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Transforming Design Aesthetics Theory Into Practice: A Teaching Reform Study In Application-Oriented Design Education

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Abstract:
Background*: In application-oriented design education, a persistent challenge is how theoretical courses can effectively support design practice. While practice-based teaching has expanded rapidly, many design theory courses remain knowledge-centered, resulting in a weak connection between theoretical learning and professional competence development. Design aesthetics, which links design theory, design history, and design practice, clearly reflects this tension between theoretical value and practical function.*
Methods*: This study examines a teaching reform of a design aesthetics course in an application-oriented university. Based on authentic classroom contexts, the reform redefined course objectives, restructured theoretical content, and embedded practice tasks oriented toward value judgment. A teaching framework of theoretical understanding–value judgment–practice transformation was developed and implemented to guide teaching design and classroom practice.*
Results*: The results show that the proposed framework supports students' structural understanding of design aesthetics theory and strengthens their ability to apply theoretical concepts in design analysis and decision-making. Students increasingly used theoretical reasoning to justify design choices, indicating a clearer connection between theory learning and design practice.*
Conclusion: *This study provides a practical pathway for reforming design theory courses in application-oriented design education. It also offers empirical evidence for repositioning design aesthetics as a core theoretical resource that supports design judgment and practice within the design curriculum.*
Key Word: *Design aesthetics; Teaching reform; Theory-to-practice transformation; Application-oriented.*

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I. Introduction

Background and Research Problem

With the differentiated development of higher education, application-oriented universities have become a major component of undergraduate education. Unlike research-oriented institutions, these universities emphasize practical competence, professional adaptability, and applied knowledge. This shift has reshaped curriculum structures, particularly in design education, where the alignment between coursework and design practice is critical.

In recent years, practice-based teaching in design programs has expanded through project-based learning, studio models, and industry collaboration. Students' technical skills and operational abilities have improved accordingly. In contrast, design theory courses have remained comparatively weak in curricular positioning and teaching effectiveness. Many continue to prioritize systematic knowledge transmission over professional application, resulting in limited relevance to design judgment, value reasoning, and decision-making in practice. This imbalance has gradually constrained the overall quality of design talent cultivation.

Design aesthetics occupies a distinctive position among design theory courses. Rather than addressing abstract questions of beauty, it focuses on design activity itself, examining how aesthetic judgment relates to social production, technological conditions, and value systems. Its pedagogical function lies in supporting design evaluation and decision-making, serving as a conceptual bridge between theory, history, and practice.

However, classroom observations and student feedback suggest that this potential is rarely realized. Students often understand theoretical concepts or historical narratives but struggle to apply them when confronted with concrete design problems. Design aesthetics is frequently perceived as a course oriented toward memorization and assessment rather than a resource for design practice. This perception reinforces the broader view of design theory as abstract and impractical.

This problem is not simply a matter of student attitude or content difficulty. It is closely related to how course objectives are defined, how content is structured, and how teaching is implemented. When theoretical

knowledge is presented as fragmented information or historical sequences, students find it difficult to develop transferable cognitive frameworks. Lecture-centered instruction further weakens the connection between theory and practice, leaving design aesthetics largely absent from practical design reasoning.

Against this background, it is necessary to reconsider the role of design aesthetics in application-oriented design education and to explore teaching reforms that enable the effective transformation of theory into practice.

Research Purpose and Significance

This study examines a teaching reform of a design aesthetics course in an application-oriented design program, addressing the central question of how design aesthetics theory can be transformed into practical competence through teaching. Rather than focusing on theoretical interpretation or isolated pedagogical techniques, the study emphasizes the functional reconstruction of the course within the curriculum.

The research pursues three main objectives. First, it seeks to reposition design aesthetics as a core theoretical course that supports design judgment and value evaluation, rather than as a knowledge-oriented subject. Second, it aims to restructure theoretical content into a coherent and transferable cognitive framework that improves students' understanding and application of aesthetic concepts. Third, it explores teaching strategies that integrate theory and practice, enabling students to apply design aesthetics theory actively in design tasks and reflective analysis.

At the practical level, the study draws on authentic classroom teaching to summarize implementable reform strategies for design theory courses in application-oriented universities. At the theoretical level, it contributes to ongoing discussions on the role of theory in design education by offering a practice-based perspective on theory–practice relationships. The study provides empirical support for optimizing design curricula and informs future teaching research in design aesthetics and related theory courses.

II. Literature Review And Conceptual Background

The Relationship Between Theory and Practice in Design Education

The relationship between theory and practice has long been a central issue in design education research[1]. Unlike discipline-based education that prioritizes knowledge production, design education emphasizes the situated application of knowledge, where design competence emerges through continuous interaction between theoretical understanding, practical experience, and reflective processes[2]. From this perspective, theory functions not as an abstract system detached from practice, but as a cognitive resource that supports problem framing, design judgment, and decision-making.

However, existing studies consistently indicate a structural separation between theory courses and practice courses in higher design education[3]. Theory teaching often focuses on concept explanation and content transmission, while practice teaching emphasizes skill training and project completion. The lack of alignment in learning objectives, content organization, and assessment methods limits students' ability to activate theoretical knowledge in design practice. This theory–practice gap not only weakens students' perception of the value of theory courses but also constrains the development of integrated design thinking.

Design research has increasingly emphasized the methodological role of theory in design judgment. Buchanan argues that design problems are inherently open-ended and complex, and that theory does not provide definitive answers but offers frameworks for understanding and constructing meaning in design decision-making[4]. Dorst further suggests that the core of design thinking lies in the ability to frame problems, a process in which theoretical knowledge plays a critical role[5]. From this viewpoint, the value of theory learning should be evaluated not by knowledge retention but by its capacity to support informed judgment in complex design situations.

At the same time, research cautions against assuming that a practice-oriented approach alone can resolve theoretical deficiencies. Without theoretical grounding, practice-based learning may remain at the level of imitation and repetition, limiting the formation of transferable design competence[6]. Schön's concept of reflective practice highlights that professional expertise develops through iterative cycles of action and reflection, in which theory provides the language and perspective necessary for reflection and revision[7].

These challenges are particularly evident in application-oriented universities, where curricular priorities emphasize employability and practical skills. In such contexts, theory courses are often marginalized or treated as supplementary knowledge, weakening their foundational role in the curriculum. Although previous studies have examined theory–practice relationships at a macro level, research on how specific theory courses can be reformed to enable theory-to-practice transformation remains limited. Empirical studies grounded in authentic classroom contexts are especially scarce[8].

The Role of Design Aesthetics in Design Education

Design aesthetics occupies a distinctive position within the system of design theory courses. On the one hand, it inherits aesthetic theory's concern with experience, value judgment, and meaning-making. On the other hand, it is deeply embedded in design activity, addressing the relationships between aesthetic judgment, social structures, technological conditions, and cultural contexts[9]. This hybrid nature gives design aesthetics both theoretical depth and practical relevance.

From a curricular perspective, design aesthetics should not function merely as a descriptive framework for interpreting finished design works. Rather, it should contribute directly to design processes by informing judgment and evaluation. Frascara emphasizes that design is not limited to form-making but involves the construction of meaning through decision-making, and that design theory should support this process[10]. Krippendorff similarly frames design as an activity of meaning production, in which design judgment depends on designers' understanding of social context and value systems[11]. Within this perspective, design aesthetics provides cognitive frameworks for evaluating and justifying design decisions rather than prescribing formal solutions.

In practice, however, design aesthetics courses are frequently taught as extensions of design history or general aesthetics. Instruction often prioritizes the historical evolution of aesthetic ideas and stylistic characteristics[12], reinforcing a knowledge-centered approach. This orientation underutilizes the methodological potential of design aesthetics as a framework for design judgment. As a result, students may understand theoretical content but struggle to apply it when analyzing or justifying design decisions in contemporary practice.

Existing research has increasingly recognized the importance of cultivating value judgment and critical thinking in design education, calling for a reconsideration of the role of theory courses[8]. Nevertheless, most studies remain at the level of conceptual advocacy or curriculum positioning. Systematic analyses of how design aesthetics theory can be transformed into practice through teaching design and classroom implementation remain limited.

Taken together, existing studies provide a strong theoretical foundation for understanding theory–practice relationships and the potential role of design aesthetics in design education. However, in the context of application-oriented universities, there is still a lack of empirically grounded research on how teaching reform can reposition design aesthetics as a core theoretical resource that supports design judgment and practice. This study addresses this gap by examining a teaching reform aimed at enabling the transformation of design aesthetics theory into practice.

III. Research Design And Teaching Reform Framework

Research Context and Methodological Approach

This study is based on a design aesthetics course offered in an undergraduate design program at an application-oriented university. As a core theory course, design aesthetics aims to support students' understanding of aesthetic judgment, design values, and their relevance to design practice. Unlike practice-based courses that focus on technical execution, the course emphasizes conceptual reasoning and evaluative thinking within design contexts.

The teaching context reflects common characteristics of application-oriented design education. Students typically possess basic design skills and practical experience but show limited motivation and ability to apply theoretical concepts in design decision-making. Many can explain theoretical ideas but struggle to mobilize them when addressing concrete design problems. This context provides a representative setting for examining how design aesthetics theory can be transformed into practical competence through teaching reform.

Methodologically, the study adopts a teaching-based research approach aligned with reflective practice. Rather than employing controlled experiments or quantitative comparisons, the research examines the design, implementation, and reflection of teaching reform within authentic classroom settings. Data sources include classroom observations, student discussions, coursework outputs, and iterative teaching reflections. Analysis focuses on changes in students' modes of theoretical understanding, design judgment, and classroom engagement. The aim is not to establish causal generalizations but to articulate transferable teaching logic grounded in practice.

Objectives and Overall Teaching Logic

The teaching reform does not seek to reduce theoretical content or simply increase practice components. Instead, it aims to reconstruct the functional position of design aesthetics within the design curriculum. The central objective is to reposition the course from a knowledge-oriented theory subject to a core theoretical resource that supports design judgment and value evaluation.

Based on this objective, the reform develops an integrated teaching logic structured around theoretical understanding, value judgment, and practice transformation. Theoretical understanding emphasizes students'

grasp of core concepts and their internal relationships, rather than isolated definitions. Value judgment focuses on applying theory to analyze and compare design cases, guiding students to articulate evaluative positions within specific design contexts. Practice transformation involves embedding theory-oriented design tasks that require students to justify design decisions through aesthetic reasoning.

This logic treats theory and practice as mutually embedded rather than sequential. Theory is activated and refined through analysis, discussion, and practice, while practice functions as a site for testing and deepening theoretical understanding. This approach aligns with design education research that highlights the methodological role of theory in design judgment and decision-making.

Teaching Reform Framework and Its Applicability

The overall teaching logic is operationalized through a teaching reform framework composed of three interrelated dimensions: theoretical understanding, value judgment, and practice transformation. The framework is not a linear instructional sequence but a recursive structure that supports iterative learning processes. (Figure 1)

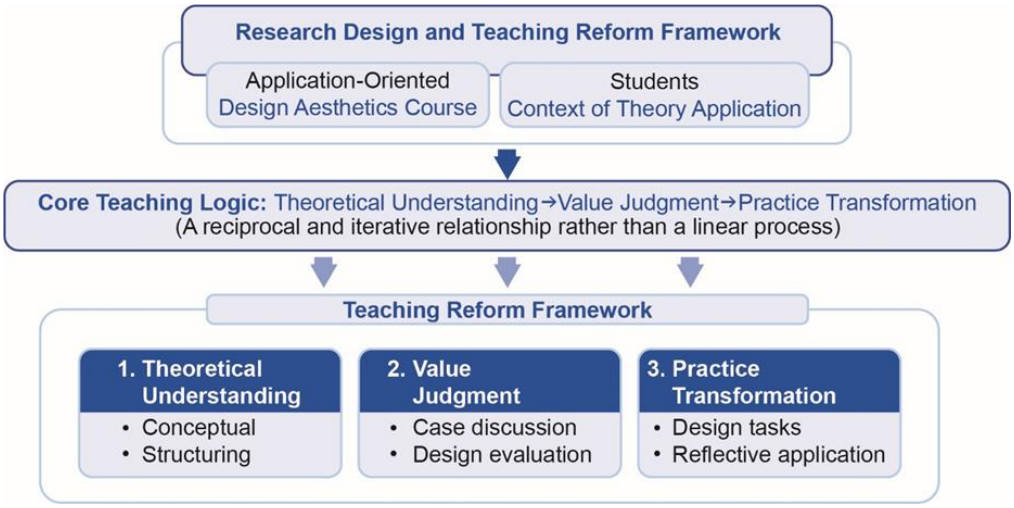

Figure 1. Framework of Theory-to-Practice Transformation in Design Aesthetics Teaching

At the level of theoretical understanding, teaching emphasizes structured explanation and selected case analysis to help students grasp the social and value-based logic underlying aesthetic change in design. At the level of value judgment, classroom discussions and comparative analysis encourage students to use theory as an evaluative tool rather than as static knowledge. At the level of practice transformation, design tasks are embedded within the theory course, requiring students to articulate the theoretical rationale behind design choices and reflect on their decision-making processes.

The strength of this framework lies in its focus on design judgment as a cross-domain competence rather than on specific design media or techniques. While developed within a design aesthetics course, the framework has broader relevance for other design theory courses facing similar challenges of theory–practice separation. By foregrounding judgment and justification, the framework provides a reference model for integrating theory into design practice across different educational contexts.

IV. Teaching Implementation Of The Reform Framework

This chapter explains how the proposed framework of theoretical understanding–value judgment–practice transformation was implemented in the design aesthetics course. The implementation focused on three interrelated dimensions: content restructuring, teaching methods, and evaluation mechanisms, ensuring alignment between course objectives and classroom practice.

Restructuring Course Content: From Aesthetic Knowledge to Judgment Frameworks

The first step of implementation involved restructuring course content to strengthen its relevance to design judgment. Traditional design aesthetics teaching often follows the historical evolution of aesthetic ideas or stylistic categories. While academically coherent, this structure provides limited guidance for design decision-making. Instead of reducing theoretical content, the reform reorganized it around the central question of how aesthetic values inform design judgment.

In the restructured curriculum, aesthetic theories were no longer presented as isolated styles or historical facts. They were discussed as responses to specific social conditions, technological contexts, and

value systems. This approach helped students understand aesthetic change as a process of design choice rather than stylistic variation. As a result, theoretical knowledge became a coherent cognitive framework that could be applied across different design contexts.

Content organization also emphasized transferability. Rather than covering a broad range of theories, the course focused on a limited number of core issues that could be revisited across historical and contemporary cases. This strategy supported students in applying aesthetic judgment logic to current design problems.

Teaching Methods: Integrating Theory Through Discussion and Case Analysis

Teaching methods were adjusted to move beyond lecture-centered instruction and to support the development of value judgment. The course adopted a combined approach of theoretical explanation, case analysis, and guided discussion. Lectures remained part of classroom teaching, but their function shifted from comprehensive knowledge delivery to conceptual framing.

Case analysis served as the primary medium for connecting theory with practice. Carefully selected design cases enabled students to examine how aesthetic values operate within concrete design decisions. Classroom discussions required students to articulate evaluative positions and justify them using theoretical concepts. Through this process, theory was transformed from content to be remembered into a tool for reasoning and argumentation.

Discussion-based teaching also altered classroom dynamics. Students became active participants in evaluative dialogue rather than passive recipients of information. Repeated engagement in judgment-oriented discussion helped students develop confidence in using theoretical language to analyze design work, laying the cognitive groundwork for theory-to-practice transformation.

Embedding Theory-Oriented Practice Tasks

To further support the transformation of theory into practice, design tasks were embedded directly within the theory course. Unlike traditional theory assignments that separate practice from learning content, these tasks were designed to operate alongside theoretical instruction and to make theoretical reasoning explicit.

Practice tasks emphasized design decision-making rather than technical complexity. Students were required to explain the aesthetic orientation and value position underlying their design choices, using concepts from design aesthetics. This requirement encouraged students to revisit theoretical content during the design process and to treat theory as a basis for judgment rather than as post hoc justification.

Practice tasks also functioned as diagnostic tools. By examining how students explained their design decisions, instructors could assess the depth of theoretical understanding and adjust teaching strategies accordingly. In this way, practice became an integral mechanism for reinforcing and refining theoretical learning.

Coordinated Evaluation Mechanisms

Evaluation mechanisms were redesigned to align with the goals of theory-to-practice transformation. Traditional assessment structures that rely heavily on final examinations tend to prioritize memorization of theoretical knowledge. To address this limitation, the course adopted a multiple evaluation mechanism combining exams and continuous assessment. (Figure 2)

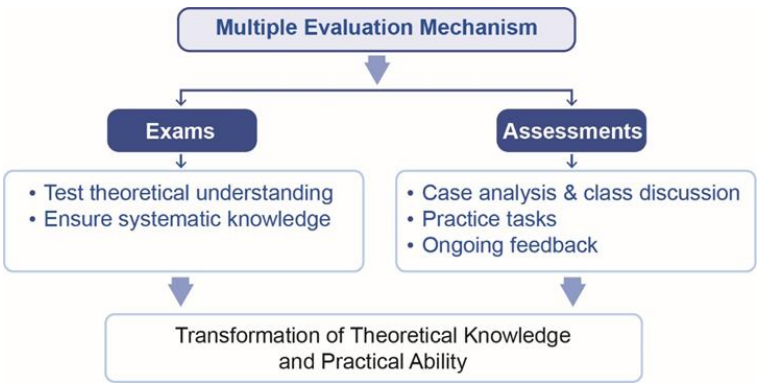

Figure2. Multiple Evaluation Mechanism for Theory-to-Practice Transformation in Design Aesthetics Teaching

Exams assessed students' understanding of core concepts and theoretical coherence, ensuring the integrity of theoretical learning. Continuous assessment focused on students' use of theory in case analysis, classroom discussion, and practice tasks. Evaluation criteria emphasized the clarity of theoretical reasoning rather than the formal quality of design outcomes.

Process-based feedback was incorporated throughout the course to guide students' learning strategies. By linking evaluation directly to theoretical application, the assessment system reinforced the importance of using theory as an active component of design judgment. Over time, this approach shifted students' learning orientation from exam preparation toward understanding and application.

V. Results And Analysis

This chapter reports the outcomes of the teaching reform, focusing on changes in students' learning behaviors, modes of theoretical understanding, and their ability to apply design aesthetics theory in practice. The analysis is based on classroom observation, student work, and teaching reflection within authentic teaching contexts.

Changes in Student Engagement and Classroom Participation

Following the implementation of the reform framework, noticeable changes emerged in students' classroom engagement. In previous lecture-centered teaching, students tended to participate passively, with limited interaction and brief descriptive responses. After the introduction of case-based discussion and judgment-oriented tasks, students increasingly assumed active roles in classroom dialogue.

Classroom observations indicate an increase in both the frequency and substance of student contributions. Rather than repeating conceptual definitions, students began to reference specific design cases and to use design aesthetics concepts to explain and evaluate design decisions. Although the precision of theoretical language varied across individuals, students showed greater willingness to articulate evaluative positions and engage in comparative analysis.

Students' attitudes toward classroom discussion also shifted. Continuous discussion and formative feedback helped students recognize that theoretical understanding directly influenced their ability to analyze design problems. This change in perception provided motivational support for deeper engagement with theoretical learning.

Shifts in Modes of Theoretical Understanding

The reform contributed to a gradual shift in how students understood design aesthetics theory. Prior to the reform, students often treated theoretical concepts as isolated knowledge points, leading to fragmented understanding. Through structured content organization and repeated engagement with core issues, students began to develop more coherent conceptual frameworks.

Evidence from student assignments and discussions suggests that students increasingly analyzed design phenomena in relation to aesthetic values, social contexts, and judgment criteria, rather than focusing solely on formal characteristics. Design aesthetics theory was no longer approached primarily as material for memorization but as an analytical resource for interpreting design work.

This transformation was incremental rather than immediate. Some students initially relied on intuitive or experience-based judgments, but sustained exposure to theory-oriented tasks encouraged more explicit use of theoretical reasoning. The findings indicate that changes in theoretical understanding require continuous pedagogical reinforcement.

Evidence of Theory-to-Practice Transformation

A central aim of the reform was to support the transformation of design aesthetics theory into practical design judgment. In practice-based tasks, students were required to articulate the aesthetic orientation and value rationale underlying their design decisions. This requirement prompted students to integrate theoretical reflection into the design process.

Compared with previous practice assignments that emphasized formal completion, reformed tasks highlighted decision-making processes. In several cases, students demonstrated the ability to connect theoretical concepts with design choices and to justify their decisions through aesthetic reasoning. These responses indicate an emerging linkage between theoretical understanding and design practice.

However, challenges remained. Some students applied theoretical concepts in a superficial or formulaic manner, suggesting that theory-to-practice transformation is not automatic. Nevertheless, the reform created explicit institutional and pedagogical conditions for such transformation by embedding theory use into course expectations.

Overall Analysis of Teaching Outcomes

Taken together, the findings suggest that the teaching reform alleviated, to some extent, the disconnection between design aesthetics theory and design practice. By restructuring content, adjusting teaching methods, and aligning evaluation mechanisms, the course repositioned theory as an active resource for judgment rather than passive knowledge.

At the same time, the outcomes were shaped by contextual factors, including students' prior learning experiences and levels of engagement. The reform did not eliminate theory–practice tensions but provided a structured pathway for addressing them within teaching practice. From an analytical perspective, focusing on changes in learning processes rather than quantitative performance allows for a more nuanced understanding of teaching reform in complex educational settings.

VI. Discussion And Conclusion

This study addresses a persistent issue in application-oriented design education: how design theory courses can meaningfully support design practice. Focusing on a teaching reform of a design aesthetics course, the study examines how theoretical knowledge can be transformed into practical design judgment through instructional design rather than content reduction.

The findings suggest that the limited practical impact of design aesthetics is not inherent to the theory itself but is closely related to how the course is positioned and taught. When course objectives shift from knowledge acquisition to the cultivation of design judgment, design aesthetics functions as an analytical and evaluative resource rather than as abstract content. The proposed framework of theoretical understanding–value judgment–practice transformation provides a structured way to embed theory within design learning processes.

The study also highlights the pedagogical importance of discussion and formative evaluation. Judgment-oriented discussions allow students to experiment with theoretical reasoning in low-risk contexts, while aligned evaluation mechanisms signal that theoretical application is a central learning outcome. Together, these elements help students integrate aesthetic reasoning into design analysis and decision-making.

Several limitations should be acknowledged. The study is based on a single course within a specific institutional context, which may limit the generalizability of the findings. In addition, the analysis relies primarily on qualitative evidence derived from teaching practice. Future research could adopt mixed methods or longitudinal designs to examine the sustained impact of theory-oriented teaching reform on students' design competence.

Despite these limitations, the study offers practical implications for design education. It suggests that reforming theory courses should focus on instructional design that enables theory use, rather than on reducing theoretical content in favor of practice. Design aesthetics, when properly positioned, can serve as a core theoretical foundation for design judgment in application-oriented curricula. More broadly, the study contributes to ongoing discussions on theory–practice integration in design education by demonstrating how theory can be activated through teaching.

Acknowledgement

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