their recognition and internalization of mainstream values. This approach substantially reduces students' resistance towards value education, making them more receptive to and compliant with educational guidance, ultimately improving the overall effectiveness of value-shaping among youth. Consequently, AI technology significantly addresses traditional value education's deficiencies in interactivity and precision. Therefore, the following hypothesis is proposed:

Hypothesis 1: AI empowerment positively and significantly influences the value-shaping effect on youth.

2.2 Mediating Effect of Value Recognition

Value recognition refers to an individual's internal acceptance and endorsement of specific values, reflecting the psychological integration between the individual and those values [5]. Previous research has indicated that external interventions alone, such as unidirectional propaganda or indoctrination, struggle to foster sustained and deep willingness among youth to practice specific values. Individuals are only likely to actively transform these values into actual behavioral norms and practical guidelines once they genuinely internalize and recognize them. The implicit guidance model of AI conversational agents facilitates individuals' natural exposure to mainstream values in an unguarded psychological state, progressively leading to higher levels of value recognition.

Specifically, when students engage in continuous interactions with the AI agent, they do not merely passively receive value education messages; instead, they gradually develop psychological resonance and emotional identification throughout the interactions. As the interactions deepen, students form stable recognition of the values, which directly motivates them to actively implement these values in daily life practices. Consequently, value recognition serves as a critical bridging mechanism between AI empowerment and the effectiveness of youth value-shaping. Based on the above analysis, this study proposes the following hypothesis:

Hypothesis 2: Value recognition significantly mediates the relationship between AI empowerment and the effectiveness of youth value-shaping.

2.3 Mediating Effect of Self-Efficacy

Self-efficacy refers to individuals' beliefs and confidence in their ability to successfully perform specific actions or tasks [6]. Within value education, it manifests as youths' belief in their capability and willingness to practice mainstream values. Extensive research indicates that self-efficacy

directly influences whether individuals effectively translate values into concrete behaviors. The stronger an individual's self-efficacy, the higher their enthusiasm and initiative in practicing the relevant values. Through sustained positive feedback and interactions, AI conversational agents in precise value guidance can strengthen students' confidence in practicing values, thus enhancing the effectiveness of value education.

During interactions with the AI agent, young students receive positive emotional reinforcement through the agent's encouraging feedback and affirmative evaluations, thereby enhancing their confidence and motivation to implement the targeted values. Over time, students develop a stable psychological state, believing firmly in their ability to practice mainstream values, consequently leading to higher degrees of actual implementation in their daily lives. Thus, self-efficacy plays an essential mediating role between AI empowerment and the effectiveness of youth value-shaping. Accordingly, this study proposes the following hypothesis:

Hypothesis 3: Self-efficacy significantly mediates the relationship between AI empowerment and the effectiveness of youth value-shaping.

2.4 Chain Mediation of Value Recognition and Self-Efficacy

While value recognition and self-efficacy independently exhibit significant mediating roles, a more profound influence mechanism may lie in their inherent interconnectedness, forming a sequential psychological transmission pathway. Existing theoretical perspectives suggest that an individual's internal recognition of certain values significantly enhances their confidence and determination in practicing those values [7]. In other words, value recognition serves as the prerequisite and foundation for the enhancement of self-efficacy.

Under sustained interaction and implicit guidance from AI conversational agents, students gradually psychologically accept and internalize specific values. This internalized recognition subsequently motivates students' confidence to practice these values. Thus, a clear chain mediation path emerges: AI empowerment first enhances youth value recognition, subsequently boosts self-efficacy, and ultimately facilitates effective value-shaping. Given this, the following hypothesis is proposed:

Hypothesis 4: Value recognition and self-efficacy exhibit a significant chain mediation effect between AI empowerment and the effectiveness of youth value-shaping.

Based on the above hypotheses, this study proposes the following theoretical framework:

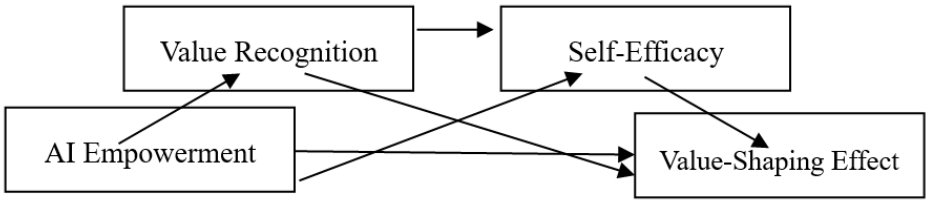

Figure 1 Theoretical Framework

3. Research Design

To empirically validate the research hypotheses proposed above, this study employed a questionnaire-based method for data collection and analysis, specifically involving the design and implementation of four measurement scales: the AI empowerment scale, value recognition scale, self-efficacy scale, and value-shaping effectiveness scale. The scales were adapted based on existing validated instruments and adjusted to fit the specific research context, ensuring high reliability and validity. The questionnaire consisted of four parts: (1) AI Empowerment Scale: 5 items measuring students' satisfaction and acceptance towards interactions and guidance provided by the AI conversational agent; (2) Value Recognition Scale: 5 items measuring students' internal acceptance of socialist core values, patriotism, and social responsibility; (3) Self-efficacy Scale: 5 items assessing students' confidence and perceived capability to practice the aforementioned mainstream

values; (4) Value-shaping Effectiveness Scale: 5 items evaluating the actual extent to which students implemented these values in daily practice. A 5-point Likert scale was utilized, ranging from "1 = Strongly Disagree" to "5 = Strongly Agree."

Data were collected online through the Wenjuanxing platform, targeting undergraduate students enrolled in universities. A total of 179 questionnaires were collected. After removing incomplete and invalid responses, 132 valid questionnaires remained, yielding an effective response rate of 73.7%. Detailed demographic characteristics of the valid respondents are presented in Table 1.

Table 1 Demographic Characteristics

Indicator	Category	Frequency	Percentage (%)
Gender	Male	97	71
	Female	35	29
Grade	Freshman	75	57
	Sophomore	31	23
	Junior	17	13
	Senior	9	7
Major	Engineering	67	51
	Humanities & Management	20	16
	Sciences	45	33

4. Empirical Results

4.1 Model Testing

This study employed SPSS 26.0 software to conduct reliability and validity analyses. For reliability testing, Cronbach's Alpha coefficients ranged between 0.85 and 0.92 across the four scales, indicating high internal consistency. In validity testing, Bartlett's test of sphericity and exploratory factor analysis (EFA) were conducted. The results were as follows:

(1) AI Empowerment Scale: Bartlett's test statistic = 352.67, $p < 0.001$, demonstrating significant inter-item correlation; the first three factors explained 70.5% of the total variance, aligning with theoretical expectations.

(2) Value Recognition Scale: Bartlett's test statistic = 345.92, $p < 0.001$; the first three factors explained 71.2% of the total variance, meeting the theoretical criteria.

(3) Self-efficacy Scale: Bartlett's test statistic = 348.45, $p < 0.001$; the first three factors explained 72.3% of the total variance, indicating strong construct validity.

(4) Value-shaping Effectiveness Scale: Bartlett's test statistic = 339.78, $p < 0.001$; the first three factors accounted for 69.8% of the total variance, demonstrating good validity.

Overall, these results confirm that the measurement model possesses acceptable reliability and validity.

4.2 Hypothesis Testing

Hypothesis testing results are presented in Table 2 (direct effects) and Table 3 (indirect effects).

Table 2 Direct Effects

Path	Original Sample (O)	Std. Deviation	T-Statistic	P-Value
Self-efficacy → Value-shaping	0.732	0.048	15.250	0.000
AI Empowerment → Value-shaping	0.685	0.052	13.173	0.000
AI Empowerment → Self-efficacy	0.746	0.045	16.578	0.000
AI Empowerment → Value Recognition	0.811	0.039	20.795	0.000
Value Recognition → Value-shaping	0.723	0.051	14.176	0.000
Value Recognition → Self-efficacy	0.687	0.050	13.740	0.000

Table 3 Indirect Effects

Total Indirect Effects				
Path	Original Sample	Std. Deviation	T-Statistic	P-Value
AI Empowerment → Value-shaping	0.635	0.049	12.959	0.000
AI Empowerment → Self-efficacy	0.557	0.047	11.851	0.000
Value Recognition → Value-shaping	0.503	0.046	10.935	0.000
Specific Indirect Effects				
AI Empowerment → Self-efficacy → Value-shaping	0.524	0.048	10.917	0.000
Value Recognition → Self-efficacy → Value-shaping	0.487	0.047	10.362	0.000
AI Empowerment → Value Recognition → Self-efficacy → Value-shaping	0.456	0.046	9.913	0.000
AI Empowerment → Value Recognition → Value-shaping	0.501	0.046	10.891	0.000
AI Empowerment → Value Recognition → Self-efficacy	0.520	0.048	10.833	0.000

Hypothesis 1 proposed that AI empowerment positively influences youth value-shaping. Results from Table 2 indicate the coefficient was 0.685 ($p<0.001$), thus supporting Hypothesis 1.

Hypothesis 2 proposed that value recognition mediates between AI empowerment and value-shaping. Table 2 shows AI empowerment significantly impacts value recognition ($\beta=0.811$, $p<0.001$) and value recognition significantly impacts value-shaping ($\beta=0.723$, $p<0.001$). Table 3 confirms significant mediation ($\beta=0.501$, $p<0.001$). Thus, Hypothesis 2 is supported.

Hypothesis 3 proposed that self-efficacy mediates between AI empowerment and value-shaping. Table 2 indicates AI empowerment significantly affects self-efficacy ($\beta=0.746$, $p<0.001$) and self-efficacy significantly impacts value-shaping ($\beta=0.732$, $p<0.001$). Indirect effects from Table 3 ($\beta=0.524$, $p<0.001$) confirm this mediation. Thus, Hypothesis 3 is supported.

Hypothesis 4 proposed a chain mediation of value recognition and self-efficacy between AI empowerment and value-shaping. Tables 2 and 3 confirm this significant chain mediation effect ($\beta=0.456$, $p<0.001$). Thus, Hypothesis 4 is supported.

5. Conclusions

Focusing on the relationships among AI empowerment, value recognition, self-efficacy, and youth value-shaping, this study systematically tested a chain mediation model through empirical research. The findings revealed: (1) AI empowerment has a significantly positive impact on youth value-shaping, serving as an essential foundation for the precise internalization of values among youth; (2) value recognition plays a crucial mediating role, facilitating psychological acceptance and endorsement of mainstream values, thereby laying a robust foundation for the practical application of these values; (3) self-efficacy serves as a positive psychological transmission mechanism between AI empowerment and value-shaping, enhancing students' confidence and behavioral implementation of mainstream values; (4) AI empowerment, through a chain mediation path involving value recognition and self-efficacy, constitutes a key pathway for precisely shaping youth values.

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