

A Study of the Relationship between Labor Education and Vocational Competence Development of Undergraduate Preschool Education Teacher Trainees

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Abstract: Taking undergraduate preschool education teacher-training students as the target, this study explores the relationship between labor education and vocational ability cultivation. Using the empirical analysis method of SPSS and taking curriculum construction and practice content as the main carrier, it explores the relationship under five fields. The status of labor education for preschool education teacher trainees in the five fields is average and needs improvement, while their self-assessment of vocational competence is relatively good. Therefore, to cultivate the vocational ability of these students, it should optimize the combination of labor education and practical content to improve the quality of labor education in the five fields; construct an oriented cultivation system with enhancing vocational ability as an important part and formulate a scientific top-level structure of labor education; strengthen the leading role of labor education in the social field; and promote the synergistic development of multifield labor education.

Keywords: Preschool Education, Undergraduate, Labor Education, Vocational Ability, Practice Integration

1. Formulation of the problem

The Opinions on Strengthening Labor Education in the New Era emphasize labor education as a component of China's socialist education system, shaping the labor spirit, values, and skills of future builders. As the foundation of basic education, preschool education must integrate labor education into its system^[4]. The Kindergarten Work Regulations highlight the critical role of health, language, society, science, and art (the "five fields") in early childhood education. With evolving population dynamics socioeconomic needs, the vocational competencies required for preschool teachers—especially in applying labor practices across these five fields—are increasingly demanding, necessitating improved educator training quality. However, current labor literacy cultivation in university preschool education programs falls short of expectations^[5].

Key challenges include inadequate integration between labor education and five-field practices, which fails to meet students' needs for foundational preschool education skills and knowledge. Additionally, the absence of a competency-oriented cultivation system with scientific top-level design hinders integration between preschool education majors and university labor courses. Furthermore, insufficient practical implementation of labor education in the five fields limits its positive impact on developing students' vocational abilities.

To address these, this study examines university preschool education programs, using curriculum development and practical training as carriers for labor education. By integrating the five fields, it explores the relationship between labor education and vocational competence, aiming to deepen their practical integration and cultivate high-quality preschool educators.

2. Research design

2.1 Subject of the study

This study targets preschool education majors to investigate the practical integration of labor education and vocational ability cultivation. To ensure representativeness, it samples students from different grades, distributing 643 paper and electronic questionnaires via major social platforms (Xiaohongshu, Weibo, WeChat). After excluding invalid responses, 267 valid questionnaires are retained. Using SPSS 25.0 for statistical analysis, the research aims to: 1) assess the current status of labor education integration in Chinese universities offering preschool education programs; 2) explore how labor education in health, language, science, society, and art ("five fields") influences students' vocational competencies; and 3) provide theoretical and practical guidance for integrating labor education into professional training systems.

2.2 Research tools

The study uses a self-developed questionnaire for preschool teacher trainees. It has two sections: basic demographics and a 40-item main section with a Likert scale, assessing labor education participation, learning outcomes in five domains, and professional competence development.

Guided by the recognition of labor education's role in holistic child development, the questionnaire has four sub-questions per domain to gauge students' engagement and gains. Scholars emphasize integrating labor education with professional training to cultivate students' labor awareness and competencies for adapting to early childhood education demands. Teacher professional literacy, examined across four dimensions, is framed as a core competency for career readiness, aligning with curricular reforms for early childhood educators.

2.3 Reliability test of the questionnaire

In this study, the Cronbach α coefficient was used to estimate the consistency reliability of the scale and the results showed that the coefficient of the total questionnaire was $0.976 > 0.9$, which has high reliability. The KMO value was $0.970 > 0.8$, which shows that this questionnaire has high validity.

2.4 The overall situation of the sample

Table 1 Sample Personal Status Statistical Tables

form	subcategory	Percentage (%)
distinguishing between the sexes	females	59.6
	a male	40.4
school level	"985" and "211" project institutions	10.5
	Key undergraduate colleges and universities in each province	19.1
	General undergraduate colleges and universities in all provinces	39
	Independent colleges and private undergraduate institutions	17.6
	Specialized high school	13.9
grade	first-year university student	11.2
	second-year university student	34.8
	third-year university student	38.6
	fourth-year university student	15.4

2.4.1 Personal situation

As shown in Table 1: (1) Gender: 59.6% female, 40.4% male, females slightly more. (2) Institutional level: "985/211" universities (10.5%), provincial key undergraduates (19.1%), ordinary undergraduates (39%), independent/private universities (17.6%), vocational colleges (17.6%). Undergraduates dominated, vocational college respondents 13.9% of females, 40.4% of males, education mix balanced but undergraduates skewed. (3) Grade level: Freshmen (11.2%), sophomores

(34.8%), juniors (38.6%), seniors (15.4%), differed by academic tasks and survey motivation. (4) City size: Medium (38.6%) and large cities (36.3%) dominated, smaller shares in small (10.9%), mega (8.2%), megacities (6%), urban distribution dispersed. (5) Geography: Concentrated in North (13.5%), East (20.2%), Central (16.1%), South China (36%), Northeast (6.4%), Southwest (6.7%), Northwest China (1.1%) underrepresented, regional imbalance.

2.4.2 Family situation

Family location: The family location of the sample is mainly urban, accounting for 67.8% of the sample, showing a strong tendency towards urbanization. A certain percentage (32.2%) of the sample also came from rural areas, indicating that the geographical distribution of the sample is broad and representative.

3. Research and analysis

The situation of teacher trainees in pre-school education in the five main areas of labor education is average and needs to be improved.

Table 2 Results of the survey on labor education of preschool teacher trainees under the five

	N	minimum value	maximum values	average value	Standard Deviation
Labor education in the field of health	267	1.00	5.00	3.8333	.91038
Labor education in the field of language	267	1.00	5.00	3.8521	.81925
Labor education in the social sphere	267	1.00	5.00	3.9682	.77096
Labor education in the field of science	267	1.00	5.00	3.9148	.79501
Labor education in the field of art	267	1.00	5.00	3.9419	.78932

This study surveyed 267 preschool teacher trainees on five labor education domains (health, language, social studies, science, art), using SPSS for analysis.

As shown in Table 2, all domains scored below 4 (5-point scale), indicating moderate performance. Most reported "average" experiences, with no domain rated "excellent." The health domain had the lowest score, suggesting gaps in physical activity/hygiene education—likely from student neglect or curricular design issues. While language, social studies, science, and art scored slightly higher than health, all require enhancement to meet vocational readiness needs.

Table 3 Table of results of the survey of professional competence of preschool teacher trainees

	Examples of problems	score
Competence in practicing teacher ethics	I am able to consciously practice socialist core values in my teaching practice.	4.20 ± 0.71
Competence in Conservation and Education Practices	I am able to rationalize and organize the main aspects of the kindergarten day.	4.08 ± 0.68
Integrated parenting capacity	I am able to seize educational opportunities in the day's life and carry out random education.	4.10 ± 0.68
Capacity for autonomous development	I have a sense of lifelong learning and self-development and focus on self-renewal.	4.07 ± 0.69

Table 4: Table of results of correlation analysis between labor education and vocational ability

	Labor education in the field of health	Labor education in the field of language	Labor education in the social sphere	Labor education in the field of science	Labor education in the field of art	Competence in practicing teacher ethics	Competence in Conservation and Education Practices	Integrated parenting capacity	Capacity for autonomous development	Overall labor education scale under the five domains	Pre-school teacher trainee career competency scale overall
Labor education in the field of health	1	.788**	.786**	.789**	.692**	.586**	.680**	.623**	.603**	.899**	.660**
Labor education in the field of language		1	.827**	.823**	.774**	.612**	.697**	.664**	.665**	.927**	.699**
Labor education in the social sphere			1	.790**	.766**	.646**	.706**	.684**	.670**	.915**	.718**

Labor education in the social sphere			1	.790**	.766**	.646**	.706**	.684**	.670**	.915**	.718**
Labor education in the field of science				1	.792**	.587**	.704**	.658**	.640**	.922**	.686**
Labor education in the field of art					1	.701**	.720**	.692**	.684**	.882**	.742**
Competence in practicing teacher ethics						1	.837**	.849**	.830**	.688**	.934**
Competence in Conservation and Education Practices							1	.890**	.822**	.771**	.941**
Integrated parenting capacity								1	.880**	.729**	.959**
Capacity for autonomous development									1	.716**	.937**
Overall labor education scale under the five domains										1	.770**
Pre-school teacher trainee career competency scale overall											1

Note: ** indicates $P < 0.01$, * indicates $P < 0.05$.

3.1 Correlation analysis

As is shown in Table 3 and Table 4, correlation analysis indicated significant positive correlations between labor education in the five domains and all four occupational competencies of preschool teacher educators.

(1) Table 4 shows significant positive correlations between labor education in the five domains and all four occupational competencies ($r > 0.586^{**}$, $p < 0.01$), indicating that enhanced labor education corresponds to higher competencies. This confirms the key role of labor education in improving preschool teachers' vocational abilities.

(2) A strong correlation exists between the overall scales ($r = 0.770^{**}$), demonstrating that systematic labor education holistically enhances vocational skills.

It is worth noting that the positive correlation between labor education and vocational competence in the five fields does not mean that labor education can significantly affect vocational competence, and the conclusion of vocational competence must be drawn through linear regression. The above correlation analysis results also provide a reliable data basis and guarantee subsequent research on the influencing factors.

3.2 Analysis of influencing factors

(1) Labor education in the social domain most significantly affected vocational competence.

Table 5 Table of linear regression results of labor education and overall vocational competence in five fields

mould	Unstandardized coefficient		standardized factor	t	significance	covariance statistics
	B	standard error	Beta			VIF
(Constant)	1.390	.138		10.041	.000	
Labor education in the field of health	.080	.051	.113	1.580	.115	3.443

Labor education in the field of language	.076	.065	.096	1.167	.244	4.593
Labor education in the social sphere	.190	.066	.225	2.874	.004	4.159
Labor education in the field of science	.022	.066	.027	.330	.742	4.410
Labor education in the field of art	.326	.057	.396	5.708	.000	3.261
R ²				0.615		
F				83.377		
P				<0.001		
Dependent variable: professional competence of preschool teacher trainees						

Table 5 shows VIF values below 5, indicating no multicollinearity. The regression model was significant (F=83.377, p<0.001), with at least one independent variable affecting occupational competence. The analysis confirms that the social domain of labor education independently and positively influences vocational ability: improved social domain education enhances overall competence. Thus, colleges should prioritize social domain labor education for preschool teacher trainees. The other domains (health, language, science, and art) showed no significant impact, suggesting a reduced resource allocation.

(2) Both social and art domain labor education independently and positively affect ethical practice, parenting skills, and autonomy.

Table 6 Table of linear regression results of labor education and teachers' ability to practice ethics in the five domains

mould	Unstandardized coefficient		standardized factor	t	significance	covariance statistics
	B	standard error	Beta			VIF
(Constant)	1.493	.169		8.842	.000	
Labor education in the field of health	.099	.062	.126	1.597	.112	3.417
Labor education in the field of language	.024	.079	.028	.308	.758	4.564
Labor education in the social sphere	.207	.080	.224	2.580	.010	4.150
Labor education in the field of science	-.110	.080	-.123	-1.371	.172	4.397
Labor education in the field of art	.466	.070	.517	6.693	.000	3.276
R ²				0.526		
F				57.759		
P				<0.001		
Dependent variable: ability to practice teacher ethics						

Table 7 Table of linear regression results of labor education and comprehensive parenting capacity in five fields

mould	Unstandardized coefficient		standardized factor	t	significance	covariance statistics
	B	standard error	Beta			VIF
(Constant)	1.416	.156		9.055	.000	
Labor education in the field of health	.059	.057	.079	1.024	.307	3.443
Labor education in the field of language	.076	.074	.092	1.028	.305	4.593
Labor education in the social sphere	.208	.074	.238	2.796	.006	4.159
Labor education in the field of science	.065	.074	.076	.871	.385	4.410

Labor education in the field of art	.277	.064	.324	4.302	.000	3.261
R ²				0.547		
F				62.999		
P				<0.001		
Dependent variable: integrated parenting capacity						

Table 8 Table of results of linear regression of labor education and autonomy development ability in five fields

mould	Unstandardized coefficient		standardized factor	t	significance	covariance statistics
	B	standard error	Beta			VIF
(Constant)	1.370	.163		8.424	.000	
Labor education in the field of health	.036	.060	.047	.600	.549	3.443
Labor education in the field of language	.139	.077	.165	1.816	.071	4.593
Labor education in the social sphere	.194	.077	.216	2.501	.013	4.159
Labor education in the field of science	.030	.077	.034	.383	.702	4.410
Labor education in the field of art	.290	.067	.331	4.324	.000	3.261
R ²				0.531		
F				59.145		
P				<0.001		
Dependent variable: capacity for autonomous development						

(3) Tables 6-8 show all VIFs <5, indicating no multicollinearity. Significant regression models ($F = 57.759 - 62.999$, all $p < 0.001$) confirm at least one independent variable affects each dependent variable. Multiple linear regression reveals teachers' moral practice, parenting, and independent development abilities are positively influenced ($P < 0.05$) by either social or art domain labor education. Specifically, enhanced such education strengthens these occupational abilities.

(4) Labor education in the health, social, and artistic fields has an independent positive impact on the practical skills of care and education.

Table 9 Results of linear regression of labor education and care and education practice competencies in five domains

mould	Unstandardized coefficient		standardized factor	t	significance	covariance statistics
	B	standard error	Beta			VIF
(Constant)	1.283	.147		8.733	.000	
Labor education in the field of health	.128	.054	.172	2.370	.019	3.443
Labor education in the field of language	.065	.069	.079	.940	.348	4.593
Labor education in the social sphere	.150	.070	.170	2.136	.034	4.159
Labor education in the field of science	.102	.070	.120	1.463	.145	4.410
Labor education in the field of art	.270	.061	.315	4.464	.000	3.261
R ²				0.602		
F				79.057		
P				<0.001		
Dependent Variable: Competence in Care and Education Practices						

As shown in Table 9, the VIF is all less than 5, which means that there is no multicollinearity

between all the variables. The F value is 79.057, and the P is less than 0.001, which means that the regression equation is significant and that at least one of the five independent variables can significantly affect the dependent variable, the ability of childcare and educational practice. Through multiple linear regression analysis, it is concluded that the practical ability of care and education as one of the occupational competencies is independently influenced and positively influenced by the five domains of labor education in the health, social, and artistic domains of labor education. That is to say, labor education in the health, social, or art fields can significantly and positively influence the practical ability of care and education, and the better the labor education in the health, social, or art fields, the stronger the practical ability of care and education.

4. Discussion and recommendations

To elevate labor education quality for preschool education majors, strategies should focus on: optimizing integration with practical content, building a competency-oriented training system, strengthening social-domain labor education leadership, and promoting multidisciplinary synergy. Through curricular reform, cross-field learning, multi-stakeholder collaboration, and improved evaluation mechanisms, vocational literacy and practical skills can be enhanced, cultivating talents aligned with new-era early childhood education demands.

(1) Optimizing Labor Education Integration Across Five Domains

Labor education in health, language, social studies, science, and art for preschool teacher trainees aligns with the "morality, intelligence, physical, aesthetic, and labor" education framework while addressing societal needs for high-quality educators. Survey results show moderate performance in these domains, with low participation and skill proficiency—challenges that hinder vocational development and adaptability to evolving educational contexts. Modern early childhood educators require not only strong disciplinary knowledge but also flexible teaching methods, educational insight, and ethical standards, necessitating seamless integration of theoretical knowledge with five-domain practices to foster children's holistic growth.

Colleges must prioritize curricular innovation: deepen students' understanding of labor education's value through reformed courses, encourage cross-domain projects to ignite engagement and creativity, and bridge theory-practice gaps. Such efforts are critical to cultivating professionals capable of meeting 21st-century preschool education demands, ensuring graduates possess the vocational competence to drive sustainable development in early childhood education.

(2) Building a Vocational Competency-Oriented System

Establishing a standardized labor education mechanism rooted in "resource sharing and shared responsibility"^[1] is critical. Government bodies should integrate labor education into preschool and undergraduate curricula, ensuring alignment with disciplinary goals and quality supervision^[2]. Universities, as key implementers, must bridge kindergartens (practice) and academia (theory) to unify vocational and professional training^[3], enhancing students' grasp of theory, skills, and internships.

(3) Strengthening Social-Field Leadership

Social-domain labor education positively impacts overall vocational ability^[4]. Colleges should prioritize partnerships with kindergartens to build tripartite synergies, cultivating labor literacy and practical skills. Actions include expanding cooperative bases, diversifying internships, and sharing resources—aligning theory with early childhood education demands to boost graduate adaptability.

(4) Promoting Multidisciplinary Synergy

Strong social/art/health domain performance correlates with ethical practice, educational skills, and independent development^[5]. Institutions should: 1) integrate health, social studies, and art into labor curricula via holistic assessment to enhance engagement; 2) encourage cross-field participation through internships, childcare coordination, art activities, and health competitions, aligning with Kindergarten Teacher Standards to embed holistic values^[4].

5. Conclusions

This study investigated the relationship between labor education and vocational ability cultivation among undergraduate preschool education teacher-training students. We examined this relationship

across five educational domains, with curriculum construction and practice content as primary carriers. Key findings indicate that while students' self-assessed vocational competence remains relatively strong, the current state of labor education across all five domains demonstrates average performance, suggesting a considerable need for improvement. To enhance vocational ability cultivation, we propose the following recommendations: optimization of labor education integration with practical content to improve quality across all five domains; development of a vocational ability-oriented cultivation system, incorporating labor education as a core component within a scientifically structured framework, strategic emphasis on the leading role of social domain labor education, and promotion of synergistic development across multiple educational domains. These findings contribute to the ongoing discourse on teacher education by providing empirical evidence for curriculum development and pedagogical strategies in preschool teacher training programs. This study highlights the critical role of targeted labor education in enhancing professional competencies, while identifying specific areas requiring educational reform and quality improvement.

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