

A Study on the Construction Path of an OBE-Oriented Smart Course for Graphic Design and Processing (Adobe Illustrator)

Zihan Li*, Xiaowen Zhu

New Art and Design School, Guangzhou Huaili College, Guangzhou 511325, Guangdong, China

*Corresponding author: Zihan Li, hanzilee@163.com

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Abstract: To address ambiguous objectives, limited process traceability, and weakly interpretable assessment in Graphic Design and Processing (Adobe Illustrator), this study adopts outcome-based education (OBE) to propose an integrated smart-course development pathway spanning objectives, content, resources, instruction, and evaluation. Using a qualitative case study design, the analysis draws on course documents, task designs, student artifacts, open-ended feedback, and teaching reflections to synthesize key practices, including operationalizing learning outcomes (LOs), aligning tasks and activities, implementing evidence-chain assessment, and supporting continuous improvement. The results suggest that outcome-oriented objectives and tiered tasks clarify learning expectations; phased reviews with documented feedback enhance assessment transparency and support iterative refinement; and LO-indexed resources with an error repository reduce learning bottlenecks and strengthen self-correction. The study provides actionable recommendations for smart-course construction in similar design software contexts.

Keywords: OBE; Smart course; Adobe Illustrator; Curriculum construction; Teaching reform

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1. Introduction

With the normalization of digital teaching and the growing use of smart education platforms, design software courses are moving beyond “demonstration–imitation“ toward outcome-oriented learning with traceable processes^[1]. In portfolio-based courses such as Adobe Illustrator, procedural imitation often fails to develop transferable competence, and persistent issues include tool-centric objectives, fragmented practice, and experience-based assessment with limited process evidence. To address these challenges, this study adopts outcome-based education (OBE) as the overarching framework, aligns objectives, content, resources, instruction, and evaluation around explicit learning outcomes, and proposes an integrated smart-course construction pathway. Using Graphic Design and Processing (Adobe Illustrator) as a case, the paper summarizes practical strategies for operationalizing learning

outcomes, aligning tasks, implementing evidence-chain assessment, and supporting continuous improvement, offering transferable implications for similar design software courses.

2. Literature review

2.1. Research on OBE and outcome-oriented course design

Outcome-based education starts from what students should ultimately be able to do and the performance level they are expected to reach, and it secures outcome attainment through systematic alignment among intended outcomes, learning activities, and assessment. Prior research suggests that OBE's value lies not in general statements but in articulating operational learning outcomes that are observable, assessable, and attainable. In practice, OBE stresses the coherence of “outcomes–activities–assessment”: teaching and tasks are organized around outcomes, assessment generates evidence to support attainment judgments, and feedback guides improvement^[2]. OBE is also inherently iterative, using learning evidence and instructional feedback to refine outcomes, reorganize content, and adjust teaching strategies for continuous course enhancement.

2.2. Research on smart course construction in skill-based courses

Research on smart courses and blended learning offers technological and organizational support for reforming skill-based curricula. The literature stresses that a smart course is more than “uploading resources” or “moving to a platform”; its value lies in integrating resources, learning activities, assessment, and process data into an operational system, enabling traceable learning, targeted support, and more visible instructional management^[3]. In skill-based contexts, studies commonly recommend structuring resources and learning pathways—for example, organizing micro-lectures, step-by-step guides, exemplar libraries, and common error repositories by skill points, task modules, or difficulty levels—so students can access timely support, reduce bottlenecks, and avoid repetitive trial-and-error. Blended and flipped models further emphasize a “pre-class input–in-class practice and troubleshooting–post-class consolidation” cycle, using class time for high-value activities such as key demonstrations, immediate error correction, work critique, and staged reviews to promote skill internalization and transfer^[4]. Overall, this line of research highlights how platform affordances combined with instructional design can make learning activities and evidence more continuous and traceable, supporting assessment and iterative improvement.

2.3. Research on assessment and evidence in design education

Assessment studies in design education have long addressed challenges in portfolio-based courses, including subjectivity, inconsistent standards, and feedback that is difficult to translate into concrete revisions. Design artifacts involve both technical specifications and aesthetic-communicative judgments, which often lead to experience-based evaluation and weak student uptake of feedback. To improve fairness and interpretability, scholars emphasize assessment transparency—clarifying criteria, describing observable indicators, and using exemplars or critique sessions to support students' self-checking^[5]. More recently, research has shifted from focusing solely on final products to foregrounding process evidence, arguing that drafts, revision records, instructor annotations, peer review, and reflections form an evidence chain that better explains learning trajectories and strengthens students' acceptance of assessment. For software courses that require both technical proficiency and creativity, such process evidence also informs targeted instruction and course iteration.

2.4. Summary and gaps

Overall, prior research shows that OBE provides an outcome-oriented alignment mechanism, smart-course and blended-learning studies enable resource integration and process traceability, and design assessment research emphasizes transparent criteria and process evidence in portfolio-based learning. Yet “OBE + smart course” work is often principle-driven, offering limited operational guidance on implementing alignment, building interpretable evidence chains, and using evidence to support iterative refinement—gaps that are particularly evident in Adobe Illustrator and similar design software courses with long skill chains, frequent iterations, and strict production standards. Accordingly, using Graphic Design and Processing (Adobe Illustrator) as a case, this study proposes an implementable and reusable OBE-based smart-course pathway spanning objectives, content, resources, instruction, and evaluation, and provides transferable strategies and improvement suggestions for comparable courses.

3. Exploring the implementation path of an OBE-oriented smart course for Adobe Illustrator

Under the guidance of OBE, smart-course development should shift from “accumulating resources” to “operating as a coherent system.” This study conceptualizes the smart-course construction of Graphic Design and Processing (Adobe Illustrator) as an executable, integrated system centered on learning outcomes (LOs) and governed by a closed-loop mechanism across five components: “objectives, content, resources, instruction, and evaluation” (Figure 1). Specifically, at the objective level, course requirements are reframed from tool mastery into attainable and assessable learning outcomes; at the content level, modules and task sequences are organized according to these outcomes to establish a progressive pathway from foundational skills to integrated performance; at the resource level, outcome-indexed micro-lectures, procedural guides, and exemplar materials are developed so that students can locate support “by outcome”; at the instruction and evaluation level, task-driven learning and staged reviews run throughout the learning process, supported by simplified assessment criteria and an evidence-chain record to enhance assessment transparency and learning traceability^[6]. Finally, continuous improvement is achieved through reflective review of learning evidence and feedback themes, enabling iterative course refinement. Based on this overarching design, the paper elaborates the implementation pathway of an OBE-oriented smart course from four dimensions: objectives, content, resources, and instruction–evaluation integration.



Figure 1. Diagram of the closed-loop operation mechanism of LOs

3.1. Optimizing the learning objective system (OBE objectives)

Traditional design software courses often frame their objectives at the level of “familiarizing with tools” and “mastering commands,” which can lead students to equate operational fluency with genuine competence. An OBE-oriented optimization of objectives therefore begins by decomposing broad aims into course-level, attainable learning outcomes (LOs) with explicit performance expectations and identifiable evidence [7]. To avoid an excessive number of outcomes or overly granular specifications, this study adopts a three-dimensional “knowledge–ability–literacy” structure to organize the learning outcomes of the Illustrator course and anchors each dimension in observable learning evidence (Figure 2).

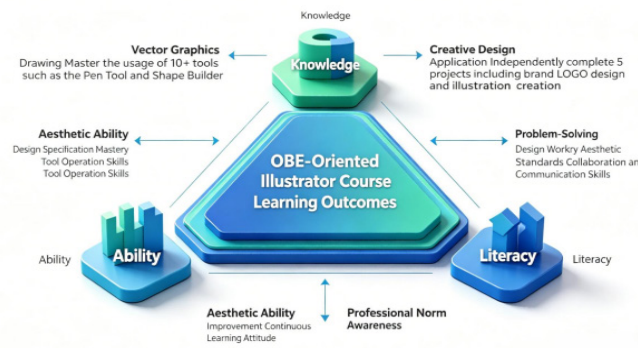


Figure 2. Outcome-oriented OBE learning outcomes framework

The course operationalizes learning outcomes through a three-dimensional structure of Knowledge, Ability, and Literacy. In the Knowledge dimension, students are expected to understand core vector-graphics principles, tool logic, and output specifications (e.g., nodes, Bézier control, shape construction, and appropriate choices of color modes, resolution, and export formats), evidenced by concept explanations, justified operational decisions, and compliance with output standards [8]. In the Ability dimension, the focus shifts to transferable design and production competence—vector form-building, layout and information hierarchy, and standardized delivery—demonstrated through draft-to-final improvement trajectories, targeted revisions, and checklist-based deliverables (file naming, layer organization, exporting) [9]. In the Literacy dimension, the course foregrounds aesthetic judgment and professional responsibility, particularly compliant asset use, copyright awareness, and design ethics, evidenced through brief requirements, reflections, source attributions, and classroom discussion [10]. Together, this structure moves outcomes from tool checklists to competence attainment and provides a consistent basis for content design, resource allocation, and assessment evidence.

3.2. Optimizing the course content system and restructuring teaching content

Once learning outcomes are clarified, course content should be reorganized around those outcomes to reduce fragmented exercises and isolated skill drills. This study structures modules by LOs and connects learning activities through tasks to create a coherent progression. An outcome-aligned content map is organized into four modules—foundational tools, integrated techniques, layout and systems, and a capstone project—moving students from core vector operations to multi-tool workflows and then to information organization (grids, alignment, hierarchy, and visual consistency), before consolidating and transferring competencies

through an authentic final brief.

Theory–practice integration is implemented through a recurring cycle of demonstration, practice, mini-tasks, and project checkpoints, where checkpoints (e.g., mid-term and final reviews) verify coordinated attainment of multiple LOs and keep projects as the primary vehicle for outcome achievement rather than additional workload. Professional literacy is embedded in a lightweight way through brief requirements such as asset compliance and responsible communication (e.g., source attribution and avoiding infringing fonts). Overall, the redesign establishes a structure that is outcome-driven, task-carried, and evidence-verified, providing a practical basis for smart-course operation.

3.3. Developing and integrating smart course resources

The effectiveness of smart-course resource development depends less on the volume of materials than on their precise alignment with learning outcomes and ease of retrieval (**Figure 3**). Accordingly, this study proposes a three-step pathway—developing new-format resources, organizing them through outcome-based indexing, and enabling platform-based sharing with iterative updates—so learners can quickly locate relevant goals and support materials when difficulties arise. New-format resources are built around key skill points and task checkpoints, including micro-lectures (brief demonstrations with essential tips), procedural cards (steps and cautions), a common-error repository (typical problems and fixes), and an exemplar library (structural breakdowns and standards), which are especially useful for frequent issues such as layout, alignment, and output specifications.

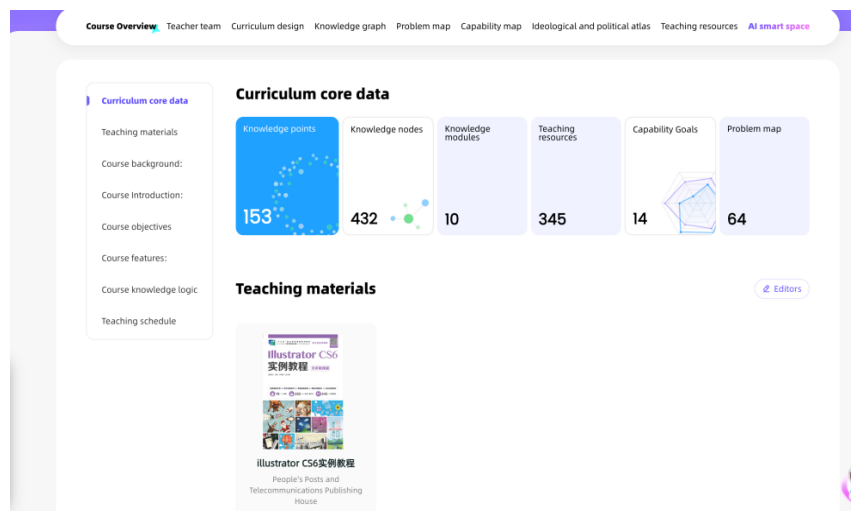


Figure 3. Construction of online smart courses

To ensure usability, each resource is explicitly mapped to specific LOs and task nodes. Each LO can be packaged with “key points, common errors, recommended resources, and a self-check list,” while project pages link directly to the corresponding LO resources and exemplars, reducing unfocused searching and supporting targeted guidance during critique and tutoring. A resource repository and update mechanism are maintained on a smart learning platform (e.g., Chaoxing), and materials are refined after each cycle based on submission patterns and feedback themes—for example, adding targeted procedural cards for recurring errors or improving exemplar explanations for common bottlenecks—so that resource development co-evolves with

course delivery through lightweight versioning.

3.4. Innovating teaching and evaluation models (instruction–evaluation integration)

Under an OBE orientation, instructional design and assessment should be treated as an integrated whole: learning activities create the conditions for outcome attainment, assessment evidence substantiates attainment judgments, and feedback drives learning improvement and course iteration. Accordingly, this study integrates teaching and evaluation into an operational model of “task-driven learning–staged reviews–evidence-chain assessment–continuous improvement,” which aligns with the “learning by doing and improving through revision” nature of design software courses (Figure 4). In implementation, a blended, task-driven approach is adopted in which in-class sessions focus on key explanations, demonstrations, and immediate troubleshooting during hands-on practice, while after-class differentiated practice packages and project progression consolidate competence for students with different prior proficiency. The course is organized around stable checkpoints, including a mid-review to surface problems and develop core competencies and a final review to verify integrated outcomes and delivery standards, thereby ensuring continuity and providing clear moments for evidence collection. For evaluation, the study argues that complex rubrics are not necessary; instead, assessment transparency and actionable feedback can be achieved through a simplified criteria sheet (three to five dimensions such as vector construction accuracy, clarity of layout and hierarchy, compliance with output and delivery standards, and visual consistency and communicative effectiveness) and, more importantly, an evidence chain (drafts → instructor/peer feedback → student revision notes → final submission). By retaining drafts and revision notes, assessment moves beyond final-product impressions to an interpretable account of what was revised, why revisions were made, and whether they aligned with intended outcomes, thus strengthening traceability and targeted learning support. Finally, the OBE loop is realized through systematic review and redesign based on accumulated evidence: instructors refine subsequent iterations by optimizing LO wording, adjusting task difficulty gradients, redesigning project checkpoints to better support competence integration, and expanding error and exemplar repositories to enhance self-directed learning.

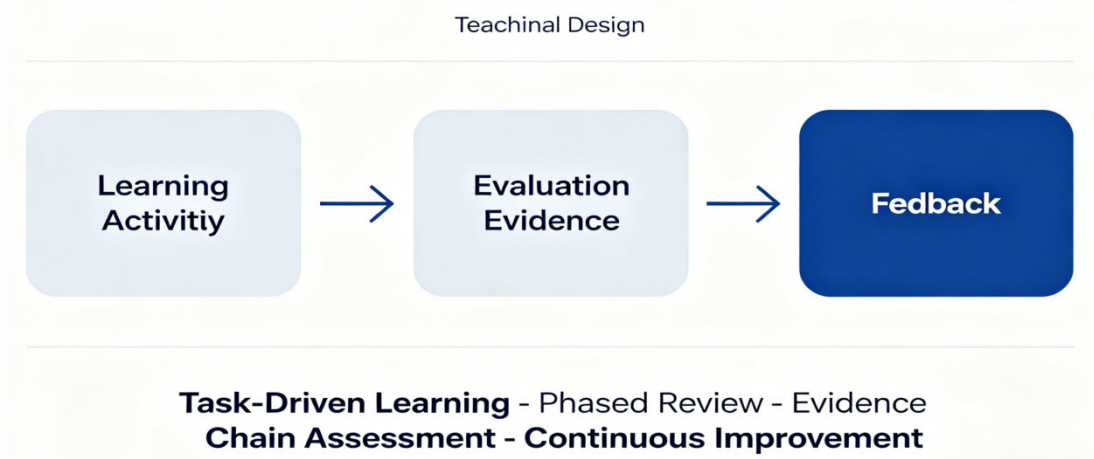


Figure 4. Teaching and evaluation design

Overall, by articulating an OBE-oriented implementation pathway across objectives, content, resources, and instruction–evaluation integration, this approach foregrounds learning outcomes as the organizing logic,

tasks as the carrier of learning activities, evidence-chain assessment as the basis for interpretability, and continuous improvement as the mechanism for iterative enhancement, offering an operational reference for the smart reform of design software courses.

4. Conclusion

With the growing prevalence of smart education, design software courses need to move beyond “demonstration–imitation” toward outcome-oriented, process-traceable, and evidence-explainable learning. Taking Graphic Design and Processing (Adobe Illustrator) as an example, instruction dominated by tool explanations and fragmented exercises often keeps students at an operational level, limiting the development of transferable design competence and hindering sustained course improvement. To address this, this study adopts OBE as the overarching logic and proposes an integrated smart-course pathway centered on LOs across “objectives, content, resources, instruction, and evaluation.” Tool-centric aims are reframed as attainable and assessable outcomes using a three-dimensional structure of “knowledge, ability, and literacy”; content and tasks are reorganized to form a progression from foundational skills to integrated projects; outcome-indexed micro-lectures, procedural guides, error repositories, and exemplar libraries support on-demand learning and self-correction; and task-driven instruction with staged reviews is implemented through simplified criteria and an evidence-chain record to enhance transparency and traceability, forming a closed-loop cycle of “evidence–review–optimization.” The pathway is transferable to portfolio-based software courses such as Photoshop, After Effects, and InDesign, though its effectiveness may vary with students’ prior proficiency, platform conditions, and instructors’ digital teaching capacity, warranting further validation across contexts.

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Disclosure statement

The authors declare no conflict of interest.

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