The Affecting Mechanism of Academic Atmosphere on Student Nurses' AI Literacy in Yunnan Province of China

Luo Xiangqi

［**Abstract**］AI is a key tool for enhancing students' future achievement, and atmosphere is associated with AI literacy. Therefore, this study used purposive sampling with an electronic questionnaire to obtain a sample of 1039 student nurses from 6 schools in Yunnan Province, China（validity rate 86.583%）to investigate the relationship between academic atmosphere and student nurses' AI literacy, as well as the facilitating effects of career calling and Chinese chivalrous personality. The results show that academic atmosphere is positively related to the AI literacy of student nurses, and that career calling and Chinese chivalrous personality have a facilitating effect in Yunnan Province, China. This suggests that student nurses need not only the support of the school's diverse external environment but also the connection between pro-social values and traditional Chinese cultural personality to enhance their mastery of AI tools adequately in Yunnan Province, China.

［**About the author**］Luo Xiangqi（1991—）, male, form Dehong, Yunnan, China, assistant professor in Medical Rehabilitation School, Yunnan Xinxing Occupations Institute, master. Research interests：medical students' skills, online international learning.

1　Introduction

In the age of intelligence, AI can help learners improve learning efficiency, analyze problems, and acquire knowledge and skills quickly（Hornberger, Bewersdorff & Nerdel, 2023；Kong, Cheung & Tsang, 2023a；Ng et al., 2023）. Therefore, the level of AI literacy directly determines their future achievements（Kong, Cheung & Zhang, 2023b；Ng, Su & Chu, 2024a；Sperling et al., 2024）. However, since AI is a tool that has emerged in recent years, it is still beyond the grasp of most students（Almatrafi, Johri & Lee, 2024；Stolpe & Hallström, 2024；Zhang et al., 2023）, especially among Chinese students（Lin et al., 2024；Shen & Cui, 2024；Wang, Li & Huang, 2023）. Therefore, exploring the antecedents and influencing mechanisms that affect students' AI literacy has become a focus of Chinese researchers（Ma & Lei, 2024；Ng et al., 2024b；Wu, 2024）.

In addition, research has shown that atmosphere is associated with AI literacy（Otero et al., 2023）. Additionally, research has found that values, personality, and AI literacy are interrelated（Abdullatif & Alsubaie, 2024；Leander & Burriss, 2020）. However, it is not clear how academic atmosphere relates to AI literacy and whether the relationship is influenced by career calling and Chinese chivalrous personality.

On the other hand, student nurses are poorly equipped with digital tools, severely limiting their future development in Yunnan Province, China（Wong et al., 2023；Wu, Lu & Huang, 2023）. Therefore, it is particularly important to stimulate AI literacy among student nurses in Yunnan Province, China（Chan, Lee & Wong, 2024；Zhang, 2024；Zou et al., 2024）.

Therefore, the purpose of this study is to investigate the relationship between the academic atmosphere and student nurses' AI literacy, as well as the facilitating effects of career calling and Chinese chivalrous personality in schools of Yunnan Province, China, to identify the antecedents and facilitating mechanisms that influence student nurses' AI literacy in Yunnan Province, China, promoting their academic achievements in the future.

2　Literature review and hypothesis

2.1 Academic atmosphere and AI literacy

AI literacy has been defined as a set of competencies that enable individuals to critically evaluate; communicate and collaborate effectively with AI; and use AI as a tool （Long & Magerko, 2020）. On the other hand, academic atmosphere has been described as the essential, deep cultural underpinnings that are intrinsic to a school through the accumulation of various learning activities （Jia et al. , 2009）. Research has shown that atmosphere is related to AI literacy （Otero et al. , 2023）. Furthermore, Ma, Jiang and Liu （2023） emphasized that the academic atmosphere is closely related to student development. This is because a harmonious teacher-student relationship is conducive for students to internalizing teachers' excellent academic attitudes and styles into their research literacy （Mello, 2023; O'Neill & Kenny, 2023; Zhao et al. , 2021）. Conversely, a strained student-teacher relationship would inhibit student innovation （Ahmad et al. , 2024; Agarwal & Pande, 2023; Beleslin & Partalo, 2024）. However, a good interaction between teachers and students can enhance students' interest, which leads to identification and passion （Ang, Sankaran & Liu, 2024; O'Malley, O'Connor & Lydon, 2024; Smith et al. , 2024）, and will drive students to study hard, thus better mastering the use of AI tools. Thus the hypothesis：

H1：Academic atmosphere is positively related to student nurses' AI literacy.

2.2 The moderator role played by career calling

A sense of career calling is a work orientation that combines self-actualization with social well-being （Dik & Dufy, 2009）. Research has shown that atmosphere is positively related to career calling （Li, 2022）. On the other hand, research has also found that career calling promotes the relationship between inclusive leadership and teacher performance （Yuan & Yang, 2024）. As Chen et al. （2023a） stated, career calling is a process that individuals internalize through observational learning and implies an emotional identification with the profession in which they are engaged, allowing them to gain a sense of meaning and value at work （Dobrow et al. , 2023; Schabram, Nielsen & Thompson, 2023; Wightman, Potts & Beadle, 2023）. As a result, individuals with a strong sense of career calling consciously connect their values and goals to their professional development and derive satisfaction and pleasure （Chan & Hedden, 2023; Kantamneni & Fouad, 2023; Uzunbacak et al. , 2023）. Therefore, the interaction of career calling and academic atmosphere enhances student nurses' affective commitment, drives learning and stimulates responsibility （Ahmad & Nasir, 2023; Healy & Careers, 2023; Salim et al. , 2023）, and helps them to expect to acquire more skills so that they can better benefit the society in their future work. Thus the hypothesis：

H2：There is a positive moderating effect of career calling in the relationship between academic atmosphere and AI literacy among student nurses.

2.3 The moderator role played by Chinese chivalrous personality

The Chinese chivalrous personality is described as the chivalrous culture, as well as the traditional Chinese cultural personality that is deeply influenced by other schools of thought, including chivalrous concepts of human nature, value attitudes, and ethical behavioral characteristics, which are specifically embodied in the chivalrous person's knowledge, attitudes, and corresponding behaviors towards ideals and aspirations, the meaning of life, the way one handles others, and the way one acts in daily life （Xu & Zhang, 2024）. The study shows that the academic atmosphere is closely related to the behavioral characteristics of chivalry （Xu & Zhang, 2024）. In addition, research has shown that academic atmosphere is positively related to traits （Nurahaju & Riskasari, 2023）. Additionally, research has found that personality inhibits the relationship between family support and burnout （Wu, Shi & Wang, 2024）. As stated by Xu and Zhang （2024）, the Chinese chivalrous personality seeks freedom in the true sense of the word, that is, not only to be free but also to respect the freedom of others and to help them strive for the freedom they deserve. The interaction between academic atmosphere and Chinese chivalrous personality can better shape the qualities of heroes in student nurses, who are more expected to enhance their powerful abilities, making them more willing to participate in acts of bravery and courage for the benefit of society

(E & Hou, 2022; Ge & Liu, 2023; Qu, 2023; Wang, 2021; Zheng, 2021). Thus the hypothesis：

H3：Chinese chivalrous personality has a positive moderating effect on the relationship between academic atmosphere and AI literacy among student nurses.

3　Methodology

3.1 Research framework

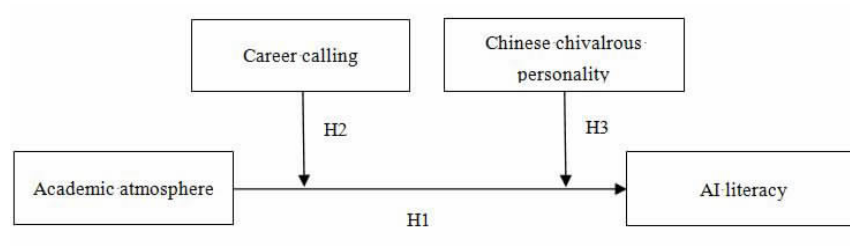Construct the framework based on the hypotheses, as shown below (Figure 1)：

Figure 1. Depiction of the study's framework

3.2 Samples and procedures

The survey was conducted from July to August 2024, using a purposive sampling to select a group of student nurses in Yunnan Province, China. A virtual questionnaire was used to investigate their perceptions of the academic atmosphere, AI literacy, career calling, and Chinese chivalrous personality, with a final valid sample of 1039 (validity rate 86.583%) from 6 schools.

3.3 Measures

Academic atmosphere scale：designed by Ma et al. (2023), 3 factors ($\alpha = 0.931, 0.866, 0.958$) with 16 questions.

AI literacy scale：adapted from Du et al.'s (2024) instrument ($\alpha = 0.906$), 1 factor with 5 questions.

Career calling scale：designed by Chen et al. (2023b), 3 factors with 11 questions ($\alpha = 0.95$).

Chinese chivalrous personality scale：designed according to the theory of Xu and Zhang (2024), 6 factors with 18 questions.

The questionnaire is a 5-point scale with gender, other professional credentials, experience in public service activities, and nature of school as demographic variables.

4　Results

4.1 Distribution of population traits

In the sample, there are more female students (96.54%); more students without other professional credentials (76.80%); more students without experience in public service activities (86.91%); and more students from private schools (87.58%) (as seen in Table 1).

Table 1. Distribution of population traits

Variables	Category	N	%
Gender	Male	36	3.46
	Female	1003	96.54
Other professional credentials	Yes	241	23.20
	No	798	76.80
Experience in public service activities	Yes	136	13.09
	No	903	86.91
Nature of school	Public school	129	12.42
	Private school	910	87.58

Note：N = 1039.

4.2 Model fit

SRMR=0.04, which is a good match (as seen in Table 2).

Table 2. Root mean square error

	Primary sample	Mean	95%	99%
Saturated model	0.04	0.031	0.034	0.037
Estimated model	0.04	0.031	0.034	0.037

Note：∗p<0.05.

4.3 Correlation analysis

Academic atmosphere is positively correlated with student nurses' AI literacy (β=0.546 ∗∗∗), and H1 is valid (as seen in Table 3).

Table 3. Narrative and correlation coefficient matrix

Variables	M	SD	1	2	3	4
1. Academic atmosphere	3.276	0.726	0.758			
2. Career calling	3.186	0.706	0.363 ∗∗∗	0.759		
3. Chinese chivalrous personality	3.096	0.776	0.465 ∗∗∗	0.189 ∗∗∗	0.746	
4. AI literacy	3.156	0.786	0.546 ∗∗∗	0.332 ∗∗∗	0.575 ∗∗∗	0.772
α			0.793	0.894	0.896	0.85
CR			0.796	0.805	0.85	0.655
AVE			0.576	0.577	0.557	0.596

Note：∗p<0.05.

4.4 Moderator analysis

Moderator analysis indicates a significant interaction between academic atmosphere and career calling (β=0.120 ∗∗∗), suggesting that career calling promotes the relationship between academic atmosphere and student nurses' AI literacy, and H2 is valid.

In addition, the interaction between academic atmosphere and Chinese chivalrous personality is significant (β=0.116 ∗∗∗), indicating that Chinese chivalrous personality facilitates the relationship between academic atmosphere and student nurses' AI literacy, and H3 is valid (as seen in Table 4).

Table 4. Moderator analysis

	Student nurses' AI literacy					
	M1	M2	M3	M4	M5	M6
Gender	−0.002	−0.01	−0.009	−0.002	−0.007	−0.011
Other professional credentials	0.014	0.022	0.022	0.014	0.015	0.018
Experience in public service activities	−0.013	−0.021	−0.021	−0.013	−0.013	−0.011
Nature of school	0.014	0.009	0.009	0.014	0.006	0.007
Academic atmosphere	0.530 ∗∗∗	0.468 ∗∗∗	0.491 ∗∗∗	0.530 ∗∗∗	0.491 ∗∗∗	0.523 ∗∗∗
Career calling		0.128 ∗∗∗	0.123 ∗∗∗			
Academic atmosphere ×career calling			0.120 ∗∗∗			
Chinese chivalrous personality					0.126 ∗∗∗	0.128 ∗∗∗
Academic atmosphere × Chinese chivalrous personality						0.116 ∗∗∗
R^2	0.316	0.336	0.216	0.316	0.288	0.321
Adj R^2	0.311	0.336	0.211	0.311	0.278	0.312
F	57.213 ∗∗∗	52.140 ∗∗∗	23.615 ∗∗∗	57.213 ∗∗∗	36.251 ∗∗∗	31.260 ∗∗∗
DW			2.018			1.965

Note：∗p<0.05.

5   Discussion

5.1 Discussion and conclusion

The results confirm for the first time that academic atmosphere is positively correlated with student nurses' AI literacy in Yunnan Province, China. That is, the denser the academic atmosphere is, the stronger the AI literacy of student nurses is. In addition, the results confirm for the first time that career calling and Chinese chivalrous personality can contribute to the relationship between academic atmosphere and student nurses' AI literacy. That is, the stronger the sense of career calling and Chinese chivalrous personality is, the higher the effect of academic atmosphere on the promotion of AI literacy among student nurses is.

As a result of the study, the academic atmosphere has a positive correlation with the AI literacy of student nurses. Therefore, schools should construct and continuously improve the academic atmosphere, which will help to effectively improve the level of AI literacy of student nurses. In addition, high priority should be given to the primacy of academic autonomy opportunities for student nurses in the academic atmosphere (Aini, Agustina & Permana, 2024; Keramati & Gillies, 2023; Shen, Feng & Li, 2024). Diverse approaches can be taken to increase opportunities for student nurses to take ownership of their learning. For example, student nurses can participate in the development of systems related to learning activities (Dalsmo et al., 2023; Fadlalmola, 2023; Sánchez & Karaksha, 2023). In addition, the relative enhancement of teacher support for student nurses has to be accompanied by the proper orientation of students' relationships with their peers in learning (Guo et al., 2024; Mudaly, 2023; Tulleners, Campbell & Taylor, 2023). While giving students opportunities for autonomy and enhancing faculty support, there is a need to focus on interpersonal relationships among student nurses and guide them to develop harmonious peer relationships with each other (Eklund & Carlson, 2023; Heitmann et al., 2024; Sahay & McKenna, 2023).

On the other hand, the career calling is a facilitating mechanism that influences student nurses' mastery of AI literacy. Therefore, the improvement of AI literacy should emphasize the development of the career calling in addition to the creation of a positive academic atmosphere (Dobrow et al., 2023; Healy & Careers, 2023; Yuan & Yang, 2024). By fully granting autonomy to student nurses, correct values of student nurses can be cultivated (Chen et al., 2023a; Kantamneni & Fouad, 2023; Li, 2022), which in turn will enhance the level of AI literacy. At the same time, different programs can be set up to tailor to the needs of student nurses based on the understanding of their level of career calling, thus promoting AI literacy (Ahmad & Nasir, 2023; Chan & Hedden, 2023; Uzunbacak et al., 2023).

In addition, the Chinese chivalrous personality is found to be a facilitating mechanism influencing student nurses' mastery of AI literacy. The reason for this result may be the beliefs and spiritual power formation motives of student nurses with traditional Chinese cultural personalities (Ge & Liu, 2023; Qu, 2023; Wang, 2021), which can promote the relationship of diverse external environments on AI literacy. Therefore, when enhancing the level of AI literacy among student nurses through academic atmosphere and chivalrous personalities, there is a need to provide targeted cultivation strategies for different student nurses (E & Hou, 2022; Xu & Zhang, 2024; Zheng, 2021).

5.2 Research contribution

The present study contributes to the theory of AI literacy by not only clarifying the influence of academic atmosphere on it, but also discovering the facilitating effects of career calling and Chinese chivalrous personality, and constructing a new theoretical framework. Previous studies have focused on the role of individual and faculty factors on AI literacy, neglecting the influence of atmosphere on it (Ding et al., 2024; Figaredo & Stoyanovich, 2023; Perchik, Smith & Elkassem, 2023). The results suggest that student nurses need not only the support of the

school's pluralistic external environment but also pro－social values linked to traditional Chinese cultural personalities to adequately enhance their mastery of intelligent tools, which effectively contribute to the in－depth development of AI literacy theory in Yunnan Province, China.

5.3 Implications

Firstly, student nurses are the mainstay of future healthcare. Their sense of mission for their profession is a core component of medical education（Ahmad & Nasir, 2023；Chan & Hedden, 2023；Chenet al. , 2023a；Healy & Careers, 2023；Li, 2022）. Research on the impact of academic atmosphere on career calling can better guide the educational practices of student nurses. Therefore, developing students' sense of career calling can be approached in three ways. First, to help student nurses enhance their sense of career calling, schools need to make continuous improvements and construction of academic atmosphere in Yunnan Province, China（Mello, 2023；O'Neill & Kenny, 2023；Zhao et al. , 2021）. Schools can enhance students' AI literacy through value－input strategies that inspire them to think about the significance of their careers in society（Smith et al. , 2024）. Second, it is important to emphasize the influence of the professional community. Connecting student nurses to their sense of mission and helping them identify with the medical community to which they belong is the key to generating a sense of career calling（Ahmad et al. , 2024；Beleslin & Partalo, 2024）. Schools can conduct more internships or face－to－face communication and exchange activities to enhance student nurses' identification with the medical community by demonstrating the good qualities of the medical community, which is effective in enhancing the sense of career calling in Yunnan Province, China（Chan & Hedden, 2023；Dobrow et al. , 2023）. In addition, schools should also focus on the development of student nurses' sense of commitment so that they have the ability and willingness to internalize the values and goals of healthcare workers, which in turn facilitates the emergence of career calling（Ahmad & Nasir, 2023；Kantamneni & Fouad, 2023；Uzunbacak et al. , 2023）.

Secondly, personality development is influenced by educational, social, and other factors, and is thus malleable（E & Hou, 2022；Nurahaju & Riskasari, 2023；Wang, 2021）. While Chinese chivalrous personality is viewed as a whole, its components have different properties, such as justice, helpfulness, bravery, freedom, and other connotative traits that are positively oriented, worth promoting and integrating into educational practices, and may exhibit different properties in different contexts（Xu & Zhang, 2024）. Therefore, schools in Yunnan Province, China need to rationally guide and correctly promote chivalrous personalities, which can be realized by adhering to creative transformation and innovative development（Ge & Liu, 2023；Qu, 2023；Wang, 2021；Zheng, 2021）.

5.4 Limitations and directions

The samples are all student nurses but the results may not be generalizable to other professional groups due to the limitations of major and work experience in Yunnan Province, China. Given this, future studies can include people from different majors and professions as subjects to obtain more generalizable findings. In addition, AI literacy can be explored in the future for more antecedent and process factors, such as belief in a just world（Li et al. , 2024）, virtual learning community（Li, Xie & Li, 2022）, future－time insight（Zhang et al. , 2021）, ego depletion（Zhang, Li & Xiang, 2024）, and so on, to facilitate a deeper promotion of AI literacy to meet the future needs of society for talents（Brew et al. , 2023；Pretorius & Fostering, 2023；Relmasira, Lai & Donaldson, 2023；Li, Zhang & Xiang, 2024；Shu & Li, 2024）.

References：

［1］Hornberger M. , Bewersdorff A. , Nerdel C. What Do University Students Know about Artificial Intelligence? Development and Validation of an AI Literacy Test［J］. Computers and Education：Artificial

Intelligence, 2023(5)：1-12.

［2］Kong S. , Cheung W. , Tsang O. Evaluating an Artificial Intelligence Literacy Programme for Empowering and Developing Concepts, Literacy and Ethical Awareness in Senior Secondary Students［J］. Education and Information Technologies, 2023a, 28(4)：4703-4724.

［3］Ng D. , Su J. , Leung J. , Chu S. Artificial Intelligence (AI) Literacy Education in Secondary Schools：A Review［J］. Interactive Learning Environments, 2023(6)：1-21.

［4］Kong S. , Cheung W. , Zhang G. Evaluating an Artificial Intelligence Literacy Programme for Developing University Students' Conceptual Understanding, Literacy, Empowerment and Ethical Awareness［J］. Educational Technology & Society, 2023b, 26(1)：16-30.

［5］Ng D. , Su J. , Chu S. Fostering Secondary School Students' AI Literacy Through Making AI-driven Recycling Bins［J］. Education and Information Technologies, 2024a, 29(8)：9715-9746.

［6］Sperling K. , Stenberg C. J. , McGrath C. , Åkerfeldt A. , Heintz F. , Stenliden L. In Search of Artificial Intelligence (AI) Literacy in Teacher Education：A Scoping Review［J］. Computers and Education Open, 2024(15)：1-13.

［7］Almatrafi O. , Johri A. , Lee H. A Systematic Review of AI Literacy Conceptualization, Constructs, and Implementation and Assessment Efforts (2019-2023)［J］. Computers and Education Open, 2024(31)：1-20.

［8］Stolpe K. , Hallström J. Artificial Intelligence Literacy for Technology Education［J］. Computers and Education Open, 2024(6)：1-8.

［9］Zhang H. , Lee I. , Ali S. , DiPaola D. , Cheng Y. , Breazeal C. Integrating Ethics and Career Futures with Technical Learning to Promote AI Literacy for Middle School Students：An Exploratory Study［J］. International Journal of Artificial Intelligence in Education, 2023, 33(2)：290-324.

［10］Lin X. , Zhou Y. , Shen W. , Luo G. , Xian X. , Pang B. Modeling the Structural Relationships among Chinese Secondary School Students' Computational Thinking Efficacy in Learning AI, AI Literacy, and Approaches to Learning AI［J］. Education and Information Technologies, 2024, 29(5)：6189-6215.

［11］Shen Y. , Cui W. Perceived Support and AI Literacy：The Mediating Role of Psychological Needs Satisfaction［J］. Frontiers in Psychology, 2024(15)：1-11.

［12］Wang X. , Li X. , Huang J. Junior High School Artificial Intelligence Literacy：Connotation, Evaluation and Promotion Strategy［J］. Open Journal of Social Sciences, 2023, 11(5)：33-49.

［13］Ma S. , Li L. The Factors Influencing Teacher Education Students' Willingness to Adopt Artificial Intelligence Technology for Information-based Teaching［J］. Asia Pacific Journal of Education, 2024, 44(1)：94-111.

［14］Ng D. , Wu W. , Leung J. , Chiu T. , Chu S. Design and Validation of the AI Literacy Questionnaire：The Affective, Behavioural, Cognitive and Ethical Approach［J］. British Journal of Educational Technology, 2024b, 55(3)：1082-1104.

［15］Wu D. Exploring Digital Literacy in the Era of Digital Civilization：A Framework for College Students in China［J］. Information Services & Use, 2024, 44(2)：69-91.

［16］Casal-Otero L. , Catala A. , Fernández-Morante C. , Taboada M. , Cebreiro B. , Barro S. AI Literacy in K-12：A Systematic Literature Review［J］. International Journal of STEM Education, 2023, 10(1)：1-17.

［17］Al-Abdullatif A. M. , Alsubaie M. A. ChatGPT in Learning：Assessing Students' Use Intentions Through the Lens of Perceived Value and the Influence of AI Literacy［J］. Behavioral Sciences, 2024, 14(9)：1-23.

［18］Leander K. M. , Burriss S. K. Critical Literacy for a Posthuman World：When People Read, and Become, with Machines［J］. British Journal of Educational Technology, 2020, 51(4)：1262-1276.

［19］Wong A. K. , Bayuo J. , Wang S. , Kwan R. Y. , Lam S. C. , Wong F. K. Factors Associated with the

Perceptions of E-health Technology of Chinese Nurses and Nursing Students［J］. Nurse Education in Practice, 2023(69).

［20］Wu T., Lu Y., Huang Y. Effect of Multimedia E-book Use on the Information Literacy of Nursing Students and Health Communication in Student-led Large-and-small-group Community Health Education Sessions ［J］. Sustainability, 2023, 15(9): 1-14.

［21］Chan M., Lee P., Wong M. Impact of Coronavirus Pandemic to Cultivate Self-discipline and Self-directed Learning in Junior Nurse Students Through High-fidelity Simulation: A Descriptive Qualitative Study［J］. Teaching and Learning in Nursing, 2024, 19(1): 106-112.

［22］Zhang C. Digital Technology and Mental Health: Chinese University Students' Perspectives on the Impact of Social Media［J］. Health Psychology Research, 2024(12): 1-12.

［23］Zou X., Su P., Li L., Fu P. AI-generated Content Tools and Students' Critical Thinking: Insights from a Chinese University［J］. IFLA Journal, 2024, 50(2): 228-241.

［24］Jia Y., Way N., Ling G., Yoshikawa H., Chen X., Hughes D., Ke X., Lu Z. The Influence of Student Perceptions of School Climate on Socioemotional and Academic Adjustment: A Comparison of Chinese and American Adolescents［J］. Child Development, 2009, 80(5): 1514-1530.

［25］Long D., Magerko B. What is AI Literacy? Competencies and Design Considerations［A］. Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems［C］. New York: Association for Computing Machinery, 2020.

［26］Ma J., Jiang M., Liu X. The Effect of Academic Atmosphere on Graduate Research Engagement: The Role of Cognitive Needs and Self-control［J］. Tsinghua Journal of Education, 2023, 44(6): 93-102.

［27］Mello R. C. The Use of Capes Periodic Portals by Researchers in a Graduate Program Case Study at a Federal Institution of Higher Education［J］. RDBCI: Revista Digital de Biblioteconomia e Ciência da Informação, 2023(18): 1-12.

［28］O'Neill C., Kenny N. "I Saw Things Through a Different Lens…": An Interpretative Phenomenological Study of the Experiences of Autistic Teachers in the Irish Education System［J］. Education Sciences, 2023, 13(7): 1-16.

［29］Zhao X., Yin H., Fang C., Liu X. For the Sustainable Development of Universities: Exploring the External Factors Impacting Returned Early Career Academic's Research Performance in China［J］. Sustainability, 2021, 13(3): 1-21.

［30］Ahmad A., Abid N., Azeem A., Sikandar F., Bashir R., Aslam S. Foreign-educated Academics: Assessing Teaching Quality and Exploring Teaching-related Challenges［J］. Psychology in the Schools, 2024, 61(3): 942-961.

［31］Agarwal R., Pande S. An Investigation on Awareness and Method of Knowledge Management in Various Educational Institutions in City of Nawabs-lucknow［J］. Journal for Reattach Therapy and Developmental Diversities, 2023, 6(9): 1792-1799.

［32］Beleslin T. P., Partalo S. M. Early Childhood Friendships as a Significant Value of Education for Sustainability: The Voices of Young Children and Educators［A］. Early Childhood Voices: Children, Families, Professionals［C］. Cham: Springer International Publishing, 2024.

［33］Ang K. C., Sankaran S., Liu D. Sociotechnical Considerations on Developing Human Robot Teaming Solutions for Construction: A Case Study［J］. Construction Robotics, 2024, 8(2): 1-23.

［34］O'Malley R., O'Connor P., Lydon S. Strategies That Facilitate the Delivery of Exceptionally Good Patient Care in General Practice: A Qualitative Study with Patients and Primary Care Professionals［J］. BMC

Primary Care, 2024, 25(1): 1-18.

［35］Smith R. A., Gowen G. H., Perez R. J., Tipton J. A., Ogilvie C. A., Brooks T. R. Is It Any Better? A Comparison of PhD Students' Experiences and Degree Completion Plans Between the Summers of 2020 and 2021［J］. AERA Open, 2024(10): 1-18.

［36］Dik B. J., Duffy R. D. Calling and Vocation at Work: Definitions and Prospects for Research and Practice［J］. The Counseling Psychologist, 2009, 37(3): 424-450.

［37］Li J. Impact of Leader Empowering Behavior on Subordinates' Career Calling［D］. Chengdu: Southwestern University of Finance and Economics, 2022.

［38］Yuan X., Yang Q. The Effect of Principals' Inclusive Leadership on Primary School Teachers' Job Performance: The Mediating Role of Psychological Ownership and the Moderating Role of Professional Mission［J］. Journal of Hunan First Normal University, 2024, 24(1): 100-108.

［39］Chen J., May D. R., Schwoerer C. E., Deeg M. "Called" to Speak out: Employee Career Calling and Voice Behavior［J］. Journal of Career Development, 2023a, 50(1): 3-19.

［40］Dobrow S. R., Weisman H., Heller D., Tosti-Kharas J. Calling and the Good Life: A Meta-analysis and Theoretical Extension［J］. Administrative Science Quarterly, 2023, 68(2): 508-550.

［41］Schabram K., Nielsen J., Thompson J. The Dynamics of Work Orientations: An Updated Typology and Agenda for the Study of Jobs, Careers, and Callings［J］. Academy of Management Annals, 2023, 17(2): 405-438.

［42］Wightman S., Potts G., Beadle R. "Whose Call?" The Conflict Between Tradition-based and Expressivist Accounts of Calling［J］. Journal of Business Ethics, 2023(4): 947-962.

［43］Chan C. K., Hedden L. N. The Role of Discernment and Modulation in Enacting Occupational Values: How Career Advising Professionals Navigate Tensions with Clients［J］. Academy of Management Journal, 2023, 66(1): 276-305.

［44］Kantamneni N., Fouad N. A. Multicultural Vocational Research: Critique and Call to Action［J］. Journal of Career Assessment, 2023, 31(1): 3-26.

［45］Uzunbacak H. H., Yastıoğlu S., Dik B. J., Erhan T., Akçakanat T. Changes in Nurses' Sense of Calling During the COVID-19 Pandemic: A Qualitative Study［J］. Journal of Career Development, 2023, 50(3): 709-726.

［46］Ahmad B., Nasir N. Positive Career Shocks and Career Optimism: Testing the Mediating Role of Career Decision-making Self-efficacy［J］. Journal of Asian Business and Economic Studies, 2023, 30(2): 105-125.

［47］Healy M. Careers and Employability Learning: Pedagogical Principles for Higher Education［J］. Studies in Higher Education, 2023, 48(8): 1303-1314.

［48］Salim R. M., Istiasih M. R., Rumalutur N. A., Situmorang D. D. The Role of Career Decision Self-efficacy as a Mediator of Peer Support on Students' Career Adaptability［J］. Heliyon, 2023, 9(4): 1-11.

［49］Xu H., Zhang Y. The First Exploration of Connotation of the Chinese Chivalrous Personality in Chinese Culture Background and Its Contemporary Practical Significance［J］. Psychological Exploration, 2024, 44(4): 301-310.

［50］Nurahaju R., Riskasari W. Academic Atmosphere, Personality, and Academic Performance［J］. Journal of Innovation in Educational and Cultural Research, 2023, 4(4): 718-730.

［51］Wu Z., Shi W., Wang D. Study on the Impact of Family Support on the Career Burnout among Civil Servants Based on the Moderating Role of Personality Traits［J］. Chinese Health Service Management, 2024, 41(3): 329-333.

［52］E G., Hou G. Martial Arts Thought in Shaolin Films and Its Contemporary Value［J］. Journal of

Shenyang Sport University, 2022, 41(5): 138-144.

［53］Ge Y., Liu B. A Tale of Two Cities in the Song Dynasty: An Urban Cultural Perspective on the Interpretation of the Novel Series Bao Gong and Ji Gong［J］. Journal of Zhejiang Normal University (Social Sciences), 2023, 48(2): 15-25.

［54］Qu C. On Song Jiang's Multiple Personality［J］. Journal of Heze University, 2023, 45(1): 132-136.

［55］Wang J. Du Fu's Character and His Poetry's Character［J］. Gansu Social Sciences, 2021(4): 89-96.

［56］Zheng Z. Lao Zi's Theory of Water Personality and Its Practical Significance［J］. Psychological Exploration, 2021, 41(6): 483-489.

［57］Du H., Sun Y., Jiang H., Islam A. Y., Gu X. Exploring the Effects of AI Literacy in Teacher Learning: An Empirical Study［J］. Humanities and Social Sciences Communications, 2024, 11(1): 1-10.

［58］Chen Y., Wei Y., Zhang A., Wang S., Huang J. The Sense of Organizational Support and Job Burnout among Special Education Teachers: The Mechanisms of Career Calling and Job Title［J］. Chinese Journal of Special Education, 2023b(5): 90-96.

［59］Ding A., Shi L., Yang H., Choi I. Enhancing Teacher AI Literacy and Integration Through Different Types of Cases in Teacher Professional Development［J］. Computers and Education Open, 2024(6): 1-13.

［60］Domínguez Figaredo D., Stoyanovich J. Responsible AI Literacy: A Stakeholder-first Approach［J］. Big Data & Society, 2023, 10(2): 1-15.

［61］Perchik J. D., Smith A. D., Elkassem A. A., Park J. M., Rothenberg S. A., Tanwar M., Yi P. H., Sturdivant A., Tridandapani S., Sotoudeh H. Artificial Intelligence Literacy: Developing a Multi-institutional Infrastructure for AI Education［J］. Academic Radiology, 2023, 30(7): 1472-1480.

［62］Aini E. N., Agustina H. R., Permana R. H. Overview of the Student Learning Environment of the Universitas Padjadjaran Nursing Profession Study Program［J］. Lectura: Jurnal Pendidikan, 2024, 15(1): 245-258.

［63］Keramati M. R., Gillies R. M. Perceptions of Nursing Students on the Effect of Cooperative Learning on Academic Achievement and Learning Environment［J］. Interactive Learning Environments, 2023, 31(10): 6724-6734.

［64］Shen Y., Feng H., Li X. Academic Resilience in Nursing Students: A Concept Analysis［J］. BMC Nursing, 2024, 23(1): 1-10.

［65］Dalsmo I. E., Brodtkorb K., Laugaland K. A., Slettebø Å., Ekra E. M. Learning in Nursing Home Placement: A Phenomenological Study of Student Nurses' Lived Experience［J］. Journal of Clinical Nursing, 2023, 32(3-4): 452-464.

［66］Fadlalmola H. A. Sudanese Nursing Students' Satisfaction Level and Clinical Learning Environment: A Cross-sectional Study［J］. International Journal of Nursing Education, 2023, 15(2): 77-82.

［67］Sánchez A. D., Karaksha A. Nursing Student's Attitudes toward E-learning: A Quantitative Approach［J］. Education and Information Technologies, 2023, 28(2): 2129-2143.

［68］Guo L., Yan D., Yan J., Jiao R. Correlation of Academic Emotion and Hardiness Personality of Undergraduate Nursing Students［J］. BMC Nursing, 2024, 23(1): 1-6.

［69］Mudaly P. Concept Analysis of Clinical Peer Mentor Support in an Undergraduate Nursing Higher Education Institution Programme, South Africa［J］. IOSR Journal of Nursing and Health Science, 2023, 12(2): 27-32.

［70］Tulleners T., Campbell C., Taylor M. The Experience of Nurses Participating in Peer Group Supervision: A Qualitative Systematic Review［J］. Nurse Education in Practice, 2023(69): 1-12.

［71］Heitmann A. J., Valla L., Albertini Früh E., Kvarme L. G. A Path to Inclusiveness-peer Support Groups as a Resource for Change［J］. The Journal of School Nursing, 2024, 40(3): 285-294.

［72］Josse-Eklund A. , Carlson E. , Sundin-Andersson C. , Olsson C. Experiences of the Clinical Learning Environment in Peer Learning：A Mixed Method Study from Bachelor Students' and Main Preceptors' Perspectives ［J］. Nordic Journal of Nursing Research, 2023, 43(1)：1-8.

［73］Sahay A. , McKenna L. Nurses and Nursing Students as Second Victims：A Scoping Review［J］. Nursing Outlook, 2023, 71(4)：1-12.

［74］Li L. , Zhang K. , Xiang F. Higher Vocational Students' Future Self-continuity and Sustainable Entrepreneurial Preparation Behavior in China：The Moderating Effect of Financial Literacy and Belief in a Just World［J］. Educational Science Literature, 2024(8)：27-43.

［75］Li L. , Xie A. , Li Y. Effect of Online Learning Community on College Students' Civic Attitudes, Knowledge, and Skills—Taking Grit and Immersion as Moderator Variables［J］. Journal of the Open University of Shaanxi, 2022, 24(4)：11-18.

［76］Zhang K. , Li Y. , Ai L. , Li L. , Xie A. Study on the Relationship Between Teachers' Workplace Fun and Job Stress：Taking Well-being and Future Time Insight as Mediating Effects［J］. Journal of Bingtuan Education Institute, 2021, 31(5)：19-23.

［77］Zhang K. , Li L. , Xiang F. The Affect Mechanism of Foreign Teachers' Future Time Perspective on Ego Depletion［A］. Proceedings of DPU International Conference on Business, Innovation, and Social Sciences ［C］. Bangkok：DPU ICBISS, 2024：321-334.

［78］Brew M. , Taylor S. , Lam R. , Havemann L. , Nerantzi C. Towards Developing AI Literacy：Three Student Provocations on AI in Higher Education［J］. Asian Journal of Distance Education, 2023, 18(2)：1-11.

［79］Pretorius L. Fostering AI Literacy：A Teaching Practice Reflection［J］. Journal of Academic Language and Learning, 2023, 17(1)：1-8.

［80］Relmasira S. C. , Lai Y. C. , Donaldson J. P. Fostering AI Literacy in Elementary Science, Technology, Engineering, Art, and Mathematics （STEAM） Education in the Age of Generative AI［J］. Sustainability, 2023, 15(18)：1-25.

［81］Li L. , Zhang K. , Xiang F. Teachers' Beliefs in Education for Sustainable Development and Senior Students' Green Entrepreneurial Intentions in Xinjiang Autonomous Region, China：The Moderating Effect of Teachers' Legacy Motivation and Digital Competence［J］. Educational Science Literature, 2024(10)：1-18.

［82］Shu Y. , Li L. The Affecting Mechanism of Secondary School Students' Psychological Rich on Pro-environmental Behavior in Hunan Province of China［J］. Educational Science Literature, 2024(9)：1-15.