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Practical Exploration of Labor Education Driving the Integration of Five Educations in Primary and Secondary Schools from the Perspective of Project-Based Learning— A Case Study of the "Five-Colored Flower" Curriculum

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Abstract: The integrated development of moral, intellectual, physical, aesthetic and labor education (The "Five Educations" framework) is the core path for basic education in the new era to fulfill the fundamental task of fostering virtue through education. With its inherent attributes of practicality and comprehensiveness, labor education has become a key carrier connecting the other four dimensions of education and promoting students' all-round development. In response to common practical dilemmas in primary and secondary school labor education — including superficial implementation, fragmented content and insufficient educational synergy — this study takes the *"Five-Colored Flower"* curriculum as the practical carrier, draws on local cultural resources, and introduces the concept of Project-Based Learning (PBL) to construct a systematic curriculum framework where labor education drives the integration of the five educations. This study develops the *"Three Stages and Six Steps"* PBL curriculum implementation model, designs a curriculum cluster covering five themes (Red Revolutionary Theme, Black Agrarian Theme, Golden Gourmet Theme, Green Cicada Tea Theme, Purple Intangible Cultural Heritage Theme), and establishes a dynamic evaluation system *"Four Dimensions and Four Assessment Modes"* and a set of quantitative assessment criteria *"Ten Core Skills"*. Results from two rounds of action research indicate that this model effectively activates the comprehensive educational value of labor education, significantly improves students' labor participation and skill proficiency, and fosters balanced development of students' morality, academic ability, physical and mental health, and aesthetic literacy.

Keywords: Labor education; The integration of the Five Educations; Project-based learning; Local culture; All-round development

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1. Introduction

Building an education system that nurtures balanced morality, intellect, physique, aesthetics and labor literacy has become the core reform direction of China's basic education. *The Opinions on Comprehensively Strengthening Labor Education in Universities, Primary and Secondary Schools in the New Era* explicitly states that labor education is a critical component of the socialist education system with Chinese characteristics, bearing comprehensive educational values of cultivating morality, enhancing intelligence, strengthening physique and nurturing aesthetics.

However, in real school practice, primary and secondary labor education still faces prominent structural constraints [1]. Most labor activities remain formalized and separated from daily life, failing to trigger students' active recognition and participation. Curriculum design rarely absorbs local cultural connotations, resulting in shallow content and insufficient emotional resonance [2]. Worse, labor education is often simplified into isolated skill drills without effective alignment with other subjects, making cross-curricular educational synergy hard to achieve [3].

Featuring authentic driving questions, continuous inquiry and tangible public outputs PBL perfectly fits the practical nature of labor education and provides viable solutions to the above dilemmas [4]. Existing literature has theoretically affirmed labor education's holistic educational value, while scattered school trials have attempted PBL-labor curriculum combination [5]. Nevertheless, systematic, scalable themed curriculum designs targeting Five-Education integration are still insufficient in current research [6,7].

Against this research gap, this study embeds PBL logic into labor curriculum development rooted in regional culture and develops the complete Five-Colored Flower curriculum cluster [8,9]. It explores standardized, localized labor teaching paths to realize organic integration of the Five Educations and offers operable references for schools to promote students' holistic growth [10,11].

2. The inherent logic of labor education driving the integration of the five educations

2.1. The comprehensive educational attributes of labor education

Labor education is not mere repetitive skill training but practice-centered integrated teaching that connects diversified educational goals and serves as the core hub for realizing Five-Education integration.

(1) Labor shapes morality: Authentic labor scenarios convert abstract moral norms into daily conduct. Through task commitment and group problem-solving, students gradually foster responsibility, collective awareness and gratitude, gaining intuitive understanding of diligence and dedication.

(2) Labor boosts intellectual growth: Complex real labor tasks require interdisciplinary knowledge application, stimulating students' reasoning, innovative thinking and cross-subject transfer capacity to realize practical intellectual cultivation.

(3) Labor strengthens physical fitness: Farming and outdoor labor deliver natural physical exercise. Continuous physical exertion builds physical stamina and mental resilience, forming inherent synergy between labor and physical education.

(4) Labor cultivates aesthetics: Labor is the origin of artistic creation. In craft polishing, product design and cultural inheritance, students perceive the beauty of craftsmanship and regional culture to upgrade their aesthetic perception and expressive ability.

2.2. The adaptability of project-based learning for integrated education

PBL's core design logic matches the demands of labor-driven Five-Education integration and supplies standardized procedures for systematic curriculum delivery.

Authentic driving questions construct unified integrated learning contexts, embedding scattered moral, intellectual, physical and aesthetic goals into complete labor tasks and eliminating fragmented, formalized teaching targets. Students shift from passive labor receivers to active inquirers.

Sustained inquiry enables coordinated cultivation of multi-dimensional literacy. Throughout hands-on operation, knowledge exploration and group communication, students develop labor skills, academic competence and personal character rather than receiving single mechanical skill training.

Tangible public deliverables serve as carriers of integrated literacy. Creation processes combine labor techniques, knowledge application and aesthetic design; subsequent presentation activities strengthen students' communication and social participation awareness, turning the abstract goal of all-round development into observable learning outcomes.

3. "Three Stages and Six Steps": The integrated implementation model of PBL labor curriculum

Based on the above theoretical foundation, this study constructs the "Three Stages and Six Steps" model, embedding Five-Education objectives into every teaching link to guarantee comprehensive educational effects.

3.1. Project preparation stage: Anchoring integrated educational objectives

The core of this stage is to define project direction and implementation pathways, and integrate objectives of the Five Educations into project design from the outset.

The first step is driving question selection. Drawing on local "five-colored" cultural resources, teachers and students co-develop driving questions that are both authentic and challenging. Question design centers on labor practice while incorporating multiple goals such as moral cultivation, knowledge application, physical exercise and aesthetic expression, ensuring that a single project delivers multi-dimensional educational value. For example, the green-themed project *"Cicada Tea Product Innovation and Cultural Promotion"* not only covers core labor tasks such as tea cultivation and processing, but also integrates objectives including tea culture history research, tea ceremony aesthetic expression and craftsmanship inheritance.

The second step is project scheme planning. Students work in groups to develop a *Project Implementation Plan*, clarifying labor task lists, tool and material budgets, timelines, safety protocols and team role division. The planning process itself builds students' sense of responsibility, logical thinking and collaboration skills, delivering moral and intellectual education outcomes even at the preparation phase.

3.2. Practical inquiry stage: Delivering process-based integrated education

This stage is the core of curriculum implementation, achieving process-based infiltration of objectives of the Five Educations through situated practice and deliverable creation.

The first step is situated practical inquiry. Students conduct hands-on activities in dedicated practice venues such as tea research gardens, cooking classrooms, farming bases and intangible cultural heritage workshops, while completing a *Labor Practice Log* to record operational procedures, knowledge gains,

emotional experiences and aesthetic insights. Teachers provide layered "scaffolding" support for different sessions, including labor skill guidance, subject knowledge clarification, cultural connotation interpretation and aesthetic creation guidance. This enables students to build physical fitness through hands-on practice, acquire knowledge through problem-solving, cultivate character through collaboration, and appreciate beauty through craft refinement, realizing deep integration between labor education and multiple educational dimensions.

The second step is integrated deliverable production. Students create public deliverables around the driving question, such as innovative tea beverage formulas, gourmet culture manuals, intangible cultural heritage documentaries, red cultural and creative products, and farming observation reports. The creation process naturally integrates labor skills, knowledge application, aesthetic design and value expression. For instance, designing red cultural and creative products requires simultaneous handcrafting, cultural research, aesthetic design and historical analysis, achieving organic integration of all five educational elements.

3.3. Outcome sublimation stage: Achieving holistic literacy advancement

This stage focuses on the internalization and transfer of literacy, elevating educational objectives from practical performance to literacy development.

The first step is public deliverable exhibition. A *Project Achievement Expo* is held, where students present project outcomes through reports, performances and physical displays. Multiple stakeholders — including teachers, parents, intangible cultural heritage inheritors and local residents — are invited to observe and exchange ideas. The exhibition not only builds students' communication skills, but also reinforces the sense of value and achievement derived from labor. It also extends the social impact of moral and aesthetic education through cultural dissemination.

The second step is reflection and summary. Students conduct in-depth reflection via a *Labor Growth Diary*, reviewing improvements in labor skills, knowledge acquisition, moral growth and aesthetic perception. They summarize project experience and apply it to daily study and life. This link guides students to grow from "doing things well" to "becoming a better person", and promotes holistic development of labor attitudes, knowledge competence, willpower and aesthetic literacy.

4. The "Five-Colored Flower" curriculum cluster: A localized content carrier for the integration of the five educations

Breaking rigid grade barriers, this culture-centered curriculum cluster, the *"Five-Colored Flower",* takes labor practice as its core, with each theme covering complete multi-dimensional literacy cultivation.

4.1. Red revolutionary theme: Forging ideals through labor to consolidate moral education foundations

The red theme leverages local revolutionary historical resources via projects Red Story Presenter and Red Cultural & Creative Designer. Through site visits, story compilation, cultural creation and themed speeches, students master information sorting, handcrafting and public speaking, and grasp predecessors' striving spirit to cultivate patriotism and responsibility. Labor turns moral education into actionable tasks, combining literature and history with aesthetics to realize the goal of "cultivating morality through labor and integrating moral education with labor education".

4.2. Black Agrarian Theme: Tempering resilience through labor to advance physical and labor development

The black agrarian theme focuses on farming culture, with projects such as *My Vegetable Plot* and *Crop Growth Inquiry*. Students participate in the full farming cycle — plowing, sowing, watering, fertilizing and harvesting — mastering basic agricultural skills and understanding the fundamental link between labor and subsistence.

Physical exertion in farming effectively builds students' physical fitness and willpower, fulfilling the goal of "strengthening physique through labor". Meanwhile, students explore crop growth patterns using biology and geography knowledge, realizing "enhancing intelligence through labor". The harvest and sharing process also fosters virtues of food conservation and respect for labor, delivering moral education outcomes.

4.3. Golden gourmet theme: Creating beauty through labor to integrate life aesthetic education

The golden gourmet theme centers on local specialties such as *Badao Soup*, with projects such as *My Signature Local Dish* and *Local Cuisine Innovation & Promotion*. Students learn labor skills including ingredient selection, cooking and plating, mastering daily living labor skills through hands-on practice.

The cooking process integrates nutritional knowledge, dietary aesthetic design and family tradition inheritance. Students not only learn to prepare food, but also understand the cultural origins behind local cuisine and perceive the beauty of life created by labor, achieving deep integration of labor education with intellectual, aesthetic and moral education.

4.4. Green cicada tea theme: Inspiring wisdom through labor to deepen interdisciplinary education

The green cicada tea theme is built around the local cicada tea industry chain, with the interdisciplinary project *The Past and Present of Tea* covering the full value chain of tea cultivation, picking, roasting, tea ceremony and marketing.

Students master productive and service labor skills through planting, processing and brewing tea. They apply multidisciplinary knowledge from biology, chemistry, geography and history to explore tea growth mechanisms, processing principles and the evolution of tea culture, improving interdisciplinary knowledge application ability. Repeated roasting and tea ceremony practice instill the craftsmanship spirit of pursuing excellence and cultivate focus and persistence. Tea ceremony etiquette and performance also foster appreciation of oriental aesthetics and improve aesthetic literacy. This theme represents the most concentrated carrier of the integration of the Five Educations, achieving coordinated delivery of multiple educational objectives.

4.5. Purple intangible cultural heritage theme: Inheriting culture through labor to nurture cultural confidence

The purple intangible cultural heritage (ICH) theme focuses on local ICH skills such as *Huachao Opera* and bamboo weaving, with the project *Little ICH Inheritor*. Students learn bamboo weaving, opera performance and other traditional skills under the guidance of ICH inheritors, mastering traditional craft techniques through hands-on practice.

In the learning process, students understand the historical origins and cultural value of traditional skills, appreciate the aesthetic connotations of traditional crafts, and develop a sense of responsibility for cultural inheritance and cultural confidence. Taking labor-based inheritance as the link, this theme transforms ICH culture into participatory practical courses, realizing the unity of labor education, cultural education and aesthetic education.

Supporting the curriculum cluster is a series of project resource packages, providing teachers and students with cultural background, knowledge scaffolds and activity guidance. This achieves the goals of "localized curriculum content, integrated educational objectives, and standardized implementation processes".

5. "Four Dimensions and Four Assessment Modes": A developmental evaluation system for the integration of the five educations

To guarantee the educational effectiveness of the integration of the Five Educations, this study constructs the *"Four Dimensions and Four Assessment Modes"* dynamic evaluation system, supported by the *Student Labor Literacy: Ten Skills Assessment Handbook*. The system delivers comprehensive, process-oriented and developmental evaluation, fully aligned with students' all-round moral, intellectual, physical, aesthetic and labor development.

5.1. Four evaluation dimensions

The evaluation system covers four dimensions: labor concepts and attitudes, labor knowledge and skills, labor habits and qualities, and labor spirit and innovation. These four dimensions fully correspond to the educational objectives of the integration of the Five Educations:

(1) Labor concepts and attitudes focus on moral education objectives, examining students' sense of responsibility and labor values;

(2) Labor knowledge and skills cover labor and intellectual education objectives, assessing labor skill proficiency and knowledge application ability;

(3) Labor habits and qualities link moral and physical education objectives, evaluating students' perseverance, collaboration and willpower;

(4) Labor spirit and innovation integrate moral and aesthetic education objectives, measuring students' craftsmanship, innovative awareness and aesthetic expression ability.

5.2. Four assessment methods

Four complementary assessment methods enable full-process dynamic evaluation.

(1) Process assessment: Based on the *Labor Activity Observation Record*, teachers document students' labor performance, collaboration status and knowledge application in real time at practice venues, covering the entire project cycle.

(2) Outcome assessment: At the *Achievement Expo*, multi-stakeholder evaluators — teachers, students, parents and ICH inheritors — score deliverables against rubrics across dimensions including labor skills, cultural connotation, creative design and presentation quality, incorporating standards for labor, intellectual and aesthetic education.

(3) Reflective assessment: The *Labor Growth Diary* guides students in self-reflection, reviewing their gains

and gaps in morality, knowledge, skills and aesthetics, and facilitating self-education.

(4) Value-added assessment: A *labor literacy growth portfolio* is established, using radar charts to visualize students' semester-on-semester changes across the four dimensions. It emphasizes growth progress rather than final performance, consistent with the developmental educational philosophy of the integration of the Five Educations.

5.3. Quantitative indicators for ten core skills

To tackle the abstract nature of integrated evaluation systems, this study operationalizes four-dimensional core literacy into ten observable, progressive skill indicators and compiles them into the Ten Skills Handbook. The ten skills cover the following dimensions: a sense of responsibility, respect for labor achievements, tool operation proficiency, practical skill application, problem-solving capabilities, planning and organizational skills, perseverance, collaborative communication and sharing, a drive for excellence, and innovative optimization capacity.

Each skill has three levels of behavioral descriptors — elementary, proficient and excellent — corresponding to progression requirements for lower primary, upper primary and junior high school stages. Students advance their skill levels through project completion, turning abstract five-education literacy into tangible, achievable competencies, and making comprehensive education goals implementable and measurable.

6. Practical effects and reflections

6.1. Practical effects

After two rounds of action research, this model has been scaled up and delivered remarkable educational outcomes and regional influence.

In terms of student development, the labor participation rate rose from 65% to 88%, and the labor skill compliance rate increased by 25 percentage points. More importantly, the educational value of the integration of the Five Educations has become evident: students' moral literacy (such as responsibility and collective awareness) has improved markedly; interdisciplinary problem-solving ability has been systematically developed; physical labor such as farming and tea processing has effectively enhanced physical fitness and willpower; and aesthetic expression and cultural confidence have grown significantly. The model has achieved a transformation from "I am told to labor" to "I want to labor", and from "single-skill improvement" to "comprehensive literacy development". In the *Little Cicada Tea Inheritor* project, students' tea beverage marketing plan was adopted by a local tea enterprise, demonstrating the real social value of labor practice.

In terms of teacher development, 80% of teachers have reached the standard in interdisciplinary curriculum design competence. One participating teacher won first prize in a municipal teaching competition. Teachers' roles have shifted from sole knowledge transmitters to designers and facilitators of integrated curricula.

In terms of regional impact, the findings were presented as a special report at Heyuan's "Double Reduction" work conference. The municipal open course *Stirring Tea Fragrance, Exploring Local Roots* drew observers from over 50 schools. Related practices have won 1 third prize in the Guangdong Provincial PBL Case Competition, 3 first and second prizes in Heyuan Labor Education Outstanding Achievement Awards, and have been covered by local media with over 100, 000 total views. A replicable county-level

paradigm for integrated labor education has taken shape.

6.2. Practical reflections

Three core challenges have emerged during practice. First, teachers' capacity for interdisciplinary integrated education remains uneven. Most teachers lack systematic competency in designing integrated Five-Education curricula and conducting interdisciplinary teaching research. Sustained teacher learning communities and regular training and research activities are needed.

Second, the safety management system for practice venues requires further improvement. Safety protocols for outdoor labor and tool use need to be refined, and a full-cycle safety management mechanism should be established.

Third, institutional support for five-education coordination needs strengthening. Currently, labor education serves as the main traction, but subject teachers' participation in collaborative education remains limited. Institutional guarantees in terms of timetable arrangement and assessment mechanisms at the school level are required.

7. Conclusion and prospect

Taking integrated Five-Education development as its value orientation, PBL as the implementation approach, and local cultural resources as teaching materials, this study establishes an implementation system of labor education for primary and secondary schools centered on the logic of "Labor leads, Five Educations thrive."

The study demonstrates that labor education inherently possesses the comprehensive educational attribute of connecting the five educations. Through the systematic construction of the *"Three Stages and Six Steps"* standardized implementation model, the *"Five-Colored Flower"* localized curriculum cluster and the *"Four Dimensions and Four Assessment Modes"* developmental evaluation system, the model can effectively address the dilemmas of superficial and fragmented labor education, deliver the synergistic educational goals of cultivating morality, enhancing intelligence, strengthening physique and nurturing aesthetics through labor, and promote students' all-round development.

Future research can be deepened in three directions. First, explore digital technology-enabled integrated education: use VR technology to restore ICH skills and farming scenarios, and apply big data analysis to evaluation data to support precision teaching for the integration of the Five Educations. Second, strengthen alignment between PBL labor courses and subject curriculum standards, develop more benchmark interdisciplinary integration cases, and enhance curriculum coherence for the integration of the Five Educations. Third, build a regional labor education resource sharing platform, upgrade the county-level practice model into a regional educational solution, expand its reach, and support educational equity and high-quality development in the context of rural revitalization.

Disclosure statement

The author declares no conflict of interest.

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