

Research on Cultivation Paths of Digital Literacy for Vocational Foreign Language Talents from the Perspective of Post-Curriculum Alignment

Xu Yaohui*

*Department of Foreign Languages, Shanghai Publishing and Printing College, Yangpu District,
Shanghai, China
45983692@qq.com
Corresponding author

Keywords: Vocational foreign language; Students' digital literacy; Post-curriculum alignment; Path research; Structural equation model

Abstract: In the era of digital technology, the traditional cultivation mode of vocational foreign language talents oriented solely by linguistic competence can no longer meet the demands of digital transformation in foreign-related positions. Post-curriculum alignment has become one of the core directions for promoting the reform of the education system in vocational foreign language majors. Based on the Students' Digital Literacy framework, this study developed a questionnaire and conducted a survey among practitioners in foreign-related positions. Descriptive statistics, one-way analysis of variance, partial least squares structural equation modelling, and word frequency analysis were comprehensively applied to empirically examine the demand structure and internal mechanism of digital literacy in foreign-related positions. On the basis of the research findings, cultivation paths are proposed to provide empirical evidence and feasible solutions for the digital education reform of vocational foreign language majors.

1. Introduction

The iterative innovation of digital technology and artificial intelligence has accelerated the two-way integration of educational digitalization and industrial post digitalization, reshaping the occupational forms and competence standards of posts aligned with foreign language majors, as well as the cultivation logic and development paradigm of foreign language talents. The traditional cultivation of foreign language talents relying solely on language communication competence can hardly meet the comprehensive competence requirements of emerging positions in the digital age, such as cross-border communication, digital translation, multimodal foreign language services, and international digital business. For these positions, digital literacy has become an indispensable core competence for these positions.

To coordinate the cultivation of national digital literacy and consolidate the talent foundation for building a digitalized China, the Office of the Central Cyberspace Affairs Commission issued *The Action Outline for Improving National Digital Literacy and Skills* in 2021, which explicitly

proposed to improve the hierarchical and classified digital literacy cultivation system and strengthen the cultivation of digital competence, digital thinking, and digital social responsibility among young people [1]. In 2025, the State Council issued *the Outline for Building a Powerful Education Country (2024–2035)*, further proposing the implementation of the national education digitalization strategy from the top-level design of education development, using artificial intelligence to facilitate educational transformation, deepening the integration of industry and education and the integration of science and education, and promoting the precise alignment between talent cultivation and industrial demand [2].

Under the systematic guidance of the national policies, vocational foreign language majors need to deepen industry-education integration, take post-curriculum alignment as one of the core starting points to promote the match between major courses and the digital demands of the posts aligned with foreign majors, and cultivate compound foreign language talents adapted to digital transformation. The core essence of post-curriculum alignment is to take the industry post competence standard as the guide, reversely drive the systematic reconstruction of curriculum system, teaching content, and cultivation mode, and realize the precise coupling between professional teaching and vocational demand. This is highly consistent with the core logic of the transformation of vocational foreign language talent cultivation paradigm and the integration of digital literacy into the education system in the digital age.

At present, the academic circle has carried out abundant researches on two major fields: students' digital literacy cultivation and post-curriculum alignment teaching reform. In terms of digital literacy research, scholars at home and abroad have clarified that students' digital literacy is a comprehensive competence system integrating multimodal information processing, intelligent tool application, digital content creation, cross-cultural digital communication, and digital ethical norms [3][4], and confirmed that digital literacy is the core competence to improve students' employment competitiveness and adapt to digitalized positions. In terms of post-curriculum alignment research, existing studies mostly focus on macro dimensions such as curriculum system reconstruction, teaching mode innovation, and practical teaching optimization, and verify the key role of the integration of post, curriculum, competition, and certificate in improving the adaptability of professional talent cultivation [5].

Existing studies have provided both theoretical support and practical reference for the digital education reform of foreign language majors, but there are still obvious research gaps and perspective limitations. First, most existing digital literacy studies focus on all students or students of general liberal arts, with few special focuses on foreign language majors. The dimensions and cultivation priorities of digital literacy adapted to foreign language vocational scenarios have not yet been defined in combination with the unique characteristics of digital transformation in foreign-related positions. Second, most post-curriculum alignment studies focus on the integration of professional knowledge and vocational skills, generally ignoring the educational connection of digital literacy, a core post competence in the new era, and failing to construct a complete logical system for post-curriculum collaboration to empower digital literacy cultivation of vocational foreign language students.

Accordingly, from the core perspective of post-curriculum alignment and based on the digital literacy demand of foreign-related positions, this study systematically analyzes the core dimensions and cultivation paths of digital literacy in foreign-related positions, so as to feed back the cultivation of digital literacy of vocational foreign language talents. This study aims to bridge for the current research gaps in digital literacy cultivation of vocational foreign language talents, and provide practical reference for foreign language majors in colleges and universities to optimize talent cultivation programs and realize the precise alignment of education supply with the digital demand of foreign-related positions.

2. Connotation of Digital Literacy and Students' Digital Literacy Framework

2.1. Connotation of Digital Literacy

UNESCO defines digital literacy as "a set of basic skills required for using digital media, information processing and retrieval, which enable people to participate in social networks and create and share knowledge" [6]. This definition emphasizes the combination of the tool attribute and social participation attribute of digital technology, and highlights the positioning of digital literacy as the basic competence for social participation. In *the Key Competences for Lifelong Learning – A European Framework*, the European Union points out that digital competence refers to "the ability to confidently and critically use the full range of digital technologies of the information society for information acquisition, communication and basic problem solving", and lists it as one of the eight key competences for lifelong learning [7]. The Cyberspace Administration of China adopts the expression of digital literacy and skills, defining it as a collection of qualities and abilities that citizens in a digital society should possess in study, work and life, including digital acquisition, production, use, evaluation, interaction, sharing, innovation, security assurance, and ethics[1].

Students' digital literacy is the embodiment of digital literacy in educational scenarios. In the draft of *Students' Digital Literacy* (hereinafter referred to as *Students' Digital Literacy*), the Educational Information Technology Standardization Committee of the Ministry of Education defines students' digital literacy as "students' awareness, ability, thinking and accomplishment of appropriately using digital technology to acquire, integrate, manage and evaluate digital content, understand, construct and create new knowledge, and discover, analyze and solve problems"[8].

2.2. Development of Student Digital Literacy Framework

While proposing the concept of digital literacy, Eshet-Alkalai constructed the first digital literacy framework, proposing that digital literacy includes five dimensions: picture and image recognition and understanding, recreation, branching, information, and social emotion [9]. In 2017, the European Union released *DigComp 2.0*, taking information and data literacy, communication and collaboration literacy, digital content creation literacy, safety literacy, and problem-solving literacy as the core dimensions of digital literacy [10]. In 2018, UNESCO released the *Global Framework for Digital Literacy* based on *DigComp 2.0*, adding two first-level dimensions: "operation" and "vocational relevance" [11]. In 2025, the European Union officially released *DigComp 3.0*. Based on the previous framework of five core competence areas, *DigComp 3.0* optimized the connotation of 21 sub-competences, focusing on adding content adapted to the intelligent era such as artificial intelligence literacy, digital well-being, disinformation identification, digital rights protection, and human-machine collaboration, further emphasizing responsible, sustainable, and inclusive digital practice [12].

Although China's digital literacy framework started slightly later, it has developed rapidly with distinct policy guidance characteristics and localized adaptability. *The Information Technology Curriculum Standards for Compulsory Education* (2022 Edition) divides student digital literacy into four core literacy dimensions: information awareness, computational thinking, digital learning and innovation, and information social responsibility [13]. *Students' Digital Literacy* divides student digital literacy into six core dimensions: digital awareness, digital knowledge and skills, computational thinking, digital cooperation and communication, digital learning and innovation, and digital social responsibility [9]. Based on relevant foreign literature and reports, Yan Ming extracted key words of first-level indicators that can summarize the digital literacy competence evaluation of foreign language majors, and constructed a digital literacy competence framework for

foreign language majors on this basis. The framework is divided into seven dimensions: digital demand competence, digital acquisition competence, digital management competence, digital evaluation competence, digital application competence, digital creation competence, and digital security competence [14].

3. Research Design

3.1. Research Instrument

Based on the Students' Digital Literacy framework, this study designed questionnaire items for digital literacy demand in foreign-related positions, including 5 basic information questions, 44 demand scale questions, and 2 open-ended questions, totaling 51 questions. The scale questions adopt a 5-point Likert scale, with scores from 1 to 5 representing "completely unnecessary" to "very necessary" respectively. The rating scale is used to evaluate the demand intensity of digital awareness, digital knowledge and skills, computational thinking, digital cooperation and communication, digital learning and innovation, and digital social responsibility in foreign-related positions. The open-ended questions solicit demands for digital literacy dimensions not covered by the scale items in their positions and suggestions for the setting of digital literacy courses in colleges and universities.

The questionnaire development process is as follows: First, a preliminary draft of the questionnaire was drawn up according to the Students' Digital Literacy framework. Next, three on-the-job personnel in foreign-related positions were invited to take a pilot test and conduct interviews after the test. According to the interview results, the preliminary draft was adjusted and optimized, and items with parallel expressions were split. Finally, 44 demand scale questions were obtained, and the finalized questionnaire was used for extensive investigation. Sample items of the scale are shown in Table 1.

Table 1: Sample Items of Post Digital Literacy Demand Scale

Dimension	Sample Items
Digital awareness	Maintain keen perception and capture awareness of various digital contents in business information processing
Digital knowledge and skills	Understand the basic concepts, development history and future trends of digital devices, platforms and resources
Computational thinking	Be able to fully understand the background and core objectives of problems when facing complex business tasks
Digital cooperation and communication	Be able to collaborate remotely with domestic and foreign teams through digital tools such as shared documents and online meetings
Digital learning and innovation	Be proficient in using digital tools to complete work tasks in the enterprise digital office environment
Digital social responsibility	Be able to use digital tools reasonably to avoid indulging in social media and digital entertainment that affect work efficiency

3.2. Questionnaire Survey

This study adopted the snowball sampling method through the online questionnaire platform "Wenjuanxing". The survey subjects mainly include two categories: the first category is graduates of business English majors from a vocational college, and the second category is on-the-job personnel in foreign-related positions. The questionnaire survey lasted for two weeks, and a total of 181 questionnaires were obtained, including 168 valid questionnaires, with an effective rate of

92.82%.

3.3. Reliability and Validity Test of the Questionnaire

This study adopted the PLS-SEM measurement model to test the reliability and validity of the questionnaire, and the results are shown in Table 2. It can be seen from Table 2 that the Cronbach's α value, rho_A value, and composite reliability value of the questionnaire items are all greater than 0.9, and the AVE (Average Variance Extracted) values are all greater than 0.6, indicating that the questionnaire has good reliability and validity and can be used for further data analysis.

Table 2: Reliability and Validity Test

Core Dimension	Cronbach's α	rho_a	Composite Reliability	AVE
Digital awareness	0.950	0.968	0.957	0.693
Digital knowledge and skills	0.951	0.976	0.960	0.753
Computational thinking	0.956	0.976	0.965	0.736
Digital cooperation and communication	0.919	0.957	0.940	0.760
Digital learning and innovation	0.945	0.972	0.958	0.821
Digital social responsibility	0.938	0.959	0.952	0.768

3.4. Research Process

First, this study conducted descriptive statistical analysis to quantitatively describe the level of digital literacy demand in foreign-related positions. Then, one-way analysis of variance (One-Way ANOVA) was used to identify possible significant differences among different foreign-related positions. After that, a structural equation model (SEM) was constructed and tested with the PLS-Algorithm of Smart-PLS to verify the hypothetical relationships among various indicators of digital literacy demand in foreign-related positions. Finally, word frequency statistics were performed on the open-ended questions and their implications were analyzed.

4. Research Results and Discussion

4.1. Descriptive Statistics

This study collected basic information of the research subjects, including gender, major, company and position, and years of employment. According to the questionnaire requirements, majors are divided into foreign language and non-foreign language categories. Positions are divided into digital trade (including foreign trade, cross-border e-commerce, overseas operation, etc.), foreign-related business (foreign-related business assistant, administration or HR of multinational corporations, etc.), international communication (translation, editing, foreign language teachers, etc.), and others based on the fit with vocational foreign language. The statistical information of gender, major and position of the research subjects is shown in Table 3.

During the questionnaire collection, some on-the-job personnel in foreign-related positions graduated from non-foreign language majors. However, considering that their positions are highly matched with vocational foreign language majors and there is no significant difference between majors after testing, this part of data is included in the subsequent analysis. Among all information, the difference between positions is relatively obvious, so a more in-depth analysis will be conducted below.

Table 3: General Information of Research Subjects

Item	Gender		Major		Position			
	M.	F.	Foreign language	Non-foreign language	Digital trade	Foreign-related business	International communication	Others
Value	26	142	139	29	66	19	32	51
Proportion	15.4 7%	84.5 3%	82.74%	17.26%	39.29%	11.31%	19.05%	30.36%

4.2. Quantitative Description of Digital Literacy Demand Among Foreign-Related Positions

This study collected data on post digital literacy demand indicators through questionnaires and analyzed them with SPSS 26.0 to obtain a quantitative description of the evaluation indicator levels. The results are shown in Table 4. It can be seen from Table 4 that the demand scores of the six dimensions—**digital awareness**, **digital knowledge and skills**, **computational thinking**, **digital cooperation and communication**, **digital learning and innovation**, and **digital social responsibility**—are 4.3036 (SD=0.78465), 4.2619 (SD=0.81473), 4.2577 (SD=0.81736), 4.3274 (SD=0.83871), 4.2655 (SD=0.86792), and 4.2708 (SD=0.85543) respectively, indicating that foreign-related positions have a high demand for all dimensions of digital literacy on the whole.

Table 4: Quantitative Description of Post Digital Literacy Demand Indicator Levels

Demand Indicator	N	Minimum	Maximum	Mean	Std. Deviation
Digital literacy demand	168	1.00	5.00	4.2795	0.76032
Digital awareness	168	1	5	4.3036	0.78465
Digital knowledge and skills	168	1	5	4.2619	0.81473
Computational thinking	168	1	5	4.2577	0.81736
Digital cooperation and communication	168	1	5	4.3274	0.83871
Digital learning and innovation	168	1	5	4.2655	0.86792
Digital social responsibility	168	1	5	4.2708	0.85543

4.3. Relationships Among Digital Literacy Demand Indicators in Foreign-Related Positions

Using one-way ANOVA, this study explored whether there are significant differences in digital literacy demand among different positions, and the results are shown in Table 5. The analysis results show that there are significant differences in digital literacy demand among positions ($F=5.279$, $p=0.002$). The data show that digital trade positions have the most significant demand for digital literacy, while foreign-related business positions have relatively lower demand for digital literacy compared with the other three types of positions, but the mean value is still as high as 3.9151, indicating that with the development of artificial intelligence, all walks of life have great demand for digital literacy.

Table 5: Mean Comparison of Digital Literacy Demand Indicators of Foreign-Related Positions

Item	Digital trade	Foreign-related business	International communication	Others	F-value	Significance
Value	4.5406	3.9151	4.0938	4.1939	5.279	0.002**

** $P<0.01$

Table 6: Inter-group Significance Comparison of Digital Literacy Demand Indicators

Foreign-related positions	Digital trade	Foreign-related business	International communication	Others
Digital trade	1.00			
Foreign-related business	0.008**	1.00		
International communication	0.031*	1.000	1.00	
Others	0.072	0.953	1.000	1.00

**P<0.01, * P<0.05

Through further comparison of inter-group mean differences, it is found that there are significant differences between digital trade positions and both foreign-related business positions and international communication positions, while there is no significant difference in digital literacy demand among the other three types of positions, as shown in detail in Table 6.

Based on the six first-level indicators of the Student Digital Literacy framework and combined with relevant survey data, this study used Smart PLS 4.1.1.8 for calculation and adopted the partial least squares (PLS) method in SEM for analysis. Through PLS-Algorithm calculation, the path relationships among indicators were obtained, which reveal the interdependence and influence intensity among various dimensions of post digital literacy demand. The demand indicator relationship model is shown in Figure 1.

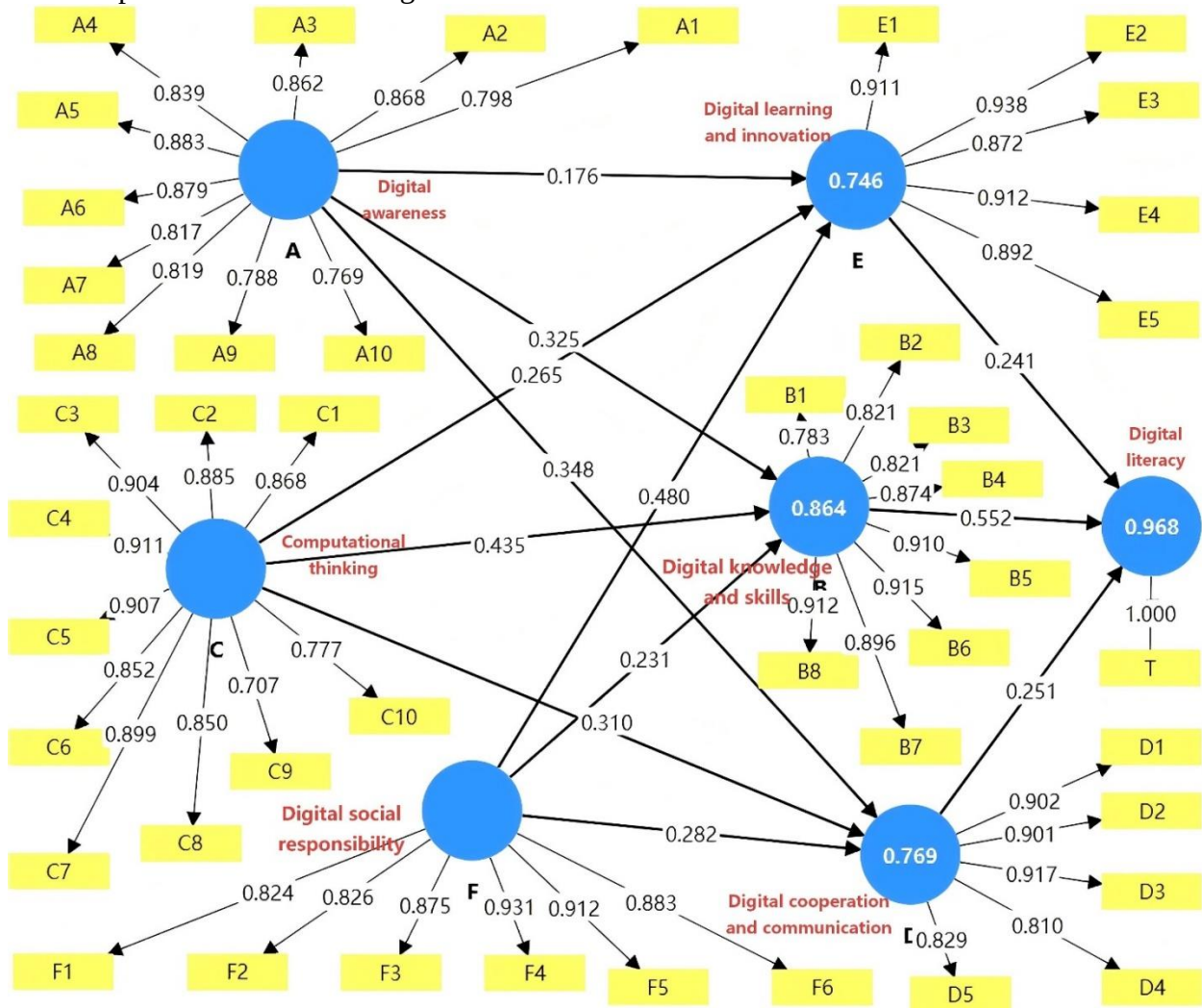


Figure 1: Relationship Model of Digital Literacy Demand Indicators in Foreign-Related Positions

Among them, A, B, C, D, E, F, and T represent **digital awareness**, **digital knowledge and skills**, **computational thinking**, **digital cooperation and communication**, **digital learning and innovation**, **digital social responsibility**, and digital literacy respectively. The numbers inside the circles represent the contribution rate, expressed by R^2 value (for example, the three indicators of **digital awareness**, **computational thinking**, and **digital social responsibility** contribute 0.864 to **digital knowledge and skills**). The value between each item (e.g., A1) and the indicator (e.g., 0.798) is the factor loading of the item. The arrows between indicators indicate the directional relationships among these indicators, and the values between indicators indicate the size of path coefficients, expressed by β . For example, **digital knowledge and skills** have the largest contribution to student digital literacy ($\beta=0.552$).

It can be seen from the indicator relationship model that digital knowledge and skills, digital cooperation and communication, and digital learning and innovation have positive effects on the comprehensive digital literacy demand ($\beta=0.552$, $\beta=0.251$, and $\beta=0.241$ respectively), and the contribution rate of the three to digital literacy reaches 0.968. Among them, digital knowledge and skills have the strongest positive correlation with digital literacy ($\beta=0.552$). Digital awareness and computational thinking have strong positive correlations with digital knowledge and skills ($\beta=0.325$ and $\beta=0.435$ respectively), and both have strong positive correlations with digital cooperation and communication ($\beta=0.348$ and $\beta=0.310$ respectively). Digital social responsibility has a strong positive correlation with digital learning and innovation ($\beta=0.480$).

Through the above analysis, researchers can identify key areas for improving students' digital literacy and provide a basis for talent cultivation. Further analysis of the model using the PLS-bootstrapping algorithm yields the path relationships among various evaluation indicators, as shown in Table 7, where the bold parts indicate significant path coefficients.

Table 7: Mediating Path Table of Digital Literacy Indicators in Foreign-Related Positions

Path	Path value	Std. Deviation	T	P
Computational thinking → Digital knowledge and skills → Digital literacy	0.239	0.044	5.451	0.000**
Digital awareness → Digital knowledge and skills → Digital literacy	0.176	0.039	4.483	0.000**
Digital social responsibility → Digital learning and innovation → Digital literacy	0.120	0.035	3.421	0.001**
Digital social responsibility → Digital knowledge and skills → Digital literacy	0.129	0.045	2.935	0.003**
Digital social responsibility → Digital cooperation and communication → Digital literacy	0.076	0.026	2.871	0.004**
Digital awareness → Digital cooperation and communication → Digital literacy	0.091	0.034	2.657	0.008**
Computational thinking → Digital cooperation and communication → Digital literacy	0.073	0.033	2.149	0.032*
Computational thinking → Digital learning and innovation → Digital literacy	0.059	0.035	1.618	0.106
Digital awareness → Digital learning and innovation → Digital literacy	0.044	0.030	1.496	0.135

** $P < 0.01$, * $P < 0.05$

It can be seen from the indicator path coefficient values in Table 7 that seven chain mediating

paths in this study are significant ($P < 0.05$). Digital awareness has two significant mediating paths. Among them, the path "**digital awareness** → **digital knowledge and skills** → **digital literacy**" has the optimal effect ($\beta = 0.176$, $T = 4.483$, $P = 0.000$) with extremely strong significance, indicating that digital literacy is mainly improved by driving individuals to accumulate digital knowledge and temper practical skills through digital awareness, with stable conduction efficiency. The path "**digital awareness** → **digital cooperation and communication** → **digital literacy**" is also significant ($\beta = 0.091$, $T = 2.657$, $P = 0.008$) but with weaker effect, indicating that digital awareness can empower digital literacy improvement by positively affecting digital cooperation and communication, but the empowerment efficiency is lower than that of the digital knowledge and skill accumulation path.

Except for the digital learning and innovation path, the other two paths of computational thinking are significant and effective, with the best overall empowerment intensity. The core path "**computational thinking** → **digital knowledge and skills** → **digital literacy**" is the strongest effect path in the whole model ($\beta = 0.239$, $T = 5.451$, $P = 0.000$), confirming that computational thinking is the core kernel for the practical application of digital knowledge and skills and the key internal driving force for digital literacy improvement. The path "**computational thinking** → **digital cooperation and communication** → **digital literacy**" is significantly established ($\beta = 0.073$, $T = 2.149$, $P = 0.032$), which can improve digital literacy by optimizing the quality of digital cooperation and communication, but the empowerment effect is far weaker than that of the digital knowledge and skills conduction path.

All three chain mediating paths of digital social responsibility are significantly established, with all-round empowerment characteristics. The optimal path is "**digital social responsibility** → **digital learning and innovation** → **digital literacy**" ($\beta = 0.120$, $T = 3.421$, $P = 0.001$), indicating that digital literacy can be improved by positively enhancing digital social responsibility to drive standardized digital learning and innovation behaviors.

4.4. Word Frequency Analysis of Open-Ended Questions

Table 8: Top Five Word Frequency Statistics of Open-Ended Questions

Question No. 50			Question No. 51		
Keywords	Vocabulary Included	Word frequency	Keywords	Vocabulary Included	Word frequency
Practice	Digital/digitization/AI	35	Language	Foreign trade/cross-border/language	44
Industry	Practical operation/practice/training/actual combat	24	Practice	Practice/practical operation/training	33
Digital	Cross-border/foreign trade	23	Curriculum	Digital/digitization/AI	35
Language	English/foreign language/oral English/business correspondence, etc.	18	Industry	Curriculum/teaching	31
Curriculum	Curriculum/training/teaching	17	Digital	Work/business/industry/enterprise	24

The questionnaire includes two open-ended questions: Question 50 "In addition to the above dimensions, what other digital literacy do you think is urgently needed in your job?" and Question 51 "Based on your work experience, what specific suggestions do you have for the setting of digital literacy curriculum system in colleges and universities?". The top five word frequency statistics are shown in Table 8.

According to the word frequency analysis, the responses of on-the-job personnel in foreign-related positions show three distinct characteristics: First, digital transformation has become a general consensus, with AI and digital technology ranking high in both questions. Second, practice orientation is prominent, with high-frequency occurrence of words such as practical operation, training, and actual combat, indicating a strong expectation for "applying what is learned". Third, language and industry are deeply integrated, with business foreign language competence and cross-border foreign trade scenarios repeatedly mentioned, indicating that talent cultivation needs to be closely integrated with the actual needs of the industry. On the whole, it reflects that under the background of digital economy, respondents expect curriculum teaching to strengthen the integration of digital literacy and language competence, highlight practical training links, and realize effective alignment with industry demand.

5. Digital Literacy Cultivation Paths for Vocational Foreign Language Talent Training from the Perspective of Post-Curriculum Alignment

Based on the above empirical results and in view of the digital competence demands and standards of foreign-related positions, reconstructing the digital literacy cultivation path of vocational foreign language majors is the key to improving talent post adaptability and vocational competitiveness. This study suggests that vocational foreign language reform start from the following aspects.

Build a modular post-curriculum integrated digital learning and practice platform, and consolidate the post-curriculum integrated digital knowledge and skill system. Digital knowledge and skills are the core hub for various pre-literacies to empower digital literacy. At present, vocational foreign language courses face the dilemma of fragmented and marginalized digital skill modules, which are disconnected from the rigid demand of post digital competence. Based on the concept of post-curriculum alignment, it is vital to build a modular post-curriculum integrated digital learning and practice platform, combine courses and positions in a modular way, deeply integrate modular post digital skills into professional courses, and realize the precise alignment between curriculum knowledge and post digital competence.

Add computational thinking and digital foreign language innovation training modules to make up for the shortcomings of vocational foreign language talent cultivation. Computational thinking has the strongest effect on the improvement of digital skills and is the core driving force for digital literacy cultivation. Traditional vocational foreign language courses focus on the cultivation of skills such as language application. It is necessary to add computational thinking training modules in professional teaching, and carry out data sorting, problem decomposition, and intelligent tool practical training combined with foreign-related business scenarios to improve students' computational thinking ability. In addition, vocational foreign language education needs to optimize the practical training education mode based on the post-curriculum collaboration mechanism, and add digital foreign language innovation training modules in line with the digital innovation demand of foreign-related positions. Relying on the school-enterprise cooperation platform, online simulation training scenarios can be built to guide students to combine foreign language professional competence to complete practical tasks such as digital cross-border marketing scheme design, foreign-related service mode optimization, and multilingual digital copy innovation, so as to

open up the cultivation chain of "digital cognition, thinking ability, and post innovation".

Integrate value orientation throughout the whole chain, and strengthen the immersive cultivation of digital social responsibility. The study confirms that digital social responsibility can empower digital literacy in all aspects through three paths: knowledge and skills, cooperation and communication, and learning and innovation, which has all-round educational value. The major needs to integrate digital social responsibility into the whole process of daily teaching and practical training, and cultivate students' core qualities such as digital self-discipline, cross-border integrity, and network security through teaching methods such as foreign-related digital risk cases and cross-border network anomie scenario simulation.

6. Conclusion

This study, grounded in the perspective of post-curriculum alignment, systematically examined the demand structure, internal mechanism, and cultivation paths of digital literacy in foreign-related positions through a questionnaire survey of 168 valid respondents, combined with descriptive statistics, one-way ANOVA, PLS-SEM, and word frequency analysis. The findings can be summarized in three aspects.

First, foreign-related positions exhibit a high and differentiated demand for digital literacy across all six dimensions, with digital awareness scoring the highest ($M=4.3036$), and significant differences existing among position types ($F=5.279$, $p=0.002$), with digital trade positions showing the strongest demand. Second, the SEM results reveal the internal generation mechanism of digital literacy: digital knowledge and skills serve as the core hub ($\beta=0.552$), computational thinking acts as the key internal driving force (path value $\beta=0.239$, $T=5.451$), and digital social responsibility exerts an all-round empowering effect through three chain mediating paths, confirming that digital literacy is not a simple accumulation of isolated skills but a systematically interrelated competence network. Third, based on the empirical evidence, this study proposes three cultivation paths—building a modular post-curriculum integrated digital learning and practice platform, adding computational thinking and digital foreign language innovation training modules, and integrating digital social responsibility throughout the whole cultivation chain—thereby providing a practicable solution for the digital transformation of vocational foreign language talent cultivation and enriching the theoretical connotation of post-curriculum alignment by incorporating digital literacy as a core post competence into its logical system.

This study also has certain limitations. The sample size is relatively small, which may lead to certain deviations in the calculation results. In addition, the snowball sampling method adopted in this study may introduce sample selection bias. Future research will adopt more systematic sampling methods, increase the sample size, and improve the representativeness of samples and the wide applicability of research results. Longitudinal tracking of the actual improvement of students' digital literacy after the implementation of the proposed cultivation paths is also worth exploring in subsequent studies.

Acknowledgement

This paper is a phased research outcome of the project of the Advisory Committee of Foreign Language Teaching in Vocational Education, Ministry of Education, P.R. China, *Research on Digital Literacy Cultivation of Vocational Foreign Language Talents from the Perspective of Post-Curriculum Alignment* (Project No. WYJZW-202513506SH).

References

- [1] Office of the Central Cyberspace Affairs Commission. (2021). Action Outline for Improving National Digital Literacy and Skills. CCAC Website: http://www.cac.gov.cn/2021-11/05/c_1637789960231514.htm
- [2] State Council. (2025). Outline for Building a Powerful Education Country (2024–2035). State Council Website: https://www.gov.cn/zhengce/202501/content_6999913.htm
- [3] Julia Feerrar. (2019). “Development of a framework for digital literacy[J]. Reference Services Review, <https://doi.org/10.1108/RSR-01-2019-0002>
- [4] Liu Baocun, Cen Yu. (2023). Promoting digital talent cultivation with digital literacy framework. China Education Daily, https://paper.jyb.cn/zgjyb/html/2023-02/27/content_732556.htm
- [5] Qin Guofeng, Li Guoshuai, Mi Peiwen, Li Ming, Zheng Liyun, Zhang Yunli. (2022). Curriculum development in vocational education from the perspective of "post-curriculum-competition-certificate" integration: Essence, strategies and paths. Vocational and Technical Education, 43(32): 42-48.
- [6] UNESCO. (2019). SDG4 ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. UNESCO Website. <https://www.unesco.org/sdg4education2030/en/knowledge-hub/sdg-4-ensure-inclusive-and-equitable-quality-education-and-promote-lifelong-learning-opportunities>
- [7] The European Parliament and of the Council. (2006). Recommendation of the European Parliament and of the Council of 18 December 2006 on Key Competences for Lifelong Learning. Official Journal of the European Union, 394, 10-18.
- [8] Educational Information Technology Standardization Committee of the Ministry of Education. (2023). Notice on Public Solicitation of Opinions on 5 Industry Standards including the Draft for Comments of Metadata for Higher Education Teaching Resources. CELTSC Website: <http://www.celtsc.org/info/zqyj/531>
- [9] Eshet-Alkalai, Y. (2004). Digital literacy: A conceptual framework for survival skills in the digital era. Journal of Educational Multi-media and Hypermedia, 13, 93-106.
- [10] European Commission. (2016). DigComp 2.0. JRC Publications Repository. https://publications.jrc.ec.europa.eu/repository/bitstream/JRC101254/jrc101254_digcomp%202.0%20the%20digital%20competence%20framework%20for%20citizens.%20update%20phase%201.pdf
- [11] UNESCO. (2018). A global framework of reference on digital literacy skills for Indicator 4.4.2. UNESCO Website. <http://uis.unes-co.org/sites/default/files/documents/ip51-global-framework-refer-ence-digital-literacy-skills-2018-en.pdf>
- [12] European Commission. (2025). DigComp 3.0: European Digital Competence Framework. JRC Publications Repository. <https://publications.jrc.ec.europa.eu/repository/handle/JRC144121>
- [13] Xiong Zhang. (2024). Improving digital literacy and skills of primary and secondary school students to lay a solid foundation for building a powerful education country. Guang Ming Web Website: https://edu.gmw.cn/2024-04/07/content_37249492.htm
- [14] Yan Ming. (2024). A Conceptual Framework of Digital Literacy for Foreign Language Majors in China. Foreign Language Research, (02): 67-74.