

Exploration on Integrating Local Red Culture into Curriculum Ideological and Political Reform of *Soil and Fertilizer Science* Course

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Abstract Under the background of the comprehensive promotion of curriculum ideological and political education, this paper discussed the reform of integrating local red culture in China into the ideological and political education system of the course *Soil and Fertilizer Science*, and analyzed the background, objectives, process and prospects of the reform. This study will provide reference for cultivating new talents who know and love agriculture and promote the development of agricultural education.

Key words Local red culture; Curriculum ideological and political education; Soil fertilizer science

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As early as 2014, General Secretary Xi Jinping pointed out: "We should make good use of red resources, carry forward the traditions from revolutionary times and inherit the red genes." Zunyi Normal University is located in Zunyi, a sacred place of red culture, which is rich in red cultural resources. Curriculum ideological and political education, as a key measure for local universities to implement the fundamental task of establishing moral integrity and educating people, should run through the whole process of professional course teaching. Therefore, the integration of local red culture into the ideological and political system of the course *Soil and Fertilizer Science* can cultivate new "red heart" young talents who know and love agriculture and will become good inheritors of agriculture contributing to the construction of agriculture, rural areas and farmers and rural revitalization.

Background of Reform

Policy orientation and the needs of the times

The report of the 20th National Congress of the Communist Party of China stressed that we should carry forward the spiritual pedigree of the CPC people with the great spirit of party building as the source, make good use of red resources, and cultivate new people of the times to take the responsibility of national rejuvenation. The *Guiding Outline for the Construction of Curriculum Ideological and Political Education in Colleges and Universities* issued by the Ministry of Education clearly points out that it is

necessary to comprehensively promote the ideological and political construction in colleges and universities and give full play to the educational role of each course. Under the background of new agricultural construction, cultivating agricultural talents with firm ideals and beliefs, deep patriotic feelings and solid professional knowledge has become an important mission entrusted by the times to higher agricultural and forestry education.

Educational value of red culture

Red culture bears the initial heart and mission of the CPC people, and contains rich revolutionary spirit and profound historical and cultural connotations. Zunyi, as an important turning point of China Revolution, is rich in red cultural resources, such as the site of Zunyi Conference and the site of Loushanguan Campaign. These red resources are vivid teaching materials for carrying out ideological and political education, which can stimulate students' patriotic feelings and cultivate their spirit of hard struggle and sense of social responsibility.

Expected Goals of Reform

Goal of knowledge and skills

Through the reform, students can systematically master the basic theory and professional knowledge of *Soil and Fertilizer Science*, have the ability to analyze and solve problems related to soil and fertilizer, and can apply learned knowledge to guide agricultural production practice according to the actual conditions in Zunyi.

Goal of ideological and political education

Deeply integrating local red culture into course teaching can cultivate students' patriotism, hard work spirit and sense of social responsibility, guide students to establish correct views on the world, life, and values, and enhance students' cultural self-confidence and national pride. Meanwhile, college students can better develop red rural tourism and find out the red family background based on local red cultural sites^[1], and they will become the key

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force to inherit Zunyi's local red culture and patriotism^[2-3].

Goal of ability and quality

Through the reform, we can cultivate students' innovative thinking and practical ability, improve students' teamwork ability and communication ability, and make students have comprehensive quality to meet the needs of high-quality development of modern agriculture. Ultimately, they can become "red heart" young talents who know and love agriculture and will strengthen agriculture and promote agriculture.

Implementation Process of Reform

Early investigation and analysis

Through questionnaires and on-the-spot interviews, this paper made an in-depth investigation on the students of agricultural majors in Zunyi Normal University and related teachers, so as to understand students' awareness of red culture, their demand for curriculum ideological and political education, and problems existing in the teaching of curriculum ideological and political education. The results of the investigation show that students show high interest in red culture, but lack a deep understanding of the integration of red culture and professional courses, and teachers have problems in conducting teaching of curriculum ideological and political education, such as single teaching methods, unfamiliarity with red cultural resources, and inability to effectively integrate professional knowledge with red culture.

Exploration and integration of red cultural resources

Through teachers' forum, teachers were organized to have in-depth discussions. Firstly, the typical red culture in Zunyi area was discussed. Next, ideological and political elements related to the course *Soil and Fertilizer Science* were excavated, and the important knowledge points in the course were combined with red culture. Finally, relevant red cultural materials, such as documents, pictures, videos and articles, were collected in groups, and a red cultural resource database was established to provide rich materials for course teaching.

Optimization and design of course teaching contents

According to the objectives of the course, the teaching contents of *Soil and Fertilizer Science* were optimized by screening in the red cultural resource database. In teaching, we should improve the original single teaching method, organically integrate red cultural elements into the explanation of professional knowledge, and combine case teaching, project-based teaching, on-site teaching, group discussion and experimental teaching to stimulate students' interest in learning and improve their participation. Two representative teaching cases are listed below.

The spirit of Zunyi Conference and teamwork of fertilizer formula research and development Design idea: Guided by the spirit of independence, seeking truth from facts and unity and cooperation in Zunyi Conference, we should guide students to realize the importance of teamwork in fertilizer formula research and development, and cultivate students' sense of teamwork and love for agriculture.

Curriculum integration: ① In the practical part of the course, the historical background and significance of Zunyi Conference were introduced, so that students could understand the importance of unity and cooperation, seeking truth from facts and independence in the face of difficulties and challenges. Students were organized to carry out grouping and teamwork, such as studying the effects of different amendments on soil structure and fertility. Each student was responsible for a specific task in the project, such as soil sample collection, amendment preparation, and data detection. Through close cooperation among team members, the project was completed together. During the project, students were guided to carry forward the spirit of Zunyi Conference, think independently and analyze problems truthfully when encountering them, and solve problems through communication and collaboration among team members. ② In the class, the activity of "Fertilizer Formula R&D Team Style Exhibition" was held, and each team showed their research results in PPT, posters and other forms to share the experience and gains of teamwork. Through the activity, students' sense of team honor and responsibility could be cultivated. Meanwhile, students could deeply understand the importance of teamwork in agricultural scientific research, and their love and pursuit of agricultural scientific research could be stimulated, further enhancing their love for agriculture.

Ideological and political objectives: The ideological and political objectives included carrying forward the spirit of independence, seeking truth from facts and unity and cooperation in Zunyi Conference, cultivating students' sense of teamwork, stimulating their love for agriculture, and strengthening their sense of mission to study hard for agricultural development.

The flexible tactics of "Crossing the Chishui River Four Times" and precise regulation of soil nutrients Design idea: Learning from the tactical thought of being flexible and making the best use of the circumstances in the Campaign of Crossing the Chishui River Four Times, we should guide students to flexibly formulate accurate nutrient management strategies according to factors such as different soil types and crop growth stages, and cultivate students' innovative thinking and love for agricultural production.

Curriculum integration: ① When explaining the class of soil nutrient management, how the Red Army moved flexibly and fought skillfully according to the battlefield situation in the Campaign of Crossing the Chishui River Four Times was first introduced to the students. Next, the characteristics of different types of soil such as sand, clay and loam were introduced, so that students could analyze the differences of fertilizer conservation and supply capacity of various soils. Meanwhile, the characteristics of nutrient demand of different crops at different growth stages were introduced, such as more demand for nitrogen fertilizer at the seedling stage and more demand for phosphorus and potassium fertilizers at the flowering stage. The teacher guided students to discuss in groups and formulate nutrient control schemes for different

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Conclusions and Discussion

The results of this study elucidated the effects of fermentation temperature, time, and starter culture addition on the WHC of fermented soy milk. The optimal parameters determined through response surface methodology were as follows: fermentation temperature 35 °C, fermentation time 8 h, and starter culture addition 5%. Under these conditions, the fermented soy milk achieved superior WHC of (77.18 ± 0.08)%. ANOVA results confirmed the highly significant reliability of the established multiple regression model. Fermentation time was identified as the most significant factor affecting the WHC of fermented soy milk. The study revealed a nonlinear relationship between various process parameters and WHC. During fermentation, the pH value was on the decrease with time, while acidity, WHC and viable bacterial count showed increasing trends. These findings provide both theoretical foundation and practical guidance for industrial production and quality improvement of fermented soy milk.

References

[1] CHRISTENSEN LF, GARCÍA-BÉJAR B, BANG-BERTHELSEN CH, *et al.* Extracellular microbial proteases with specificity for plant proteins in food fermentation[J]. *International Journal of Food Microbiology*, 2022, 381: 109889.

[2] SOUMYA MP, SURESH A, PARAMESWARAN R, *et al.* Physico-chemical and organoleptic evaluation of probiotic plant-milk yogurt-type beverages as a functional alternative to dairy yogurts[J]. *Biocatalysis and Agricultural Biotechnology*, 2024, 57: 103060.

[3] GOMES ER, PINTO CBDA, STEPHANI R, *et al.* Effect of adding different types of soluble fibre to high-protein yoghurts on water holding capacity, particle size distribution, apparent viscosity, and microstructure[J]. *International Dairy Journal*, 2023, 141: 105609.

[4] YANG X, KE C, LI L. Physicochemical, rheological and digestive characteristics of soy protein isolate gel induced by lactic acid bacteria[J]. *Journal of Food Engineering*, 2021, 292: 110243.

[5] ALJAMMAS AH, YAZJI S, AZIZIEH A. Optimization of protease production from *Rhizomucor miehei* Rm4 isolate under solid-state fermentation [J]. *Journal of Genetic Engineering and Biotechnology*, 2022, 20(1): 82.

[6] GHOLAMHOSSEINPOUR A, HASHEMI SMB, SAFARI F, *et al.* Impact of ultrasonicated *Lactobacillus delbrueckii* subsp. *bulgaricus*, *Streptococcus thermophilus* and *Lactiplantibacillus plantarum* AF1 on the safety and bio-active properties of stirred yoghurt during storage[J]. *Ultrasonics Sonochemistry*, 2024, 102: 106726.

[7] YOUSEFI M, KHANNIURI E, KHORSHIDIAN N. Effect of *Plantago major* L. seed mucilage on physicochemical, rheological, textural and sensory properties of non-fat yogurt[J]. *Applied Food Research*, 2025, 5 (1): 100687.

[8] QIN Y, XIE SQ, ZHOU SC, *et al.* Incorporation of various pea components in goat yogurt: Microstructure and physicochemical characteristics [J]. *LWT*, 2025, 218: 117432.

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soils and crops, and flexibly adjust nutrient management strategies just as the Red Army responded flexibly to the enemy when crossing the Chishui River four times. ② Using the greenhouse of the school, different soil and crop planting combinations were set up, so that students could practice nutrient regulation according to their own schemes. In practice, students should adjust the nutrient supply in time according to the actual growth of crops, such as symptoms of nutrient deficiency in leaves. Such practical operation could allow students to master the method of precise regulation of soil nutrients, improve their ability of nutrient management in agricultural production, and stimulate their interest in agricultural science and technology and love for agriculture.

Ideological and political objectives: The ideological and political objectives included carrying forward the flexible tactical spirit of Crossing the Chishui River Four Times, cultivating students' innovative thinking and practical ability in soil nutrient regulation, enhancing their love for agricultural production, and making them realize the importance of scientific nutrient management for good harvest in agriculture.

Prospects

In the future reform, it is necessary to further strengthen the exploration and integration of red cultural resources, and continuously enrich the teaching contents of the course. The innovation of teaching methods and means should be strengthened to improve the

pertinence and effectiveness of teaching. The improvement of the teaching evaluation system should be strengthened to evaluate students' learning achievements more comprehensively and objectively, which is also an inevitable requirement for the construction of "new agricultural science"^[5]. Through continuous exploration and practice, we will better cultivate more new "red heart" young talents with firm ideals and beliefs, solid professional knowledge and strong social responsibility who know and love agriculture.

References

[1] GUO XG, LI XY. Analysis on the ideological and political value and path of practice research of "red and green"[J]. *Journal of Nanping Teachers College*, 2021, 40(8): 33–37. (in Chinese).

[2] TAN T. Research on Guizhou college students' inheritance of local red culture in the new era[D]. Guiyang: Guizhou Normal University, 2021. (in Chinese).

[3] CHEN XH, FANG YM, HUANG HN. Exploration on the path of integrating red culture into curriculum ideological and political education[J]. *Cuanbo Yu Banquan*, 2021(2): 122–124. (in Chinese).

[4] WEI JL, ZHANG LL, XU G, *et al.* Construction and practice of ideological and political theory education system of soil science experimental course[J]. *Journal of Anhui Agricultural Sciences*, 2022, 50(14): 253–255. (in Chinese).

[5] ZHANG BR, CUI Y, JIANG QQ, *et al.* The implementation approach of ideological and political education in soil and fertilizer course under the background of new agricultural science[J]. *Anhui Agricultural Science Bulletin*, 2020, 26(9): 150–152. (in Chinese).

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