

The spillover value of ideological and political education in vocational courses: an empirical study based on multi-regional institutions

Zhuo Wang^{1}, Xiaoxia Xie¹, Xinqiao Xu², Hongmei He³, Shaobo Lai⁴, Jing Chen⁵, Jiajun Chen⁶, Wei Zhao³, Yongping Chen⁷*

¹Guangdong Food and Drug Vocational College, Guangzhou, China

²Changzhou Institute of Industrial Technology, Changzhou, China

³Shenzhen City Vocational College, Shenzhen, China

⁴Guangzhou Mechatronics Technician College, Guangzhou, China

⁵Jiangsu Maritime Vocational and Technical College, Nanjing, China

⁶Shanwei Vocational and Technical College, Shanwei, China

⁷Guangzhou Songtian Vocational College, Guangzhou, China

*Corresponding Author. Email: 23282921@qq.com

Abstract. Against the backdrop of deepening Ideological and Political Education (IPE) reforms in vocational education, this study focuses on the "value spillover" effect of IPE in higher vocational courses on students' career development planning. Based on career development theory, we construct a theoretical model of "IPE—professional competence—learning interest—career development planning" and employ Structural Equation Modeling (SEM) to analyze empirical data from 449 students across six vocational institutions. The findings indicate that the direct effect of IPE on career development planning is not statistically significant ($\beta = 0.085$, $p = 0.277$). However, a significant indirect effect emerges through dual mediation by professional competence ($\beta = 0.523$, $p < 0.001$) and learning interest ($\beta = 0.323$, $p = 0.033$) (total indirect effect $\beta = 0.846$, $p < 0.001$). Among these, professional competence serves as a "core converter" playing a key mediating role, while learning interest functions as a "catalyst" that activates the subjective initiative of career development. The moderating effect of perceived teaching quality is not empirically supported ($p > 0.05$), suggesting that the educational efficacy of IPE relies more on long-term value immersion than immediate classroom experience. This study, for the first time, reveals the mechanism by which vocational education IPE "implicitly empowers" career development, confirming that it facilitates the transformation from "integration of ideological and political elements" to "enhancement of professional competence" through a synergistic pathway of shaping professional values, cultivating career abilities, and activating learning motivation. The findings provide practical guidance for vocational institutions in constructing "industry-education integrated learning communities", "embodied teaching models", and "developmental evaluation systems", thereby supporting the cultivation of technologically skilled talent with both moral and technical competencies and offering empirical support for theoretical innovation and practical reform in IPE within vocational education.

Keywords: ideological and political education, career development planning, professional competence, learning interest, Structural Equation Modeling (PLS-SEM), value spillover

1. Introduction

In recent years, the Chinese government has placed great emphasis on the integration of Ideological and Political Education (IPE) within higher vocational education. In 2020, the Ministry of Education issued the Guidelines for the Construction of Ideological and Political Education in Higher Education Courses, stressing the incorporation of ideological and political education into various courses to cultivate students' professional competence and social responsibility. The 2024 National Education Conference further emphasized that "building a strong education nation is a complex systemic project that must focus on the fundamental task of fostering virtue through education". As an essential component of higher education, vocational colleges are entrusted with the mission of training highly skilled, application-oriented talent. Consequently, deepening IPE reform and promoting students' career development has become a critical issue in contemporary vocational education reform.

Although prior studies have examined the role of IPE in ideological and political education, empirical research on its "value spillover" effect in the context of career development remains limited. In practice, students in vocational colleges generally exhibit weak awareness of career planning, lacking clear goals and pathways, which creates a gap between these realities and the educational objectives of IPE, which aim to cultivate moral and cultural literacy. Therefore, how to effectively implement IPE to enhance students' professional competence and career planning abilities has become an urgent problem to address.

Based on this context, this study constructs a research model grounded in career development theory and employs Structural Equation Modeling (SEM) to empirically analyze relevant influencing factors, revealing the "value spillover" effect of IPE in vocational courses. The study aims to provide theoretical support and empirical evidence for optimizing IPE practice in higher vocational institutions.

2. Literature review

2.1. How ideological and political education promotes career development planning

Career development theory posits that an individual's professional growth is jointly influenced by career cognition, social environment, and learning experiences [1]. Within this framework, IPE not only shapes students' career perspectives but also indirectly promotes career development by enhancing professional competence and learning interest [2].

In recent years, scholars have begun to focus on the "value spillover" effect of IPE, which suggests that IPE can not only enhance students' ideological and political literacy but also promote career development planning [3]. However, existing research primarily concentrates on the role of IPE in shaping values, with relatively limited attention to its indirect effects on career development planning. Therefore, this study focuses on the pathway through which IPE generates a "value spillover" effect via professional competence and learning interest.

First, IPE enhances students' career cognition and industry understanding through practical teaching, school-enterprise cooperation, and industry lectures, equipping them with stronger career planning capabilities [4]. Second, IPE emphasizes teamwork and social responsibility, improving students' communication skills, collaboration abilities, and professional ethics, thereby helping them better adapt to workplace environments

during career planning [5]. Additionally, IPE helps students establish correct professional perspectives while engaging in specialized learning, strengthening their confidence and sense of purpose in career planning [6].

2.2. The mediating role of professional competence and learning interest

Professional competence is an important indicator for evaluating students' vocational capabilities, encompassing professional awareness, professional knowledge, and professional skills [7]. Previous studies have shown that the professional competence of vocational college students exerts a direct influence on their career development planning, while ideological and political education in courses can effectively enhance the level of professional competence [8].

More specifically, such courses not only strengthen students' professional awareness through value-oriented guidance, but also improve their professional knowledge through industry practice, case analysis, and school-enterprise cooperation. In addition, they enhance students' professional skills through teamwork and interactive teaching. Therefore, professional competence plays a crucial bridging role in the process through which ideological and political education promotes career development planning.

In addition, learning interest plays a key role in the process of career development planning. Studies have found that students' interest in course content directly influences their learning engagement and motivation for career development [9]. Through value guidance and practice-oriented teaching, ideological and political education enables students to understand the real-world significance of the knowledge they acquire. This process increases learning interest, facilitates deeper internalization of knowledge, and strengthens vocational capabilities.

Existing research further indicates that professional competence not only has a direct impact on career development planning but may also function as a mediating variable between ideological and political education and career development planning. In other words, ideological and political education promotes career development planning by improving students' professional competence [10]. Similarly, learning interest may serve as another mediating pathway influencing the effect of ideological and political education on career development planning. Accordingly, this study hypothesizes that both professional competence and learning interest mediate the relationship between ideological and political education and career development planning, and this hypothesis is tested empirically.

2.3. The moderating role of perceived teaching quality in the impact of ideological and political education

Perceived teaching quality refers to students' overall learning experience regarding course content, teaching methods, and teacher-student interaction [11]. High-quality teaching can enhance the effectiveness of ideological and political education in courses and strengthen the influence of professional competence and learning interest on career development planning [12]. Specifically, teaching quality mainly involves several dimensions, including teaching performance, course structure, interactivity, learning value, assessment, and feedback [11].

Perceived teaching quality not only affects students' acceptance of course content but may also moderate the pathways through which ideological and political education influences professional competence and learning interest. For instance, higher perceived teaching quality may strengthen the positive effects of ideological and political education on professional competence and learning interest, thereby further promoting career development. Conversely, lower perceived teaching quality may weaken this facilitative effect. Therefore, this study further examines the moderating role of perceived teaching quality in the process through which ideological and political education influences career development.

In summary, ideological and political education in courses functions not only as an educational strategy for promoting career development planning but also as an important driver of professional competence and learning interest. By enhancing students' professional competence and learning interest, such education contributes to the improvement of career development planning. Meanwhile, perceived teaching quality plays a moderating role, influencing the effectiveness of ideological and political education in career development planning. Furthermore, because the mechanism through which ideological and political education affects career development planning is relatively complex and involves interactions among multiple variables, this study employs Structural Equation Modeling (SEM) for empirical analysis in order to systematically reveal its underlying mechanism.

2.4. The moderating role of perceived teaching quality in the impact of ideological and political education

Perceived teaching quality refers to students' experiences and evaluations of course content, teaching methods, and teacher–student interaction [11]. High-quality teaching can enhance the effectiveness of ideological and political education in courses and strengthen the influence of professional competence and learning interest on career development planning [12]. Specifically, teaching quality primarily encompasses several dimensions, including teaching performance, course structure, interactivity, learning value, assessment, and feedback [11].

Perceived teaching quality not only affects students' acceptance of course content but may also moderate the pathways through which ideological and political education influences professional competence and learning interest. For instance, higher levels of perceived teaching quality may strengthen the positive effects of ideological and political education on professional competence and learning interest, thereby further promoting career development. Conversely, lower perceived teaching quality may weaken this facilitating effect. Therefore, this study further explores the moderating effect of perceived teaching quality in the process through which ideological and political education influences career development.

In summary, ideological and political education in courses functions not only as an educational strategy for promoting career development planning but also as an important driver of professional competence and learning interest. By enhancing students' professional competence and learning interest, such education contributes to the improvement of career development planning. Meanwhile, perceived teaching quality plays a moderating role, influencing the effectiveness of ideological and political education in career development planning. Furthermore, because the mechanism through which ideological and political education affects career development planning is relatively complex and involves interactions among multiple variables, this study adopts Structural Equation Modeling (SEM) for empirical analysis in order to systematically reveal its underlying mechanism.

3. Research design

3.1. Research framework

This study constructs a conceptual model (Figure 1) to examine how ideological and political education in courses promotes students' career development planning by enhancing professional competence and learning interest, while also investigating the moderating role of perceived teaching quality.

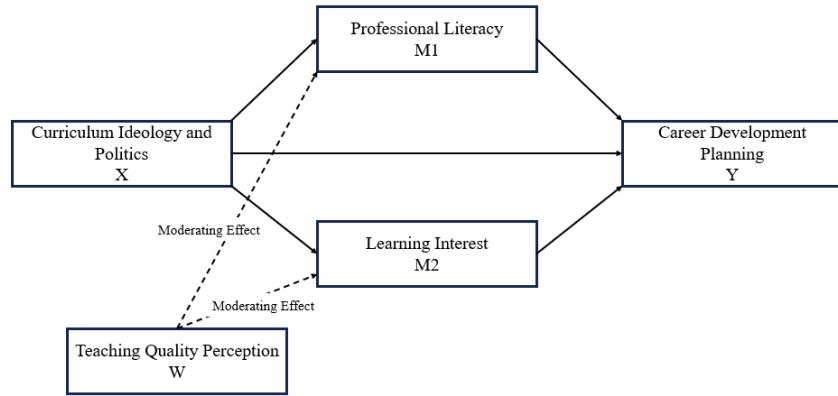


Figure 1. Path model of the impact of ideological and political education on career development planning

3.2. Variable measurement

To ensure the scientific rigor and validity of the measurements, this study draws upon well-established scales in related fields to operationalize each variable (Table 1).

Table 1. Scale design

Category	Variable	Dimension	Number of Items
Independent Variable	Ideological and Political Education in Courses [13]	Context Evaluation	7
		Input Evaluation	6
		Process Evaluation	6
		Outcome Evaluation	4
Dependent Variable	Career Development Planning [14]	Clarity of Career Preferences	6
		Clarity of Career Choice	4
		Practicality of Career Choice	4
Mediating Variable	Professional Competence Scale [7]	Professional Awareness	6
		Professional Knowledge	4
Mediating Variable	Learning Interest Scale [15]	Professional Ability	4
		Emotion	2
		Value	2
		Knowledge	2
		Engagement	2
Moderating Variable	Perceived Teaching Quality Scale [11]	Teaching Performance	2
		Course Structure	2
		Interactivity	2
		Learning Value	2
		Assessment and Feedback	2

All scales adopt a five-point Likert scale ranging from "strongly disagree" to "strongly agree". Higher scores indicate a higher level of the corresponding dimension.

3.3. Sample selection and data collection

3.3.1. Course selection

This study selected six vocational and technical colleges from different regions and disciplinary backgrounds in order to enhance the generalizability of the research findings. One representative course was chosen from each institution, resulting in a total of six courses. These included two national-level high-quality courses, one provincial-level high-quality course, one municipal-level high-quality course, and two institution-level high-quality courses. The selection criteria were as follows: (1) the course must explicitly incorporate ideological and political education elements; (2) the course should demonstrate a representative integration of professional instruction and ideological and political education; (3) the instructor must possess relevant experience in implementing ideological and political education within the course. These criteria ensured that the selected courses could effectively reflect the influence of ideological and political education on students' career development.

3.3.2. Questionnaire data collection

Based on the variable measurement framework described above, a questionnaire consisting of 69 items was developed. Prior to the main survey, a pilot test was conducted on a small sample to ensure clarity of wording and measurement reliability.

The questionnaire was distributed to students enrolled in the selected courses. A total of 565 questionnaires were collected, of which 449 were valid, yielding an effective response rate of 79.47%. The basic characteristics of the respondents were as follows: 201 males (44.77%) and 248 females (55.23%). Regarding grade distribution, 29 students were first-year students (6.46%), 152 were second-year students (33.85%), and 268 were third-year students (59.69%).

3.4. Data analysis methods

This study employed SPSS and Mplus for data analysis, including descriptive statistics, reliability and validity testing, correlation analysis, and Structural Equation Modeling (SEM). The Bootstrap method was used to test the mediating effects, while multi-group analysis or hierarchical regression analysis was conducted to evaluate the moderating effect of perceived teaching quality.

3.5. Pilot study and questionnaire optimization

Prior to the formal survey, a pilot study was conducted, which involved the following steps:

(1) Content validity assessment: Three experts—an educational researcher, a career development specialist, and a scholar specializing in ideological and political education—were invited to review the questionnaire. The Content Validity Index (CVI) for all items exceeded 0.8, indicating high content validity.

(2) Pilot survey and questionnaire refinement: A small-scale pilot survey involving 68 participants was conducted to collect feedback on item comprehension, clarity of wording, and the smoothness of the response process. Based on this feedback, several items were revised and optimized, improving the readability and measurement accuracy of the questionnaire.

(3) Reliability analysis: Reliability analysis of the pilot data showed that Cronbach's α coefficients for all scales exceeded 0.9, indicating a high level of internal consistency and measurement stability.

(4) Correlation analysis: Because the pilot sample size was relatively small ($N = 68$), it was not suitable for validity testing at that stage. Instead, preliminary Pearson correlation analysis was conducted. The results indicated significant positive correlations among the main variables, consistent with theoretical expectations and providing preliminary data support for subsequent causal relationship testing.

Through these pilot study and questionnaire optimization procedures, the scientific rigor and validity of the instrument were ensured, thereby establishing a solid foundation for the formal survey.

4. Research results

Based on the analysis of 449 valid questionnaire responses, this study investigates the mechanism through which ideological and political education in courses influences the career development planning of higher vocational students. Particular attention is given to the mediating roles of professional competence and learning interest, as well as the moderating role of perceived teaching quality.

4.1. Reliability and validity analysis

To ensure the reliability and validity of the measurement scales, reliability and validity tests were conducted, as shown in Table 2.

Table 2. Reliability and convergent validity analysis of variables

Variable	Cronbach's alpha	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Ideological and Political Education in Courses	0.991	0.992	0.840
Professional Competence	0.987	0.988	0.856
Learning Interest	0.980	0.983	0.877
Perceived Teaching Quality	0.985	0.986	0.878
Career Development Planning	0.964	0.974	0.902

The reliability and validity of the scales were examined in this study. All Cronbach's α coefficients exceeded 0.9, indicating strong internal consistency. Composite Reliability (CR) values were all above 0.974, and the Average Variance Extracted (AVE) values were greater than 0.840. In addition, all factor loadings were above 0.7, meeting the criteria proposed by Fornell and Larcker in 1981. These results demonstrate that the measurement scales possess high reliability and convergent validity, making them suitable for subsequent statistical analyses.

4.2. Structural equation model analysis

To test the research hypotheses, this study employed Structural Equation Modeling (SEM). The model fit indices are presented in Table 3.

The results indicate that the SRMR value (0.060) is below 0.08, which meets the recommended criterion proposed by Hu and Bentler in 1999, suggesting that the model demonstrates a satisfactory fit.

Table 3. Structural equation model fit indices

Index	Saturated Model	Estimated Model
Standardized Root Mean Square Residual (SRMR)	0.029	0.060
d_ ULS (Unweighted Least Squares Discrepancy)	1.444	6.277
d_ G (Geodesic Discrepancy)	4.335	4.804
Chi-square	9,285.576	9,846.829
(Normed Fit Index (NFI))	0.827	0.817

4.3. Analysis of direct and mediating effects

4.3.1. Direct effect analysis

To examine the direct relationships among the variables, Structural Equation Modeling (SEM) was used to analyze the path coefficients. The results are presented in Table 4.

Table 4. Direct effect path analysis

Path	Total Effect (β)	t-value	p-value	Confidence Interval (95% CI)	Result
Ideological and Political Education → Career Development Planning	0.085	1.087	0.277	[-0.066, 0.243]	Not significant
Ideological and Political Education → Professional Competence	0.911	50.068	0.000	[0.868, 0.940]	Significant
Ideological and Political Education → Learning Interest	0.871	36.038	0.000	[0.818, 0.912]	Significant
Professional Competence → Career Development Planning	0.575	4.045	0.000	[0.262, 0.813]	Significant
Learning Interest → Career Development Planning	0.370	2.151	0.032	[0.092, 0.765]	Significant
Perceived Teaching Quality → Career Development Planning	-0.067	0.601	0.548	[-0.295, 0.140]	Not significant

Note: $p < 0.05$ indicates statistical significance.

The results show that the direct effect of ideological and political education in courses on career development planning is not statistically significant ($\beta = 0.085$, $p = 0.277$). However, ideological and political education has significant positive effects on both professional competence ($\beta = 0.911$, $p < 0.001$) and learning interest ($\beta = 0.871$, $p < 0.001$). Furthermore, professional competence ($\beta = 0.575$, $p < 0.001$) and learning interest ($\beta = 0.370$, $p = 0.032$) both exert significant positive influences on career development planning. In contrast, perceived teaching quality and its interaction terms with professional competence and learning interest do not have significant effects on career development planning.

4.3.2. Mediating effect analysis

To determine whether ideological and political education indirectly influences career development planning through professional competence and learning interest, the mediating effects were tested using the Bootstrap method. The results are presented in Tables 5–7.

Table 5. Total effect of ideological and political education on career development planning

Path	Total Effect (β)	t-value	p-value	Confidence Interval (95% CI)	Result
Ideological and Political Education → Career Development Planning	0.931	9.502	0.000	[0.743, 1.125]	Significant

The results indicate that the total effect of ideological and political education on career development planning is significant ($\beta = 0.931$, $p < 0.001$), whereas the direct effect is not significant, suggesting the presence of mediating effects.

Table 6. Total indirect effect of ideological and political education on career development planning

Path	Total Effect (β)	t-value	p-value	Confidence Interval (95% CI)	Result
Ideological and Political Education → Career Development Planning	0.846	9.772	0.000	[0.676, 1.015]	Significant

The test of the total indirect effect shows that ideological and political education exerts a significant indirect influence on career development planning through professional competence and learning interest ($\beta = 0.846$, $p < 0.001$).

Table 7. Specific indirect effects of ideological and political education on career development planning

Path	Total Effect (β)	t-value	p-value	Confidence Interval (95% CI)	Result
Ideological and Political Education → Professional Competence → Career Development Planning	0.523	4.065	0.000	[0.238, 0.740]	Significant
Ideological and Political Education → Learning Interest → Career Development Planning	0.323	2.129	0.033	[0.080, 0.668]	Significant

The analysis of specific indirect effects indicates that ideological and political education significantly influences career development planning through two mediating variables: professional competence ($\beta = 0.523$, $p < 0.001$) and learning interest ($\beta = 0.323$, $p = 0.033$). Among these pathways, the indirect effect through professional competence is stronger.

In summary, the influence of ideological and political education on career development planning is primarily realized through improvements in students' professional competence and learning interest rather than through a direct effect. This finding suggests that strengthening ideological and political education in

vocational courses can enhance students' professional competence and learning interest, thereby promoting more effective career development planning.

4.4. Moderating effect analysis

To examine the moderating role of perceived teaching quality in the relationships between professional competence, learning interest, and career development planning, interaction terms were analyzed using Structural Equation Modeling (SEM). The results are presented in Table 8.

Table 8. Moderating effect path analysis

Path	Total Effect (β)	t-value	p-value	Confidence Interval (95% CI)	Result
Perceived Teaching Quality \times Professional Competence \rightarrow Career Development Planning	0.052	0.328	0.743	[-0.187, 0.415]	Not significant
Perceived Teaching Quality \times Learning Interest \rightarrow Career Development Planning	-0.041	0.260	0.795	[-0.405, 0.194]	Not significant

The results indicate that the interaction term between perceived teaching quality and professional competence ($\beta = 0.052$, $p = 0.743$), as well as the interaction term between perceived teaching quality and learning interest ($\beta = -0.041$, $p = 0.795$), do not have significant effects on career development planning. This suggests that perceived teaching quality does not significantly moderate the effects of professional competence and learning interest on career development planning.

Based on these findings, the model was optimized by removing three paths: Ideological and Political Education \rightarrow Career Development Planning, Perceived Teaching Quality \times Professional Competence \rightarrow Career Development Planning, and Perceived Teaching Quality \times Learning Interest \rightarrow Career Development Planning, in order to improve the model's parsimony and explanatory power. The final structural relationships of the optimized model are illustrated in Figure 2.

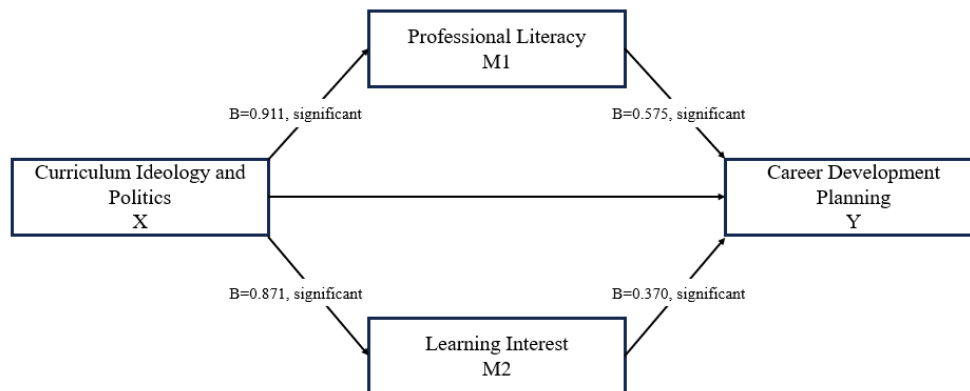


Figure 2. Structural equation model analysis

5. Conclusion

5.1. Theoretical contributions: deconstructing the vocational education logic of the "value spillover" of ideological and political education

This study moves beyond the traditional perspective that confines ideological and political education in courses primarily to political and moral instruction. Drawing on career development theory, it reveals the mechanism through which such education produces a "value spillover" effect on the career development planning of higher vocational students. In doing so, it constructs a chain model of influence: "ideological and political education in courses—professional competence—learning interest—career development planning".

The findings indicate that although the direct impact of ideological and political education on career development planning is not statistically significant, it generates a strong indirect driving effect through the dual mediating pathways of professional competence and learning interest. Among these, professional competence functions as a "core converter", transforming the value guidance of ideological and political education into an intrinsic driving force for the development of vocational capabilities. Learning interest, in turn, acts as a "catalytic factor", activating students' subjective initiative in career development.

These findings not only expand the theoretical scope of ideological and political education within the field of vocational education but also reaffirm the distinctive characteristics of vocational education, which emphasize the integration of moral cultivation and technical skill development as well as the combination of learning and practice. In essence, the educational value of ideological and political education in courses lies in transforming "ideological and political elements" into enhanced professional competence by shaping vocational values, strengthening professional identity, and cultivating vocational abilities. Ultimately, this transformation serves students' career growth and lifelong development.

Furthermore, the study finds that perceived teaching quality does not exhibit a significant moderating effect. This result not only leaves room for further exploration in future research but also indirectly suggests that the "value spillover" of ideological and political education possesses a degree of relative independence. Its core effectiveness does not rely primarily on short-term improvements in classroom teaching experience; rather, it emerges from the deep integration of long-term value cultivation and the development of vocational capabilities. This insight further deepens the understanding of the distinctive dynamics of ideological and political education in vocational courses: compared with the explicit outcomes of knowledge transmission, its educational impact is more prominently reflected in the implicit construction of professional competence and the gradual shaping of vocational values.

5.2. Practical implications: constructing a value-spillover-oriented paradigm for ideological and political education in courses

The findings provide three innovative practical pathways for vocational institutions seeking to advance reforms in ideological and political education in courses.

(1) Anchoring the advancement of professional competence and building an industry–education integrated community for ideological and political cultivation.

The key mediating role of professional competence indicates that ideological and political education must move beyond the boundaries of the traditional classroom. Elements such as professional ethics, vocational morality, and the spirit of craftsmanship should be deeply integrated into professional teaching standards. Through collaborative initiatives—such as jointly developing ideological and political case libraries with industry partners, establishing industry-mentor workshops, and implementing workplace-oriented practical teaching—students can better understand fundamental questions in real occupational contexts: why work, how

to work, and how to become an outstanding professional. This approach facilitates the transition from the passive reception of ideological knowledge to the internalization of professional competence. For instance, courses in mechatronics can incorporate case studies of exemplary national craftsmen, while business and trade programs can integrate themes such as integrity in business and social responsibility, enabling ideological and political education to resonate with professional skill development.

(2) Activating the "engine of learning interest" and innovating embodied forms of ideological and political teaching.

The significant role of learning interest suggests that ideological and political education should move away from one-dimensional theoretical instruction and adopt a multidimensional design characterized by value guidance, interest stimulation, and behavioral transformation. Project-Based Learning (PBL) can allow students to experience the professional significance of their studies while solving authentic vocational problems. Virtual simulation technologies can be used to create immersive ideological and political learning environments, and career planning workshops can transform ideological elements into tangible and participatory themes for personal development. In this way, students develop sustained motivation for career development through active exploration. For example, nursing courses may include scenario simulations on the spirit of pandemic response and professional mission, while computer science programs can organize case discussions on technological ethics and responsibility, thereby transforming ideological and political education into a form of developmental empowerment aligned with students' professional aspirations.

(3) Moving beyond perceptions of teaching quality and establishing a developmental evaluation system for ideological and political education.

Although perceived teaching quality does not demonstrate a significant moderating effect, this finding does not negate the foundational role of high-quality teaching. Rather, it suggests that the evaluation of ideological and political education should shift from a focus on immediate classroom experiences to long-term developmental outcomes. Vocational institutions should therefore establish a four-dimensional evaluation framework encompassing input, process, output, and spillover. In addition to monitoring traditional indicators such as classroom interaction and instructional design, greater attention should be paid to long-term outcomes such as improvements in students' professional competence and their career planning abilities. Mechanisms such as graduate follow-up surveys and employer satisfaction interviews can provide valuable feedback, forming a closed-loop system linking the educational value of ideological and political courses, career development outcomes, and alignment with societal needs. Such an approach will promote the transformation of ideological and political education from formal integration to substantive value infusion.

5.3. Research prospects: toward a more explanatory theoretical system of ideological and political education in vocational education

This study still presents three avenues for further exploration. First, the regional characteristics of the sample may limit the generalizability of the findings. Future research could include higher vocational colleges across different administrative levels and major disciplines to explore typological differences in the "value spillover" of ideological and political education in courses. Second, the "silence" of the moderating effect of perceived teaching quality may stem from the current scales' insufficient reflection of the specificities of vocational education (e.g., practical teaching quality, depth of industry-education integration). There is a need to develop teaching quality assessment tools more tailored to vocational education contexts. Third, this study has not addressed the frontier issue of how course-based ideological and political education operates for the career development of new-generation vocational students in the digital era. Future research could explore new value spillover pathways enabled by technologies such as metaverse-based teaching and digital literacy cultivation.

5.4. Research conclusions: highlighting the educational tension of ideological and political education in the modernization of vocational education

This study not only reveals the indirect driving mechanism of course-based ideological and political education on vocational students' career development planning but also sketches the grand vision of "ideological empowerment of vocational growth". When the core values of ideological and political education are deeply coupled with the typological characteristics of vocational education, course-based ideological and political education transcends a simple "curriculum plus ideology" model and becomes a central engine for cultivating the new-generation technical and skilled talents who are idealistic, responsible, resilient, and diligent. This "value spillover" effect essentially represents a vivid practice of implementing the fundamental task of fostering virtue through education in vocational settings. It is a concrete manifestation of "educating for the Party and nurturing talents for the country" within the vocational education sector.

In the new journey toward building an education powerhouse and promoting Chinese-style modernization, higher vocational colleges can take this study as a starting point to continuously deepen course-based ideological and political education reforms. Every course can become an incubator for vocational literacy, and every teaching session a sowing ground for career ideals. In this way, students can master professional skills while establishing correct career perspectives, values, and life outlooks. Only then can vocational education cultivate a reserve force of highly skilled professionals with a strong sense of national responsibility, allowing the "value spillover" of ideological and political education to ultimately converge into a powerful momentum that serves national strategies and contributes to the rejuvenation of the nation.

References

- [1] Fang, W. (2022). Exploring the construction of a theoretical system for career development education with Chinese characteristics for college students. *Journal of National Academy of Education Administration*, 7, 10–18.
- [2] He, H. (2024). Exploration of integrating ideological and political education into career planning teaching: A case study. *Advances in Social Sciences*, 13(1), 300–305. <https://doi.org/10.12677/ass.2024.131041>
- [3] Han, B., Wu, M., & Peng, R. (2022). Research on exploring ideological and political elements in software engineering courses. *Developmental Pedagogy*, 3(8). <https://doi.org/10.12184/wspzfjyxWSP2634-793808.20220308>
- [4] Liu, B. (2022, August 27). Promoting high-quality ideological and political curriculum construction by grasping five "dimensions." *China Education Daily*, p. 4.
- [5] Han, L., & Dong, X. (2024). Research on the collaborative education mechanism between ideological and political courses and curriculum-based ideological and political education. *Youth Journal*, 3(3), 61–66.
- [6] Liu, D. (2020). Research on the construction of a career planning curriculum group for higher vocational students based on the improvement of core career competencies. *Innovation and Practice in Teaching Methods*, 3(10), 83. <https://doi.org/10.26549/jxjffxysj.v3i10.5384>
- [7] Zhang, X., & Hu, Z. (2010). A quantitative evaluation method for vocational literacy of higher vocational students. *Vocational and Technical Education*, 2, 56–58, 93.
- [8] Li, Q. (2023). Cultivation of students' vocational literacy in higher vocational colleges from the perspective of curriculum-based ideological and political education. *Advances in Education*, 13(6), 3897–3901.
- [9] Gu, J. (2023). The impact of perceived quality of employment guidance courses on undergraduates' vocational literacy: The mediating role of learning engagement. *Vocational Education Development*, 12(1), 55–60.
- [10] Lou, S., & Ma, C. (2021). The focal objectives, key challenges, and development directions of curriculum-based ideological and political education in the new era. *Journal of Xinjiang Normal University (Philosophy*

- and Social Sciences Edition*), 5, 96–104. <https://doi.org/10.14100/j.cnki.65-1039/g4.20210111.001>
- [11] Marsh, H. W. (1992, April 20–24). *A longitudinal perspective of students' evaluations of university teaching: Ratings of the same teachers over a 13-year period*. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA.
- [12] Zhang, L. (2021). Reform path of "curriculum ideological and political education" in professional courses of higher vocational colleges. *Frontiers of Modern Education*, 1(4), 15. <https://doi.org/10.33142/fme.v1i4.3341>
- [13] Xu, X., & Wang, J. (2022). Construction of a comprehensive evaluation index system for curriculum-based ideological and political education in universities: A theoretical framework based on the CIPP evaluation model. *Journal of Higher Education Management*, 1, 47–60. <https://doi.org/10.13316/j.cnki.jhem.20211224.005>
- [14] Wulandari, A., Rahman, D. H., & Hambali, I. M. (2023). The development and validation of student career planning inventory (SCPI). *ProGCouns: Journal of Professionals in Guidance and Counseling*, 4(2), 62–70.
- [15] Luo, Z., Dang, Y., & Xu, W. (2019). Academic interest scale for adolescents: Development, validation, and measurement invariance with Chinese students. *Frontiers in Psychology*, 10, 2301.