Journal of Contemporary Educational Research, 2026, Volume 10, Issue 8
http://ojs.bbwpublisher.com/index.php/JCER
Online ISSN: 2208-8474
Print ISSN: 2208-8466

Analysis of Teaching Reform Approaches for Mini-Program UI Design Courses under the OBE Concept

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Abstract: Mini-programs are currently the mainstream platform for UI interaction design implementation, and mini-program interface design capabilities have become a core employability skill for visual communication design students. The outcome-based education (OBE) model reconstructs the teaching system with a focus on student learning outcomes, effectively addressing the shortcomings of traditional UI courses that emphasize software operation over product thinking and are disconnected from industry realities. This paper centers on mini-program UI design teaching, adhering to the core logic of OBE—outcome-oriented, student-centered, and continuous improvement—and explores implementation paths for teaching reform from multiple perspectives, including curriculum objective reconstruction, project-based teaching system construction, digital resource development, integration of job requirements, competitions, and certificates, embedding of course ideology, school-enterprise collaborative education, and the establishment of a diversified evaluation mechanism. The aim is to cultivate composite design talents with aesthetic ability, user thinking, and project implementation capabilities, providing practical references for optimizing interactive design courses in the design field.

Keywords: OBE concept; Mini-program UI design; Course teaching; Reform approaches

Online publication: August 31, 2026

1. Introduction

As the mobile internet ecosystem continues to improve, various mini-programs are widely applied in cultural tourism, public welfare, commercial services, and other scenarios, creating a high demand for UI designers capable of independently completing entire mini-program designs. “Interaction and UI Design” is a required course for junior visual communication design majors, with mini-program interfaces and interaction logic being key practical training content. In the past, classrooms often spent a significant amount of time explaining design software operations, resulting in students only being able to draw interfaces but lacking complete project practical training and user experience thinking. With a single assessment method,

the content students mastered rarely matched corporate job requirements. The outcome-based education (OBE) educational model arranges teaching content based on the professional capabilities students ultimately need to possess, aligning well with the industry characteristics of mini-program design that emphasize implementation and complete project output. Adjusting classroom teaching with this mindset can optimize the existing teaching model and effectively enhance students' comprehensive design abilities.

2. Existing teaching issues in mini-program UI design courses

2.1. Deviation in teaching objectives

The focus of course teaching objectives is biased towards software operation training, without setting hierarchical ability standards specific to mini-programs based on an outcome-oriented approach. A significant amount of class time is spent in the early stages explaining basic operations of software such as Figma and Axure, while practical content like mini-program lightweight specifications, multi-device compatibility, user testing, and solution iteration are scheduled for the latter half of the course, leaving insufficient practice time. Both teachers and students regard drawing attractive interface diagrams as the ultimate goal, lacking training in the entire mini-program project process. Most students only master basic drawing skills without developing product thinking, making it difficult for them to independently meet real corporate design needs after graduation [1].

2.2. Fragmented teaching content

Teaching content is scattered and fragmented, lacking a complete mini-program project that runs throughout the semester and progresses step by step. The existing teaching model breaks down individual knowledge points for separate explanations, failing to connect core content such as user research, information simplification, component design, accessibility adaptation, and lightweight animations through a complete mini-program project. Most classroom cases are commercial apps, with limited reserves of mini-program cases with ideological and political attributes such as intangible cultural heritage, red cultural tourism, and rural public welfare. The number of times real corporate mini-program projects are introduced is limited, and most practical training tasks are based on fictional themes, preventing students from being exposed to real development constraints, online version iterations, and other industry practical work scenarios.

2.3. Superficial integration

The integration of job requirements, competitions, and certificates, as well as the integration of course ideology, is superficial and not implemented in project practice. Most practical training projects are fictional commercial mini-programs, with few design tasks related to local intangible cultural heritage, red culture, and rural revitalization mini-programs. UI industry job capability standards, skill certificate assessment points, and subject competition scoring requirements are not incorporated into daily practical training, with competition-related training concentrated only in short-term pre-competition sessions. Ideological and political content is merely explained verbally in the classroom, without relying on mini-program design as a carrier to implement digital creation of regional culture, making it difficult for students to establish a design concept that balances cultural inheritance and social responsibility [2].

3. Implementation paths for teaching reform of mini-program UI design courses under the OBE concept

3.1. Establishing hierarchical teaching objectives

The primary task of conducting OBE teaching reform is to clarify the hierarchical learning outcomes students need to achieve after completing the course, and based on this, revise the curriculum standards, adjust the teaching syllabus, reallocate class hours, reduce redundant software teaching time, and prioritize mini-program-specific practical training.

Knowledge output objectives require students to master relevant theories such as official UI component specifications for multi-platform mini-programs, lightweight interaction logic, multi-terminal adaptation rules, information architecture construction, accessibility design, AI-assisted design, and basic design ethics; and to be proficient in practical methods for mini-program user research, user persona creation, and requirement sorting, clearly distinguishing between mini-program and app design differences, and understanding industry constraints such as package size limitations and online iterations [3].

Skill output objectives are the core learning outcomes of the course, enabling students to independently conduct user questionnaire interviews, draw user personas, build information architectures, create low-fidelity interactive prototypes, output complete high-fidelity mini-program interfaces, design lightweight animations, and output sliced images and standardized component libraries suitable for front-end development; and to be proficient in using mainstream design software, generate design solutions with the help of AI tools, and iteratively optimize them multiple times, independently completing a full set of mini-program design files for cultural tourism, public welfare, and cultural and creative categories.

Comprehensive quality output objectives focus on long-term professional abilities, cultivating students' complete product thinking, team collaboration abilities, and awareness of autonomous iteration and optimization; enabling them to independently participate in various design competitions and undertake small-scale corporate mini-program design projects; establishing design bottom lines for cultural inheritance, digital public welfare, and protecting user privacy, and possessing comprehensive expression abilities for solution explanations, on-site defenses, and optimizing designs based on user feedback [4].

3.2. Reconstructing project-based teaching content

Abandon the mode of teaching scattered knowledge points separately and design a three-stage progressive complete mini-program project chain that runs throughout the entire course duration, driving the learning of all knowledge points based on project requirements, while supplementing mini-program-specific teaching content that aligns with industry frontiers.

The first-stage basic project is a lightweight campus service mini-program, suitable for the introductory stage of the course. It focuses on themes close to students' daily lives, such as campus announcements, library reservations, and campus navigation, to conduct exercises, primarily training basic component layout, simple page interactions, and simple low-fidelity prototype creation for mini-programs, completing training in basic knowledge and basic interface drawing abilities [5].

The second-stage advanced project is a mini-program for local intangible cultural heritage and red cultural tourism, deeply integrating course ideology content. It sets design themes based on local red memorials, traditional intangible cultural heritage techniques, and rural cultural tourism resources, primarily training in-depth user research, information simplification processing, digital transformation of traditional cultural elements, multi-page linked interactions, accessibility adaptation for elderly groups, and outputting

a complete set of high-fidelity mini-program UI solutions that balance visual aesthetics, regional cultural dissemination, and actual user experience.

The third-stage comprehensive project is a school-enterprise collaborative commercial and public welfare mini-program, achieving integration of job requirements, competitions, and courses. Each semester, introduce 1–2 real corporate mini-program design needs, and students complete solution bidding, complete design, and project reporting in groups; align with the scoring standards of the mini-program track in digital design subject competitions, and incorporate competition assessment points into the project evaluation system, with students' excellent design solutions recommended for competition participation or delivered to enterprises for implementation [6].

3.3. Establishing a "dual-track" teaching model

Relying on a collaborative online-offline teaching framework, set up a dedicated mini-program design workshop to fulfill OBE's student-centered teaching requirements and re-plan classroom implementation processes.

Online pre-teaching is responsible for pre-class preview and preparation. Build an independent learning section for mini-program UI on the online teaching platform, uploading practical micro-lesson videos, official mini-program specification documents, graded design cases, and a standardized component template library. Assign theoretical challenge tasks and excellent mini-program case dissection assignments before class, enabling students to independently complete user experience theory and mini-program specification learning. The classroom will no longer repeat basic theory explanations, saving class hours entirely for project practice, solution reviews, and multiple iterations and modifications [7].

Simultaneously, implement a reverse teaching and joint evaluation mechanism involving corporate mentors. Students first independently complete initial drafts of mini-programs, conduct in-group self-checks and peer evaluations, and then receive joint evaluations from in-school instructors and designers from partner companies. Students iterate their design solutions 2–3 times based on feedback, strengthening a design mindset of continuous optimization. Online or offline evaluations by industry experts are conducted mid-project and at the end of each mini-program project, assessing student design outcomes from an industry implementation perspective and addressing the gap between in-school teaching and actual industry work.

3.4. Building a digital teaching resource library

Systematically develop an annually updatable digital resource package for mini-programs, upload it to the online teaching platform, and use it in conjunction with the three-stage practical training projects to provide comprehensive support for students to independently complete project outcomes.

The graded mini-program case library is divided into beginner campus-related, intermediate cultural tourism and intangible cultural heritage-related, and advanced commercial competition-related categories. It contains complete design solutions for mini-programs, each accompanied by requirement documents, prototype source files, design descriptions, and complete dissection analysis videos. The standardized tool template library includes universal Figma component libraries for WeChat and Douyin mini-programs, Axure interactive prototype templates, lightweight animation presets, and information visualization chart templates, reducing students' time spent on basic tool operations and guiding them to focus on user logic and interaction design. The micro-lesson practical resource library explains course difficulties such as mini-program adaptation, accessibility design, AI-assisted UI, and user testing in short video format, allowing students to

review them anytime after class and independently address learning gaps. The course ideology and politics project theme library systematically organizes design topics for local red culture, intangible cultural heritage techniques, rural revitalization, and digital public welfare mini-programs, along with local cultural materials and related policy documents, facilitating students to directly engage in cultural mini-program project design [8].

3.5. Deeply integrating job requirements, competitions, and certificates

Incorporate industry job requirements, academic competitions, and skill certificates into mini-program project teaching to enrich student course outputs and simultaneously fulfill the goal of cultivating students with both moral and academic excellence.

Job-course integration aligns with the capability standards of internet UI designers and mini-program interaction design positions, setting enterprise-required user research, development adaptation, and project reporting abilities as mandatory learning outcomes of the course. Collaborate with companies to build a long-term stable mini-program project library, with students' high-quality design solutions directly deliverable to companies for use, while establishing employment recommendation channels for graduates. Course-competition integration incorporates the scoring criteria of mini-program tracks in digital design competitions such as the provincial aesthetic education art competition and the National Youth Cup into the assessment criteria of the three-stage projects. Reserve dedicated competition training time each semester, organize course high-quality works for competition participation, and rely on competition results to evaluate classroom teaching quality. Course-certificate integration aligns with the assessment points of industry skill certificates related to digital interface design, providing corresponding practical training in advanced comprehensive projects to facilitate students in obtaining professional design skill certificates after completing the course [9].

3.6. Constructing a diversified evaluation system

To address the drawbacks of the original single final assessment, establish a comprehensive evaluation mechanism covering the entire project process and involving multiple participants, relying on evaluation data to build an OBE-based continuously optimized teaching system.

Process-oriented outcome assessments account for 60% of the total course grade, covering all output materials from the mini-program project process, including user research questionnaires, user personas, information architecture diagrams, multiple versions of iterative prototypes, group discussion records, mid-term revisions, workshop classroom performance, and completion of online preview tasks. This comprehensively records students' learning processes throughout the semester, changing the assessment model of determining grades solely based on a single drawing.

Multi-participant comprehensive outcome evaluations account for 40% of the total grade, with four evaluation participants: in-school instructors are responsible for scoring professional theories and technical specifications; group peer evaluations assess team collaboration and solution implementation feasibility; student self-evaluations focus on summarizing their own learning outcomes and identifying learning gaps; and third-party evaluations by corporate designers score from the perspectives of industry implementation adaptability and commercial practicality. Evaluation indicators no longer solely measure visual aesthetics but are subdivided into five core dimensions: user experience, interaction logic, regional cultural expression, iterative optimization, and implementation feasibility [10].

Relying on evaluation data, establish a long-term continuous optimization loop. After the end of each semester's course, compile scores for all students' mini-program projects, student classroom feedback

questionnaires, and evaluations from corporate mentors. Identify common capability gaps among students and adjust project tasks, supplement supporting teaching resources, and increase corresponding dedicated practical training class hours in the next academic year. Annually update the corporate-school mini-program project library and competition training content, forming a cyclic improvement mechanism of "teaching practice–outcome evaluation–problem identification–course optimization."

3.7. Ensuring the implementation of reforms

A stable professional teaching team, comprehensive practical training hardware, and long-term school-enterprise cooperation channels are the foundational guarantees for the smooth implementation of OBE teaching reforms. The course teaching team consists of multiple lecturers and associate professors with master's degrees, who are responsible year-round for teaching courses related to interaction design, UI design, and digital media design. They possess rich experience in curriculum reform research, teaching competitions, and guidance for academic competitions. The team has clear divisions of labor, with the course leader overseeing the overall construction of the mini-program project system and a diversified evaluation mechanism; two associate professors responsible for organizing workshop practical training, connecting with enterprise mentors, and implementing school-enterprise projects; and full-time lecturers tasked with developing digital micro-lessons and a mini-program case resource library. Their complete teaching and research capabilities can support the development and implementation of the entire reform content.

In terms of practical training hardware, the campus is equipped with professional digital design computer rooms and digitizer equipment, pre-installed with a full suite of UI interaction and motion design software, capable of meeting all practical training needs for mini-program prototype drawing, high-fidelity interface creation, and lightweight motion design. Off-campus, there are long-term collaborations with multiple local design studios and internet design companies, which continuously provide real mini-program design projects and regularly invite industry designers to deliver lectures and conduct project evaluations in the classroom. After the full implementation of the reforms, a complete set of course syllabi, digital resource packages, and teaching reform practice materials can be systematically organized to apply for university-level and provincial-level high-quality courses, model courses for ideological and political education in courses, and teaching achievement awards, achieving the solidification of reform outcomes and promoting them within the same major on campus and among similar institutions off-campus.

4. Conclusion

In summary, with the continuous development of the digital mini-program industry, internet companies have increasingly higher demands for the comprehensive capabilities of compound UI interaction design talents. The traditional UI classroom teaching model, which focuses solely on software operation, can hardly meet the industry's talent cultivation needs. OBE outcome-based education takes students' actual mastery of professional skills as its core, providing a clear and implementable approach for the reform of mini-program UI design courses. In future teaching, it is essential to fully grasp the OBE concept and apply it scientifically to educational activities to effectively enhance the teaching level of mini-program UI design courses.

Funding

2026 General-level Curriculum Construction Project of Tangshan Normal University, "Interaction and UI Design" (Project Number: 2026KCYB36).

Disclosure statement

The authors declare no conflict of interest.

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