Situational Reconstruction of "High-Level, Innovative, and Challenging" Standards in the Digital Intelligence Era: The Construction Logic of the Farmer Entrepreneurship Practice Course

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Abstract: Traditional farmer entrepreneurship education is deeply entangled in a structural disconnect between the "High-Level, Innovative, and Challenging" curriculum standards and the inherent uncertainty of entrepreneurial practice. This paper, grounded in adult learning theory and the effectuation perspective, conducts an in-depth analysis of four core deficiencies in the Farmer Entrepreneurship Practice course: the tendency to reduce objectives to "skill-based" outcomes, "urban-centric" content, "lecture-based" processes, and "paper-based" evaluation. It proposes a four-in-one construction model encompassing "objective reconstruction - content integration - process reengineering - evaluation transformation." "High-level" is reconceptualized as the systemic integration capability of local resources, digital intelligence technologies, and market logic. "Innovative" is reconceptualized as the ability to create entrepreneurial opportunities under resource constraints. "Challenging" is reconceptualized as dynamic cognitive adaptability within authentic entrepreneurial contexts. Digital intelligence technologies, functioning as an ecological enabler, deeply empower the entire course construction process through intelligent profiling, virtual-real integration, and data tracking. This provides a systematic theoretical reference and practical pathway for developing first-class farmer entrepreneurship education courses in agricultural universities, and establishes a replicable and scalable curriculum development paradigm for cultivating high-quality farmers within the rural revitalization strategy.

Keywords: High-Level; Innovative; and Challenging; Effectuation; Farmer Entrepreneurship Practice; Digital Intelligence Era; Situational Reconstruction

1. Introduction

As the rural revitalization strategy enters a phase of in-depth development, the number of new agricultural business entities in China has grown at an average annual rate of 15.2%. However, statistics from the National Development and Reform Commission reveal a starkly contrasting reality: the failure rate for returning farmers starting businesses is as high as 90%[1]. This striking disparity points directly to a deep-seated malaise in current farmer entrepreneurship education: traditional curriculum models struggle to meet the complex competency demands imposed on rural entrepreneurial talent by the digital intelligence era. In this era, farmer entrepreneurs must not only solidify their foundational agricultural knowledge but also possess comprehensive competencies in data-driven decision-making, cross-sectoral integration, and risk response. As a core course in continuing education and vocational training at agricultural universities, Farmer Entrepreneurship Practice has long been trapped in a structural development predicament characterized by being "skill-based" (focusing narrowly on basic operational training), "urban-centric" (copying urban entrepreneurial models), "lecture-based" (relying on one-way knowledge transmission), and "paper-based" (depending on exams as the sole assessment method).

The essence of this predicament is a severe misalignment between the supply of curriculum standards and the practical demands of rural entrepreneurship. The "High-Level, Innovative,

and Challenging" standards, originating from general higher education, adhere to "disciplinary logic" and "causal logic." Their underlying assumptions are a relatively stable entrepreneurial environment and clear, controllable goals. In contrast, farmer entrepreneurship consistently faces high environmental uncertainty and resource constraints, following "problem logic" and "effectuation logic." Directly transplanting the "High-Level, Innovative, and Challenging" standards from general higher education into farmer entrepreneurship education inevitably leads to maladaptation. Scholars like Li Guozhi et al., in their research on vocational farmer training models and core issues in China, found that learners commonly report a disconnect between course content and actual entrepreneurial scenarios, making it difficult to directly apply what they learned to entrepreneurial practice[2].

"Digital intelligence technologies," as defined in this paper, refer to a comprehensive technology cluster centered on artificial intelligence, big data analytics, virtual reality/augmented reality, and learning analytics. These technologies enable precise data collection, intelligent decision analysis, scenario simulation reconstruction, and human-computer collaborative interaction[3]. Digital intelligence technologies are not merely tools to address outdated teaching methods; they represent a systemic core force capable of reconstructing the curriculum ecosystem of farmer entrepreneurship education and bridging the gap between "High-Level, Innovative, and Challenging" standards and the practical realities of farmer entrepreneurship. Following the logical thread of "Why Reconstruct—What to Reconstruct—How to Reconstruct," this study delves into the situational reconstruction pathways for "High-Level, Innovative, and Challenging" within the Farmer Entrepreneurship Practice course in the digital intelligence era, aiming to provide a theoretical reference and practical guidance for developing first-class courses at agricultural universities.

2. Literature Review and Theoretical Foundations

2.1 The Evolution of "High-Level, Innovative, and Challenging" and the Necessity of Situational Reconstruction

In 2019, the Ministry of Education's "Implementation Opinions on the Construction of First-Class Undergraduate Courses" explicitly proposed the "High-Level, Innovative, and Challenging" course construction standards. "High-level" requires the organic integration of knowledge, ability, and quality within course content, focusing on cultivating students' critical thinking, innovative thinking, and complex problem-solving skills. As an indigenized curriculum standard in China, "High-Level, Innovative, and Challenging" signifies a paradigm shift in Chinese higher education curriculum construction from a "knowledge-based" to a "competency-based" approach[4].

However, these standards, primarily designed for general higher education, face significant adaptation challenges when directly transferred to the field of farmer entrepreneurship education. Farmer trainees are typically adult learners characterized by rich practical experience, clear learning objectives, and fragmented study time. Knowles' adult learning theory posits that the core of adult learning is "problem-centered" rather than "subject-centered"[5]. Adult learners lack interest in abstract theoretical systems and instead crave practical knowledge that can solve immediate problems, with their learning processes tightly coupled with life tasks and work demands. Wang Jingyi's research on new-type vocational farmer training found that farmer learners' need for "learning for practical application" far outweighs their pursuit of purely theoretical knowledge[6]. Therefore, in farmer entrepreneurship education, "high-level" should not merely manifest as deep understanding of disciplinary theories but should be anchored in the ability to integrate local resources, modern technology, and market logic. "Innovative" should not solely focus on knowledge discovery and exploration but concentrate on creating entrepreneurial opportunities under resource constraints. "Challenging" should stem not from the abstract difficulty of knowledge but from the complexity and uncertainty inherent in real-world rural entrepreneurial problems.

Thus, "High-Level, Innovative, and Challenging" urgently requires situational reconstruction in farmer entrepreneurship education, facilitating a paradigm shift from "disciplinary logic" to "problem logic." This transformation is not merely an adaptive adjustment of curriculum standards but a

re-conceptualization and return to the essence of farmer entrepreneurship education.

2.2 Theoretical Foundation: An Integrated Framework Centered on Effectuation

This study adopts effectuation as its core, integrating adult learning theory, connectivism, and situated learning theory to construct a theoretical framework for the situational reconstruction of "High-Level, Innovative, and Challenging" in the Farmer Entrepreneurship Practice course. Simultaneously, addressing the variability in digital literacy among farmer groups, the study emphasizes the appropriateness and feasibility of applying digital intelligence technologies, avoiding "techno-solutionism" that creates learning barriers, and ensuring technology genuinely serves the cultivation of farmer entrepreneurial capabilities.

2.2.1 The central role of effectuation

Effectuation theory, proposed by Sarasvathy, is a core analytical framework for understanding entrepreneurial behavior in highly uncertain environments, standing in stark contrast to traditional causal logic. Causal logic embodies a "goal-path" linear thinking, assuming a stable and predictable entrepreneurial environment where entrepreneurs must first define a predetermined goal and then select the optimal path to achieve it. Effectuation, conversely, argues that in highly uncertain entrepreneurial environments, goals are not pre-set but are gradually explored and shaped by entrepreneurs through dynamic interaction with their environment, starting from their existing means. Its core principle is to "start with what you have, and then figure out what you want to do and what you should do"[7].

Farmer entrepreneurship consistently operates under intense uncertainty: frequent fluctuations in agricultural product prices, significant constraints imposed by natural conditions on agricultural production, dynamic adjustments in policy and industrial environments. Moreover, farmer entrepreneurs commonly face resource constraints in capital, technology, information, and networks. The goal-oriented model of causal logic struggles to adapt to the actual scenarios of rural entrepreneurship. Effectuation provides a crucial lens for deconstructing the pitfalls of transplanting urban models into the Farmer Entrepreneurship Practice course and points the way for its situational reconstruction: farmer entrepreneurship education should focus on cultivating learners' ability to identify entrepreneurial opportunities and dynamically adjust strategies based on their existing conditions (land, skills, local resources), rather than mechanically instilling standardized entrepreneurial processes and goal-oriented methods.

2.2.2 The supporting role of complementary theories

Adult learning theory serves as the ontological foundation for reconstructing the Farmer Entrepreneurship Practice course. This theory accurately reveals the problem-centered, experience-centered learning characteristics of adult learners, clarifying the core motivation for curriculum reconstruction and demanding that course construction completely move away from subject- centeredness towards learner-centeredness and practice-centeredness[8].

Connectivism, emphasizing the distributed nature of knowledge across networks and the importance of connections for learning, provides an epistemological basis for the deep integration of the course with digital intelligence technologies[9]. Digital intelligence technologies can break down temporal, spatial, and informational barriers, building distributed entrepreneurial knowledge and resource networks for farmer entrepreneurs, thereby becoming a core force in reconstructing the curriculum ecosystem for farmer entrepreneurship education.

Situated learning theory offers methodological guidance for the reengineering of the teaching process. Its core assertion is that capabilities are generated within specific practical contexts, and learning is a process of legitimate peripheral participation in communities of practice[10]. This requires the course to abandon traditional one-way lecturing and construct practice-based learning environments reflecting real rural entrepreneurial scenarios. It allows learners to develop entrepreneurial capabilities by solving practical problems and engaging in practical exploration, ensuring the authenticity and appropriateness of the course's challenge.

Acknowledging the diversity in digital literacy among farmer groups, the course construction process places high importance on the appropriateness and feasibility of digital intelligence technologies. It emphasizes that technology application must always serve competency development goals, avoiding

formalistic use. Through lightweight digital tools and tiered digital skills training, the design aims to eliminate implicit barriers to technology use, ensuring equitable learning opportunities for learners with varying levels of digital literacy.

3. Structural Predicaments of the Farmer Entrepreneurship Practice Course

3.1 "Skill-based" Orientation of Objectives: The Loss of High-Level Attributes

Current objective setting for the Farmer Entrepreneurship Practice course often narrows the complex entrepreneurial capability down to discrete operational skills, such as "writing a business plan" or "applying for a startup loan." This "skill checklist" approach reduces the interconnected entrepreneurial process to a linear, technical procedure, limiting the development of entrepreneurial capabilities to the operational "how-to" level. It severely neglects the cultivation of higher-order thinking skills required by entrepreneurs in uncertain environments, such as resource integration, risk assessment, and opportunity recognition.

For instance, a 2022 farmer entrepreneurship course objective at a provincial agricultural broadcasting school was set as "master the basic theories of entrepreneurship, learn how to write a business plan, understand entrepreneurial financing channels, and familiarize oneself with the business registration process." The core focus was on training learners' operational skills. However, in actual rural entrepreneurship, what farmer entrepreneurs need is not just these basic skills but also the ability to judge which skill to use when, and how to combine various skills to solve practical problems in complex situations. For example, a rural tourism entrepreneur not only needs to master basic homestay operation skills but also requires the integrative capability to coordinate idle village resources and balance the interests of multiple villagers. This core integrative capability, which embodies the essence of "high-level," is often excluded from course objectives.

3.2 "Urban-centric" Transplantation of Content System: The Lack of Innovativeness

Teaching materials and content for farmer entrepreneurship courses frequently borrow urban entrepreneurial cases and causal logic frameworks. Urban entrepreneurship emphasizes the breakthrough "from 0 to 1" and goal-orientation, whereas rural entrepreneurship more often involves resource transformation "from local to unique" and resource-orientation, aligning better with effectuation logic. Table 1 compares the application of effectuation logic versus causal logic in farmer entrepreneurship. Taking agricultural product e-commerce entrepreneurship teaching as an example, urban entrepreneurship courses often use successful cases of "internet celebrity live streaming sales," focusing on how to build a personal brand and attract online traffic. In contrast, rural entrepreneurship courses should focus on practical, localized issues such as "how to tap into the value of local specialty agricultural products, how to solve rural logistics challenges, and how to collaborate with villagers."

Table 1. Application Comparison: Effectuation Logic vs. Causal Logic in Farmer Entrepreneurship

Dimension	Causal Logic (Traditional Course)	Effectuation Logic (Reconstructed in This Study)
Core Assumption	Clear goals → Optimal path	Resource-driven → Opportunity creation
Course Design	Simulates the entire entrepreneurial process according to standard procedures	Designs personalized entrepreneurial paths based on learners' existing resources (land, skills, networks)
Case Orientation	Urban success cases (e.g., high-tech enterprises, internet celebrities)	Local rural practice cases (e.g., county-level agricultural product live streaming, rural homestay entrepreneurship)
Risk Response	Relies on standardized risk assessment models	Mitigates entrepreneurial risks through small-scale trial and error, dynamic adjustment

Because traditional farmer entrepreneurship courses follow causal logic, requiring learners to set predetermined goals before finding paths to achieve them, this runs counter to the "bird-in-hand" principle (leveraging existing resources to create opportunities) crucial for farmer entrepreneurship, ultimately leading learners into the predicament of "learning but being unable to apply." Learners in a farmer entrepreneurship training program in Qiongzhong, Hainan, once commented: "The course taught us how to do e-commerce, but it

didn't teach us how to do e-commerce with our local agricultural products." The content was completely disconnected from our reality."

3.3 "Lecture-based" Inertia in the Teaching Process: The Dilution of Challenge

The teaching process in farmer entrepreneurship courses still widely relies on one-way lecturing, lacking deep immersion in authentic rural entrepreneurial contexts. Situated learning theory posits that entrepreneurial capabilities can only be gradually generated within specific communities of practice. The current "lecture-listening" style of teaching simplifies the course's challenge into the difficulty of memorizing knowledge rather than the depth of impact on learners' cognitive structures. It fails to provide the "optimal discomfort" inherent in real entrepreneurial processes, cannot effectively activate adult learners' rich experiential schemas, and fails to achieve the Vygotskian "zone of proximal development" effect. Taking "agricultural product brand building" teaching as an example, the traditional method involves the teacher lecturing on brand positioning theory, followed by learners writing a brand plan. This method divorces learning from real market conditions; learners cannot experience the authentic challenges faced in the actual market, such as how to respond to consumer skepticism or adjust brand strategy based on market feedback. The true course challenge should be embodied in tackling practical problems like "how to leverage existing local resources to create a market-acceptable agricultural product brand with a limited entrepreneurial budget." This requires learners to continuously experiment and adjust strategies in authentic contexts.

3.4 "Paper-based" Reliance on Evaluation Methods: The Lack of a Closed Loop

Current evaluation methods for the Farmer Entrepreneurship Practice course still rely heavily on paper-based exams and written business plans, focusing on assessing what learners "know" theoretically. This makes it difficult to effectively measure what learners "can do" in terms of actual entrepreneurial capability. This summative evaluation approach lacks effective capture of learners' behavioral data during the entrepreneurial process, preventing accurate tracking of their entrepreneurial capability development trajectory, ultimately leading to a severe disconnect between evaluation and the process of capability generation. From the perspective of evaluation theory evolution, assessment has undergone a paradigm shift from "assessment of learning" to "assessment for learning," and further to "assessment as learning" [11]. The predicament of evaluation in farmer entrepreneurship courses lies precisely in its continued entrapment at the primary "assessment of learning" level. For instance, the final evaluation in a Farmer Entrepreneurship Practice course at a certain Hainan institution consisted of a "closed-book exam + business plan," with scoring criteria set as "theoretical knowledge mastery (40%) + plan completeness (60%)." This evaluation method fails to capture how learners respond to actual challenges during simulated entrepreneurial processes or how they adjust strategies based on problems encountered, making it impossible to scientifically assess the development of their genuine entrepreneurial capabilities. Cultivating farmer entrepreneurial capability is a dynamic process that requires continuous feedback and adjustment for steady improvement.

4. The Four-Dimensional Construction Logic of "High-Level, Innovative, and Challenging" in the Digital Intelligence Era

Based on the in-depth analysis of the course's structural predicaments above, this paper proposes a four-in-one course construction logic model: "Objective Reconstruction — Content Integration — Process Reengineering — Evaluation Transformation." Guided by the value of "High-Level, Innovative, and Challenging" and utilizing digital intelligence technologies as the core enabler, this model aims to transform the Farmer Entrepreneurship Practice course from a traditional "knowledge-transmission" type to a modern "capability-generation" type, directly addressing the four structural predicaments identified earlier across four dimensions.

4.1 Objective Reconstruction: From "Skill Checklist" to "Competency Map," Manifesting High-Level Attributes

Achieving high-level attributes requires breaking away from the traditional "skill checklist" objective orientation. A multidimensional competency map tailored to the needs of farmer entrepreneurs in the digital intelligence era

should be constructed, where high-level attributes are concretely embodied as farmer entrepreneurs' systemic integration capability of local resources, digital intelligence technologies, and market logic.

4.1.1 Constructing a five-dimensional farmer entrepreneurship competency map

Integrating the competency requirements for farmer entrepreneurial talent under the rural revitalization strategy, the technological characteristics of the digital intelligence era, and the practical demands of farmer entrepreneurship, this study conceptualizes farmer entrepreneurial competency into a five-dimensional model: "Commitment to Agriculture-Rural-Farmer Issues — Entrepreneurial Mindset — Professional Skills — Digital Literacy — Integrative Capability." "Commitment to Agriculture-Rural-Farmer Issues" serves as the value foundation, addressing the core question of "for whom to start a business." Farmer entrepreneurs must possess a deep attachment to agriculture, rural areas, and farmers, which is the intrinsic motivation for their sustained engagement in rural entrepreneurship. "Entrepreneurial Mindset" is the cognitive framework addressing "how to perceive opportunities," including core thinking patterns like opportunity recognition, risk assessment, and resource allocation. "Professional Skills" form the operational foundation, addressing "what can be done," including specific practical skills such as agricultural production techniques, marketing, and financial management. "Digital Literacy" is the key enabler in the digital intelligence era, addressing "how to enhance efficiency," including abilities in data acquisition and analysis, digital tool application, and online communication and collaboration. "Integrative Capability" is the higher-order core, addressing "how to coordinate," including cross-domain resource integration, multi-stakeholder coordination, and dynamic entrepreneurial strategy adjustment. These five dimensions support each other and form an organic whole, constituting the core competency system for farmer entrepreneurship and serving as the foundational basis for objective reconstruction.

4.1.2 Digital intelligence technologies enable personalized objective setting

Intelligent profiling technology provides crucial technical support for objective reconstruction. Big data technology can be used to comprehensively collect multi-dimensional learner data, such as years of farming experience, past entrepreneurial project histories, social media behavior, and digital tool proficiency, to construct an initial learner competency profile. For example, the system can automatically identify a learner with extensive experience in agricultural product cultivation but lacking marketing skills and data thinking, thereby precisely setting personalized learning objectives like "enhancing digital marketing and data analysis capabilities," achieving a "thousand people, thousand faces" high-level objective setting.

4.2 Content Integration: From "Disciplinary Logic" to "Problem Logic," Cultivating Innovativeness

Achieving innovativeness requires systematically reshaping course content based on effectuation logic, shifting it from "disciplinarized and theorized" towards "problem-oriented, localized, and project-based." Innovativeness is thus manifested as farmer entrepreneurs' ability to identify and create opportunities under resource constraints.

4.2.1 Project-based development of course content

Course content development breaks away from the traditional discipline-chapter model. Instead, it is structured around project-based learning units grounded in authentic rural entrepreneurial problems. For instance, focusing on revitalizing idle rural resources, specific learning units like "Transforming Idle Rural Houses into Homestay Businesses" or "Developing Specialty Plantings on Idle Rural Land" can be established. Each learning unit strictly follows the process of "Problem Identification — Resource Inventory — Solution Design — Practice Verification — Summary and Optimization," deeply embedding the core principles of effectuation logic. Learners are guided to explore personalized entrepreneurial solutions based on their own resources and local conditions, achieving a seamless simulated connection between the learning process and entrepreneurial practice.

During unit learning, learners "take inventory" of their resources (land, skills, networks), analyze their "affordable loss" to define risk boundaries and investment scope, and use "small-scale trial and error" to break down entrepreneurial goals and dynamically optimize solutions. For example, in a learning unit on live streaming agricultural products, learners design

low-cost trial schemes based on their own product resources, equipment availability, and presentation skills. Through simulation practice, they gradually explore live streaming models suitable for their local context, cultivating innovative entrepreneurial thinking in the process.

4.2.2 Localized development of course content

Course content emphasizes localization, deeply integrating the rural realities of the region where the course is taught. A database of local rural entrepreneurial cases is built, allowing learners to draw inspiration from real-world examples in their vicinity. Simultaneously, the core principles of effectuation logic are deeply embedded into localized content development. Learning modules are optimized according to local entrepreneurial scenarios, ensuring that the application of effectuation aligns with the actual needs of farmer entrepreneurs.

In selecting and applying localized cases, the focus is on guiding learners to use the "bird-in-hand" principle, leveraging existing local resources for entrepreneurial ideation. "Partner commitments" are utilized to link local human and material resources, fostering a deep integration of effectuation logic with local entrepreneurial scenarios. The organic combination of localized content and effectuation logic ensures the practicality and relevance of the course content while guiding learners to actively identify and create entrepreneurial opportunities within local resource constraints, thereby effectively enhancing their innovative and entrepreneurial capabilities, ensuring the course content genuinely meets the practical needs of farmer entrepreneurs.

4.3 Process Reengineering: From "One-way Lecture" to "Intelligent Ecology," Enhancing Challenge

Achieving challenge requires constructing a human-computer collaborative intelligent teaching ecology supported by digital intelligence technologies. This involves creating a closed-loop teaching process: "Real Investigation — Virtual Simulation — Solution Iteration — Practice Verification." The challenge is thus manifested as dynamic cognitive adaptability within authentic entrepreneurial contexts, promoting learners' progressive development of entrepreneurial capabilities within their "zone of proximal development."

4.3.1 Constructing virtual-real integrated entrepreneurial practice scenarios

Utilizing digital intelligence technologies like VR and AR, low-cost, repeatable, high-fidelity virtual simulation scenarios for rural entrepreneurship are created. Learners can experience the entire rural entrepreneurial process in a low-risk environment. For example, a virtual simulation scenario for live streaming agricultural products can be built, simulating unexpected situations like network lag, viewer questions, or product after-sales inquiries, allowing learners to accumulate practical experience through simulation.

Acknowledging the limitations in hardware and software facilities in agricultural universities in less developed regions, approaches such as panoramic videos combined with lightweight mobile simulation applications can be adopted. Learners can access virtual simulation scenarios and engage in entrepreneurial practice simulations using only their mobile phones, overcoming spatial and hardware constraints and making high-quality entrepreneurial education resources accessible to more farmer learners. Simultaneously, virtual simulation is deeply integrated with offline real investigations and practice verification. Learners are organized to go into rural areas to investigate the practical issues of entrepreneurial projects firsthand. They apply the experience gained and solutions formulated in virtual learning to real-world scenarios, continuously optimizing their entrepreneurial plans, achieving a closed loop in virtual-real integrated entrepreneurial practice teaching.

4.3.2 Achieving intelligent adaptive dynamic difficulty adjustment

Leveraging learning analytics and artificial intelligence algorithms, comprehensive learning behavior data is tracked in real-time, including learners' progress, operational behaviors in virtual simulations, problem-solving approaches and effectiveness, and frequency of interactions. This allows for accurate assessment of learners' cognitive levels and capability development status, enabling intelligent adaptation and dynamic adjustment of teaching difficulty. This ensures the course's challenge remains in a state of being "reachable with a stretch" — appropriately challenging. This dynamic adjustment mechanism effectively activates learners' initiative and engagement, making the

course challenge a genuine driver of capability development rather than an obstacle to learning.

4.4 Evaluation Transformation: From "Summative Judgment" to "Value-Added Navigation," Perfecting the Closed Loop

The transformation of course evaluation methods relies on digital intelligence technologies to achieve process-oriented, data-driven, and personalized evaluation. This shifts evaluation from "summative judgment of learning" towards "value-added navigation for learning," ultimately reaching the advanced paradigm of "assessment as learning." This perfects the virtuous closed loop of "teaching — learning — practice — evaluation — improvement," providing effective feedback and assurance for implementing "High-Level, Innovative, and Challenging."

4.4.1 Achieving process datafication in course evaluation

Using intelligent teaching platforms, comprehensive behavioral data generated by learners throughout the entire process — including course learning, virtual simulations, project practice, and real investigations — is recorded panoramically. This forms a complete data archive of each learner's learning and practice journey. Through in-depth mining and analysis of this process data, learners' capability development trajectories, shifts in thinking patterns, and strengths and weaknesses in entrepreneurial capabilities can be accurately revealed. This breaks the limitation of traditional evaluation, which focuses only on learning outcomes, enabling a comprehensive, objective, and scientific evaluation of learners' entrepreneurial capabilities. For example, analyzing the number of iterations and directions of optimization in a learner's business plan can accurately gauge the development of their innovative thinking and practical application abilities.

4.4.2 Driving value-added navigation through evaluation results

Based on the analysis of process data, a comprehensive diagnosis of learners' capability development status is conducted across the five dimensions of "Commitment to Agriculture-Rural-Farmer Issues — Entrepreneurial Mindset — Professional Skills — Digital Literacy — Integrative Capability." Timely, personalized learning suggestions and entrepreneurial guidance reports are generated. Evaluation results serve as "assessment as navigation" — evaluation is no longer the endpoint of the learning process but an integral part of the learner's learning and entrepreneurial practice. Learners continuously optimize their entrepreneurial capabilities through the cycle of "attempt — feedback — revision."

Simultaneously, evaluation results can precisely identify problems in course objective setting, content design, and process implementation. For instance, it might reveal that a particular project-based learning unit is overly difficult or that a certain module on effectuation logic is not clearly explained. The course construction team will use these evaluation results to continuously optimize and improve the course, achieving closed-loop upgrades in course construction. By transforming evaluation results into value-added navigation, evaluation truly becomes a core force in promoting learner capability development and enhancing course quality, realizing the advanced paradigm of "assessment as learning."

5. The Intrinsic Relationships and Theoretical Implications of the Four-Dimensional Construction Logic

5.1 Organic Unity of the Four-Dimensional Logic

The four-in-one course construction logic of "Objective Reconstruction — Content Integration — Process Reengineering — Evaluation Transformation" takes capability generation as its central thread. The four dimensions are interconnected, mutually supportive, and collaboratively empowering, forming a complete system for constructing the Farmer Entrepreneurship Practice course in the digital intelligence era. Digital intelligence technologies act as a core bond, deeply integrated into each link, driving a systemic reconstruction of the course ecosystem. This organic unity is primarily reflected in three aspects:

First, the logical starting point is highly consistent. All four dimensions revolve around the core goal of achieving the situational reconstruction of "High-Level, Innovative, and Challenging" in farmer entrepreneurship education in the digital intelligence era. They break free from the traditional subject-centered curriculum construction limitations, consistently grounding themselves in the practical needs of farmer entrepreneurs. Second, the logical thread

runs throughout. "Capability generation" permeates the entire four-dimensional construction logic. Objective reconstruction anchors the development direction of core farmer entrepreneurial capabilities; content integration provides the practical carrier for capability generation; process reengineering builds a virtual-real integrated practice environment for capability generation; evaluation transformation promotes the progressive development of capabilities through continuous feedback. Third, the technological logic is deeply embedded. Digital intelligence technologies empower the entire course construction process: intelligent profiling enables personalized capability positioning; big data technology supports localized content development; VR/AR and learning analytics construct intelligent teaching scenarios; data tracking and artificial intelligence facilitate process-oriented and personalized evaluation.

These four dimensions form a complete closed loop of "positioning — carrier — environment — feedback," sequentially addressing the issues of objective, content, pathway, and optimization in capability development. They are interlinked and indispensable, driving the course transformation from traditional knowledge transmission to modern capability generation, helping "High-Level, Innovative, and Challenging" truly take root in farmer entrepreneurship education.

5.2 Logical Reinterpretation of "High-Level, Innovative, and Challenging"

Integrating the four-dimensional construction logic of "Objective Reconstruction — Content Integration — Process Reengineering — Evaluation Transformation," and grounding it in the characteristics of digital intelligence technologies and the practical needs of farmer entrepreneurship, the "High-Level, Innovative, and Challenging" standards in the Farmer Entrepreneurship Practice course are endowed with new connotations tailored to rural entrepreneurial scenarios.

The core of High-Level Attributes is integrative capability, requiring farmer entrepreneurs to synergistically integrate local resources, digital intelligence technologies, and market logic. Centered on the five-dimensional entrepreneurial competency map, they must accurately grasp rural market development trends and transform local resources and digital intelligence technologies into competitive products and services, achieving effective resource value conversion and localized technology implementation. This is a key distinction between new-type farmer entrepreneurs in the digital intelligence era and traditional farmers.

Innovativeness is manifested as opportunity generation capability. In scenarios with limited rural resources and high environmental uncertainty, farmer entrepreneurs, starting from their existing means and local assets, follow effectuation logic. Through small-scale trial and error and dynamic adjustment, they achieve transformative innovation characterized by converting "local resources into unique value." This type of innovation possesses distinct local and practical characteristics.

The challenge focuses on dynamic cognitive adaptability. Leveraging intelligent technologies, the difficulty of course tasks and entrepreneurial scenarios is matched to learners' cognitive levels and capability development status, keeping them constantly within their "zone of proximal development." This allows learners to maintain a healthy sense of challenge while solving authentic, complex rural entrepreneurial problems. The challenge stimulates learning initiative and exploratory drive, propelling the continuous advancement of their cognitive levels and entrepreneurial capabilities, making the challenge a genuine core driver of capability generation.

6. Conclusion and Outlook

Against the backdrop of the deepening rural revitalization strategy and the deep integration of digital intelligence technologies into agricultural and rural development, farmer entrepreneurship education has become a key lever for cultivating new-type vocational farmers and activating endogenous drivers of rural development. As the core carrier of farmer entrepreneurship education, the construction quality of the Farmer Entrepreneurship Practice course directly impacts the improvement of farmer entrepreneurship success rates and the effectiveness of promoting rural industrial revitalization.

Based on effectuation logic and adult learning theory, this paper constructed a situational reconstruction model for the "High-Level, Innovative, and Challenging" standards in the Farmer Entrepreneurship Practice course in the digital intelligence era. The research indicates

that digital intelligence technologies should transcend their role as mere tools to become a systemic force reshaping the curriculum ecosystem of farmer entrepreneurship education. Through the four-dimensional reconstruction involving objective mapping, problem-oriented content, ecological process, and navigational evaluation, the four structural predicaments of traditional farmer entrepreneurship courses can be effectively addressed.

Future research can focus on three directions: first, conducting empirical studies across agricultural universities in different regions to test the model's generalizability and boundary conditions, providing personalized course construction guidance for institutions with varying development levels and regional characteristics. Second, exploring the specific application mechanisms of generative artificial intelligence (AIGC) in the Farmer Entrepreneurship Practice course, using AIGC to create more personalized and interactive teaching scenarios to enhance the intelligence level of course construction. Third, focusing on cultivating digital literacy among rural adult learners, especially the learning needs of special groups such as middle-aged and elderly farmers and female farmers. Building a more inclusive and equitable ecosystem for farmer entrepreneurship education will enable more farmer learners to share high-quality entrepreneurial education resources in the digital intelligence era, truly empowering rural talent revitalization through farmer entrepreneurship education and contributing to comprehensive rural revitalization.

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