

The Impact of Generative Artificial Intelligence on Vocational College Students' Skill Identity and Response Strategies of Student Affairs Departments

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Abstract: Generative artificial intelligence is penetrating daily learning and work scenarios at a faster-than-expected pace, and deep-seated doubts about the value of personal skills are spreading among vocational college students. This sentiment is not generalized technophobia, but directly reflects practical anxiety about professional identity positioning and future development paths. Taking Chongqing Aerospace Polytechnic College as the research sample, this paper analyzes the internal logic of generative AI's influence on vocational college students' skill identity, sorts out three transmission paths: skill depreciation perception at the cognitive level, professional identity anxiety at the emotional level, and learning input fluctuation at the behavioral level. It also discusses the practice direction of student affairs departments in skill identity maintenance, and constructs a three-dimensional response system consisting of cognitive reconstruction, narrative substitution and practice verification.

Keywords: Generative Artificial Intelligence; Skill Identity; Vocational College Youth; Student Affairs; Response Strategy

1. Raising of the Problem

Generative artificial intelligence is reshaping the overall ecology of vocational education. Existing studies have begun to focus on the mechanism of AI tool use on the psychological state of vocational college students. Students with frequent exposure to generative AI show more significant distress in anxiety level and attention sustainability. This distress is not a short-term emotional fluctuation, but has relative temporal stability, which will continuously affect students' employment expectation judgment. Some studies have conducted analysis from the perspective of de-skilling: generative artificial intelligence may

not only bring direct job substitution effects, but also exert indirect impacts on students by inducing problems such as lack of self-discipline, thinking inertia and digital divide [1]. As a key mediating variable, skill identity has not received sufficient attention in existing research. For vocational college students, the most direct impact of generative AI does not lie in the level of values, but in the category of professional identity. Confusions such as whether the skills they have learned will be replaced by AI and whether their majors still have market value are becoming a common ideological dilemma for vocational youth. At present, relevant studies on students' ideological education and career development guidance have not yet formed a systematic response to this problem.

The author has intuitive perception of this issue in student affairs work. At a professional theme exchange activity, a student majoring in aircraft equipment maintenance mentioned that he used AI tools to generate an aircraft troubleshooting scheme, and the completeness of the output steps even exceeded the description in textbooks. This gave him a strong sense of gap—if AI can complete a more comprehensive scheme than textbooks, what is the significance of the troubleshooting skills he has practiced for three years? This student's confusion is not an isolated case. In subsequent heart-to-heart exchanges, similar anxiety has been reflected among students of multiple majors.

As an aerospace vocational college, the majors of Chongqing Aerospace Polytechnic College are precisely in fields where the perception of AI impact is relatively strong. Many professional skills rely not only on theoretical knowledge, but also on a lot of practical experience and tactile judgment. Such tacit skills are exactly the core competencies that current AI is difficult to replicate. Whether students can clearly understand this point and reposition the value of their own skills in the AI

era is the core proposition that student affairs departments need to respond to [2].

This paper mainly focuses on three core issues: the impact performance, transmission mechanism and practical strategies of generative AI on vocational college students' skill identity, and discusses them layer by layer combined with theoretical analysis and work practice.

2. Theoretical Connotation of Skill Identity

2.1 Concept Definition

The skill identity discussed in this paper refers to students' comprehensive psychological state of their learned skills, including multiple interrelated dimensions. Whether students recognize the social value of skills at the cognitive level, maintain enthusiasm for skill learning at the emotional level, and are willing to continue to invest in training at the behavioral level together constitute the core part of the psychological foundation for students' career development.

Skill identity is related to but different from professional identity. Professional identity focuses more on the judgment of the fit between individuals and occupations, while skill identity focuses on the value judgment of one's own mastered skills. For vocational college students, skill identity is the core support of professional identity. Choosing corresponding majors and being willing to engage in related professions largely stem from the confidence in the usefulness and value of learned skills. When this belief is shaken, professional identity will also be affected [3].

2.2 Key Role of Skill Identity in Vocational College Students' Development

Skill identity has three key values for the development of vocational college students. First, maintaining learning motivation: students with strong skill identity have more lasting internal motivation for professional learning and are more willing to invest time and energy in skill training. Second, supporting career planning: skill identity is the cognitive basis of career planning. Only by recognizing the value of their own skills can students form clear career development expectations. Third, resisting external shocks: when facing technological changes and employment pressure, students with strong skill identity are

more likely to maintain psychological resilience and actively respond to challenges.

From the perspective of student affairs work, skill identity is not only a psychological issue, but also an important starting point for ideological guidance. When students doubt the value of their own skills, this doubt may spread into a denial of the value of vocational education, and then affect their cognition of the national skilled talent development strategy. The maintenance of skill identity is not only the work content of mental health education, but also an important focus for student affairs departments to carry out ideological guidance [4].

3. Transmission Mechanism of Skill Identity Impact

3.1 Skill Depreciation Perception at the Cognitive Level

When students use AIGC tools to quickly generate codes, design schemes or analysis reports, they will have a cognitive gap that the skills they have worked hard to acquire can be completed by AI in a few seconds. This gap is particularly prominent in majors such as programming, design and data analysis, and directly shakes the cognitive foundation of students' perception of the value of skill learning.

A complete scheme text can be output after the generation loading icon on the computer screen rotates for a few circles. The efficiency difference brings intuitive feeling. AI far exceeds manual work in processing speed, and students tend to form self-judgment of low learning efficiency. The content generated by AI reaches or even exceeds the level of beginners in terms of standardization and completeness, and students will form the cognition that their own skills are inferior to AI. When AI can complete most basic skill tasks, students begin to question the practical significance of learning these skills. The whole process progresses step by step, gradually evolving from initial surprise to deep confusion [5].

3.2 Professional Identity Anxiety at the Emotional Level

Vocational college students' professional identity is largely built on professional skills. Identity labels such as skill experts and

technical masters are important components of self-identity. When AI is perceived to be better at corresponding skills, students' professional identity is challenged, which may lead to anxiety, confusion and even self-denial.

The question session of recruitment seminars always revolves around topics related to AI application. The author has observed in student affairs work that such anxiety is more obvious among graduating students. At an employment mobilization meeting, a student majoring in aviation mechatronics equipment maintenance privately expressed concerns: he has studied aircraft maintenance for three years and is now in the job search stage. If airlines use AI for fault diagnosis in the future, will fresh graduates still have competitive advantages? This anxiety is not aimed at the difficulty of employment itself, but at the deep unease about the unique value of their own skills.

3.3 Learning Input Fluctuation at the Behavioral Level

The shake of skill identity will further affect learning behavior. Students may present different reaction modes. Outsourcing learning tasks to AI will lead to skill degradation and form a vicious circle of AI dependence, skill decline and greater dependence on AI. Believing that learning loses value will reduce learning input and lead to learning burnout. Actively exploring the complementary relationship between AI and skills will take AI as an auxiliary tool for skill upgrading. The response strategy of student affairs departments should focus on guiding the latter reaction mode and expanding its coverage [6].

Table 1 presents the characteristic comparison of the three reaction modes.

Table 1. Three Response Modes of Vocational College Students to AI Impact

Response Mode	Cognitive Characteristics	Behavioral Performance	Long-term Consequences	Focus of Work Intervention
Over-reliance Type	Higher completion quality of AI than manual work	Outsourcing tasks to AI and reducing skill training time	Continuous skill degradation and deepening dependence	Guiding the establishment of boundary awareness for AI tool use
Passive Abandonment Type	Skill learning loses practical significance	Reduced learning input and burnout emotion	Hollowing out of professional ability	Reconstructing the cognitive system of skill value
Active Adaptation Type	AI is an auxiliary tool for skill improvement	Actively exploring the practice path of human-machine complementarity	Iterative upgrading of skills and improved competitiveness	Cultivating and promoting typical practical experience

The three reaction modes are not completely separated in reality. The same student may present different reaction states at different stages and in different courses. It can be observed in practical training courses that some students improve operation efficiency with the help of AI, while some students have operation unfamiliarity problems due to excessive reliance on AI. The intervention strategies of student affairs departments need to be flexible and cannot simply apply the idea of classified policy implementation.

4. Response Strategies of Student Affairs Departments

4.1 Cognitive Reconstruction: Establishing a Correct Cognition of Human-Machine Skill Relationship

Student affairs departments should help students establish a reasonable cognition of the

relationship between AI and skills. The core orientation is not that AI will not replace skills, but that AI mostly replaces standardized operation links, and what the industry really needs is skilled talents with engineering judgment and innovation ability. Theme exchanges, peer sharing and other forms can be adopted to invite professional teachers and industry practitioners to talk about the role evolution of skilled talents in the AI era [7].

Specific activity designs include AI and skill theme sharing activities, inviting front-line technical personnel of aerospace enterprises to share the changes of AI to their own work and the skill dimensions that AI cannot replace. Skill irreplaceability theme workshops guide students to explore the tacit dimensions of professional skills, including judgment in the face of unknown faults, strain capacity in extreme environments, and tactile grasp of process details. The key of such activities is not

preaching, but allowing students to form judgments independently with real professional scenarios.

Posters of alumni returning to school for sharing are posted all over the bulletin board at the entrance of the canteen. When organizing relevant theme sharing activities, the author found that simply telling students that AI will not replace them has very limited effect, and students will think it is just a comforting statement. When seniors working in enterprises demonstrated on-site the adjustments that need to be made to the maintenance schemes given by AI in actual operation, students' reactions changed significantly. They began to realize that AI provides a reference basis, and the subject that ultimately makes judgments and operations is still human. This way of seeing is believing is more convincing than mere reasoning.

4.2 Narrative Substitution: Resolving AI Anxiety with Aerospace Narratives

Real narratives in the aerospace field are used to replace the negative narrative of AI substitution anxiety. The school's existing aerospace old third-line stories and aerospace craftsman case database can play a key role. The skill scenarios in these stories are exactly what AI cannot replicate. Thirty years of zero error in the final assembly of aerospace relies on concentration and judgment in extreme environments; the observation, auscultation, inquiry and feeling in spacecraft troubleshooting relies on intuitive judgment formed by experience accumulation [8].

The core of narrative substitution lies in authenticity and relevance. Narrative content should be drawn from real aerospace work scenarios rather than abstract preaching. The narrative objects should be aerospace craftsmen related to students' majors, so that students can perceive that the other party's skills belong to the same category as their own learning. Choosing seniors or industry predecessors familiar to students as the narrative subject will have a more prominent effect.

The author once invited an alumnus who works in final assembly in an aerospace enterprise to return to school to share. He told a story that during a final assembly process, the AI detection system found no abnormality, but he felt something wrong during operation and insisted on carrying out additional inspection,

and finally found a very small assembly deviation. This story left a deep impression on the students. They began to understand that seemingly vague traits such as feel and intuition are exactly the skill dimensions that AI cannot replace.

4.3 Practice Verification: Confirming Value in Skill Practice

Through carriers such as skill commandos and project practice, students can personally experience skill upgrading assisted by AI rather than the feeling of being replaced by AI. In the digital agriculture-assisting skills training, students use AI tools to assist in short video production, and at the same time need to give play to their own aesthetic judgment, content planning and on-site communication skills, which are exactly the human abilities that AI cannot replace. Through the practice process, students can reconfirm the value positioning of their own skills [9].

The core design principle of practice verification is that AI serves as a tool and skills as the subject. In project practice, students lead skill application and problem solving, and AI only serves as an auxiliary tool. In the UAV inspection project, AI can help identify abnormal images, but flight control, on-site judgment and emergency disposal still rely on students' professional skills. This practice mode of AI assistance plus human skill leadership can help students build confidence in the value of their own skills.

5. Countermeasures, Suggestions and Research Limitations

Establish a dynamic monitoring mechanism for skill identity. Student affairs departments can cooperate with the mental health education center to design tracking questionnaires on AI cognition, skill identity and career expectation, regularly measure the changing trend of students' skill identity, and timely discover and intervene in skill identity crises. The focus of monitoring is not to evaluate and score students, but to identify student groups that need key attention and professional fields facing more prominent impacts [10].

Integrate skill identity education into daily activities of student affairs. Integrate skill identity education elements into activities such as theme exchanges, skill competitions and voluntary services, and realize cognitive

infiltration through continuous scenario contact. This integration should not be a rigid implantation of labeling, but naturally embedded in activity design. In the summary session of skill competitions, students can be guided to discuss the boundary of AI's role in the project, helping them form an objective cognition of AI capabilities.

Cultivate AI + skill dual competencies. Student affairs departments can cooperate with academic affairs departments to promote the integration of AI tool use training into professional courses, while emphasizing the subjectivity of skills in the use of AI tools, and helping students form an ability structure of AI assistance and skill leadership. AI-assisted operation links can be set up in practical training courses, allowing students to record and reflect on the role of AI and their own contributions while using AI tools, so as to form a clear cognition of the value of their own skills [11].

Give play to the unique role of peer education. Student affairs departments can cultivate a group of typical students with active adaptation mode, and let these students tell their experiences of coexisting with AI rather than being replaced through peer sharing and experience exchange. The effect of peer education is often better than teacher preaching, and students are more willing to believe the real experience of their peers.

The triple impact mechanism and three-dimensional response framework proposed in this paper are mainly based on theoretical deduction and work observation, lacking empirical data verification. The standardized measurement tool for skill identity has not yet been developed, and the functional relationship between variables in the impact mechanism has not been statistically verified. These are the issues that follow-up research needs to focus on.

6. Conclusion

The impact of generative AI on vocational college students' skill identity is a real problem that is happening and has not been fully studied. The triple impact mechanism and three-dimensional response framework proposed in this paper provide a preliminary theoretical reference for student affairs departments to carry out work in this field. From the perspective of work practice, student affairs departments have unique organizational

advantages and emotional connection advantages in responding to this problem. Student affairs workers get along with students day and night, and can perceive students' ideological confusion at the first time. Student activity carriers are flexible and diverse, and can quickly respond to students' actual needs.

The maintenance of skill identity is not a task that student affairs departments can complete independently. It requires the collaborative cooperation of multiple forces such as classroom guidance of professional teachers, professional support of mental health education centers, and practical verification of school-enterprise cooperation units. Student affairs departments play the role of connectors and companions, connecting students with professional teachers, connecting classrooms with practice, connecting confusion with answers, and accompanying students to re-find the value positioning of their own skills in the AI era.

From a more macro level, generative AI brings not only technological impact, but also a re-examination of the fundamental question of what skills are valuable. The maintenance of vocational college students' skill identity is not only related to their personal career development, but also related to the stability and growth of the national skilled talent team. The proactive actions of student affairs departments on this issue are not only a response to students' growth needs, but also the practice of the fundamental task of fostering virtue through education.

References

- [1] Zhu Dequan, Song Naiqing. ChatGPT and Future Vocational Education. *Journal of East China Normal University (Educational Sciences Edition)*, 2023, 41(7): 1-15.
- [2] Liu Bangqi, Yin Huanhuan, Zhang Yimei. Research on the Influence Mechanism of Generative Artificial Intelligence Acceptance and Use Among Vocational College Students: Based on the Analysis of 8354 Student Questionnaire Data. *China Education Informatization*, 2024(12): 45-58.
- [3] Zhang Jian. Connotation, Structure and Cultivation Path of Skill Identity of Vocational College Students. *Vocational and Technical Education*, 2022, 43(35): 12-17.
- [4] Wang Yangnan. Logic and Path of

- Cultivating Vocational Identity of Vocational Education Students in the New Era. *Chinese Vocational and Technical Education*, 2023(10): 5-11.
- [5] Chen Liu, Feng Huimin. Ecological Turn of Talent Cultivation in Vocational Education in the Era of Generative Artificial Intelligence: From the Perspective of Feenberg's Theory of Technology Totality. *Education and Vocation*, 2024(2): 22-29.
- [6] Li Yi, Zhang Yibing. Changes of Students' Learning Behavior and Guiding Strategies in the Era of Artificial Intelligence. *E-education Research*, 2023, 44(9): 18-25.
- [7] Zhao Zhiqun. Reform of Talent Training Mode in Vocational Education in the Era of Artificial Intelligence. *China Higher Education Research*, 2023(8): 102-108.
- [8] Huang Li. Research on the Path of Integrating Aerospace Spirit into Vocational College Students' Professional Quality Cultivation. *Chinese Vocational and Technical Education*, 2023(16): 72-77.
- [9] Zhou Jiansong. Innovative Path of Practical Ability Cultivation for Vocational College Students Under the Background of Artificial Intelligence. *Vocational Education Forum*, 2024(1): 35-41.
- [10] Ma Shuchao. Research on the Construction of Dynamic Monitoring System for Mental Health of Vocational College Students. *Research on Educational Development*, 2023, 43(17): 56-63.
- [11] Deng Zemin. Theory and Practice of Artificial Intelligence + Skill Dual Competence Cultivation. *Vocational and Technical Education*, 2024, 45(8): 22-28.