

Construction and Practice of a Micro-credential System for “Digital Storytelling Competency” in Higher Vocational Preschool Education Majors

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Abstract: Digital storytelling competency is a core literacy for preschool teachers in the digital era. As a novel competency-based assessment approach focusing on specific skills, micro-credentials offer a new pathway for reforming talent cultivation and evaluation in higher vocational preschool education programs. In response to the practical challenge of fragmented cultivation of information technology application ability, artistic creativity, and professional practice competence in current higher vocational preschool education, this study constructs a six-dimensional micro-credential framework for “digital storytelling competency”, encompassing “digital storytelling cognition and literacy, story creation ability, digital technology application ability, work creation and practice, educational application and innovation, and professional development and reflection.” Corresponding certification standards and assessment schemes are developed, and an implementation pathway for “curriculum-certification integration” is explored. Grounded in the “evidence-based” evaluation philosophy, this system decomposes comprehensive competence into measurable and certifiable micro-skill modules, providing a replicable practical paradigm for the reform of talent cultivation models in higher vocational preschool education.

1. Introduction

With the in-depth implementation of China’s Education Modernization 2035^[1] and the Several Opinions on Deepening Reform and Regulating the Development of Preschool Education^[2], the digital transformation of preschool education has become an irreversible trend of the times. Digital storytelling competency as an integrated ability to apply story creation, digital technology, and educational practice knowledge to the production and instructional use of digital story works has become an essential core information literacy for preschool teachers in the new era^[3].

However, higher vocational preschool education programs currently face three interrelated challenges in cultivating students’ digital storytelling competency. First, there is a lack of competency standards. The academic community has not yet provided a systematic definition of

"digital storytelling competency" nor a scientific decomposition of its constituent dimensions, leaving teaching and assessment without a clear framework of reference. Second, the cultivation model remains fragmented. In traditional instruction, the development of students' information technology application ability, artistic creativity, and professional practice competence often occurs in isolation, failing to form an integrated and coherent cultivation pathway. Third, assessment methods lag behind practical needs. Existing evaluations rely predominantly on written examinations and single-skill tests, which are insufficient for conducting scientific and effective assessments of students' comprehensive digital story creation and application abilities^[4].

As a novel assessment approach that focuses on specific skills or competency outcomes, micro-credentials have attracted considerable attention in the global education field in recent years. Grounded in the "evidence-based" philosophy, micro-credentials certify learners' abilities through authentic work products, offering distinctive advantages such as granularity, modularity, and flexibility^[5]. By introducing the micro-credential concept into the preschool education domain and constructing a micro-credential system for "digital storytelling competency", it is expected that the above three challenges can be addressed, thereby providing new directions for the reform of talent cultivation and assessment in higher vocational preschool education.

2. Construction of the Micro-Credential System for "Digital Storytelling Competency"

To construct a micro-credential system for "digital storytelling competency", it is first necessary to clarify its connotation and establish its framework. This section addresses these foundational issues to lay the conceptual groundwork for the entire certification system.

2.1. Definition and Competency Framework of "Digital Storytelling Competency"



Figure 1 Correspondence between the Micro-credential Competency Framework for "Digital Storytelling Competency" and the "Teacher Digital Literacy" Standard

This study defines "digital storytelling competency" as the comprehensive ability of higher vocational preschool education students to integrate story creation, digital technology application, and educational practice knowledge in early childhood educational contexts, for the purpose of producing digital story works and applying them in teaching.

Based on this conceptual definition, this study constructs a six-dimensional competency framework for the micro-certification of "digital storytelling competency", as shown in Figure 1.

This framework strictly aligns with the core concepts of the Teacher Digital Literacy standard (JY/T 0646-2022) promulgated by the Ministry of Education in 2022, ensuring that the direction of competency cultivation remains consistent with national policy orientations^[6]. The framework encompasses six primary dimensions: "digital storytelling cognition and literacy, story creation ability, digital technology application ability, work creation and practice, educational application and innovation, and professional development and reflection." Each primary dimension is further subdivided into several secondary and tertiary indicators, forming a hierarchical, measurable, and assessable competency indicator system.

2.2. Micro-credential Module Tasks and Level Design

Based on the above competency framework, this study further translates the competency indicators across the six dimensions into operational and assessable certification tasks, and establishes progressive level standards, thereby translating the competency framework into a certifiable scheme applicable to teaching practice.

2.2.1. Micro-credential Module Tasks

The six micro-skill modules correspond to the six primary dimensions, each of which is designed with specific and operational certification tasks, as shown in Table 1. All tasks require students to submit authentic work products as certification evidence, which not only embodies the core principle of the "evidence-based" evaluation philosophy, but also enables students to naturally achieve the organic integration of knowledge acquisition, skill development, and competency internalization throughout the process of completing creative tasks.

Table 1 Overview of Assessment Tasks for the "Digital Storytelling Competency" Micro-credential

module	Primary Dimension	Assessment Tasks	Submission format	Assessment Key Points
Module 1	Digital Storytelling Cognition and Literacy	Complete one of the following tasks: 1. Write an analytical report of no less than 800 words, elaborating on the application value of digital storytelling in preschool education. 2. Participate in a thematic seminar and submit a reflection paper on the discussion. 3. Submit an analytical document addressing the issues that warrant attention in the application of digital storytelling.	Document	Understanding of the value of digital storytelling, awareness of application-related issues, and learning initiative
Module 2	Story Creation Ability	Create an original children's story of 500-1,500 words, suitable for reading or telling to children aged 3-6, accompanied by a statement of creative intent.	Document	Theme design, structural construction, language expression, and educational value
Module 3	Digital Technology	Submit a set of digital material processing works, including one image enhancement, one	Work File	Proficiency in tool operation,

	Application Ability	audio editing, and one simple animation production, each of which should clearly demonstrate the effectiveness of the technical application.		standardization of material processing, and effectiveness of technical implementation
Module 4	Work Creation and Practice	Complete one of the following tasks: 1. Digital Picture Book Creation: Create a digital picture book of no less than 8 pages. 2. Audio Story Creation: Create an audio story with a duration of 3 to 8 minutes. 3. Animated Short Creation: Create an animated short with a duration of 1 to 3 minutes.	Work File	Comprehensive creative ability, artistic expressiveness, and integrated technical application capability
Module 5	Educational Application and Innovation	Complete one of the following tasks: 1. Write a complete instructional design plan for integrating digital storytelling into kindergarten teaching activities, including activity objectives, preparations, procedures, extension activities, etc. 2. Write an application practice reflection report of no less than 1,000 words, which should be grounded in actual application scenarios.	Document	Instructional design ability, implementation approach, depth of reflection, and awareness of innovation
Module 6	Professional Development and Reflection	Submit a personal learning and growth portfolio for digital storytelling competency, including learning records, work iteration processes, reflection logs, and records of participation in professional development activities, etc.	Document and Supporting Materials	Learning initiative, reflective ability, awareness of continuous improvement, and community engagement

2.2.2. Micro-credential Level Design

The certification system comprises three progressive levels: beginner, intermediate, and advanced. The beginner level requires students to complete any three module certifications and achieve a passing grade; the intermediate level requires completion of any four module certifications with passing grades; and the advanced level requires successful completion of all six module certifications, with Module 4 attaining an "excellent" grade. This progressive design not only respects students' individual differences, interests, strengths, and developmental pace, but also provides a clear pathway for continuous improvement.

2.3. Integration Mechanism of Micro-credentials with the Curriculum System

The vitality of micro-credentials lies in their organic integration with the curriculum system. If they remain detached from the curriculum, no matter how sophisticated the design, it can hardly translate into tangible educational effectiveness. To this end, this study explicitly establishes a credit recognition mechanism between micro-credentials and existing professional courses within the assessment scheme, as shown in Table 2.

Table 2 Overview of Credit Recognition between Micro-credential Modules and Courses for the "Digital Storytelling Competency"

Module	Corresponding Course
Module 1 Digital Storytelling Cognition and Literacy	Preschool Education Policies, Regulations and Professional Ethics, Preschool Teachers' Professional Development
Module 2 Story Creation Ability	Children's Literature, Design and Implementation of Preschool Educational Activities
Module 3 Digital Technology Application Ability	Application of Digital Educational Technology, Information Technology
Module 4 Work Creation and Practice	Basic Fine Arts; Basic Vocal Music, Creation and Use of Preschool Environment
Module 5 Educational Application and Innovation	Design and Implementation of Preschool Educational Activities
Module 6 Professional Development and Reflection	Educational Practicum

This mechanism integrates certification tasks with course-based practical training tasks into a unified whole: students naturally accumulate certification evidence while completing course assignments, and teachers simultaneously conduct competency assessments in their daily instruction. In this way, "curriculum" and "certification" achieve aligned objectives, synchronized processes, and mutual recognition of outcomes within the same teaching-learning process.

3. Practical Pathways for Integrating the Micro-credential System with Professional Courses

The ultimate purpose of system construction lies in its implementation and in its continuous refinement through practical testing. To this end, this study selects the practical training unit of "Story Activities in the Language Domain" within the course Design and Implementation of Preschool Educational Activities as a point of entry, with preschool education majors of Grade 2024 at Shanwei Institute of Technology as experimental subjects, aiming to explore a viable pathway for deep integration of the micro-credential system with course teaching.

3.1. Practical Case Design: A Case Study of the "Happy New Year" Thematic Practical Training

The practical training adopts "Happy New Year" as its theme, requiring students to work in groups to create original stories for children in upper-kindergarten and pre-kindergarten classes and complete a series of tasks. These tasks are not isolated but are designed with micro-credential modules embedded within them, forming a closed loop of "training as certification, and certification driving training," as shown in Table 3.

Table 3 Mapping of Practical Training Tasks to Micro-credential Modules for the "Digital Storytelling Competency"

Practical Training Task Requirements	Corresponding Micro-credential Module	Evidence to Submit
Create an original story that naturally incorporates educational elements, such as sharing and gratitude.	Module 2	Original story text and creation statement
Write a complete lesson plan, including design rationale, activity objectives, key points and difficulties, activity procedures, etc.	Module 5	Design Plan for Story Activities in the Language Domain for Middle and Upper Kindergarten Classes
Use AI tools to create illustrations of key plot points, animated videos, and to add dubbing and background music, etc.	Module 3 Module 4	Supporting teaching materials: PPT, audio, animated videos, etc.
Conduct a simulated teaching session with real students, using all AI-generated teaching elements based on the stories created by each group.	Module 5 Module 6	Simulated teaching and group reflection logs

The entire practical training process follows the five-step procedure of "Application-Submission-Review-Feedback-Certification." Students upload all materials to the Chaoxing platform within the specified timeframe. The platform then initiates a blended evaluation mechanism combining group peer evaluation (accounting for 40%) and teacher evaluation (accounting for 60%). The peer evaluation component not only alleviates the review workload on teachers but also cultivates students' critical thinking and professional judgment through the process of evaluating their peers' work. Upon completion of the review, each group conducts a simulated teaching session with real students using the digital story materials they have generated, followed by collective debriefing and reflection involving both teachers and students, thereby completing the full-cycle transition from "creation" to "application."

3.2. Preliminary Practical Outcomes

At the student level, the modular design of the micro-credential system enables students to clearly position their own competency development goals. Through completing progressive creative tasks, they achieve systematic integration of knowledge acquisition, skill development, and competency internalization.

At the teacher level, the implementation of micro-credentials drives a shift in the teacher's role from traditional knowledge transmitter to learning facilitator and competency assessor. The student work data accumulated during the review process enables teachers to precisely identify common issues in students' competency development, providing an evidence base for subsequent adjustments to teaching content priorities.

At the program development level, the micro-credential system provides empirical evidence for the revision of talent cultivation curricula. Systematic analysis of assessment data enables the teaching team to accurately identify both strengths and weaknesses in students' competency development, offering data-driven support for optimizing course content.

4. Conclusion

This study addresses the practical challenges faced by higher vocational preschool education in cultivating digital storytelling competency by constructing a six-dimensional micro-credential system and developing corresponding certification standards and assessment schemes. Guided by an

evidence-based philosophy, operationalized through modular tasks, and integrated via the pathway of curriculum-certification integration, this system achieves the systematic, standardized, and certifiable cultivation of digital storytelling competency. On this basis, the study embeds the system into the course Design and Implementation of Preschool Educational Activities. Practical training results indicate that the system has begun to show positive outcomes in enhancing students' comprehensive competencies, advancing teacher professional development, and supporting program development. Future research will focus on expanding the scope of practice, conducting longitudinal follow-up studies, and introducing AI-assisted review mechanisms, so as to provide a more robust empirical foundation for the innovation of talent cultivation models in higher vocational preschool education.

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