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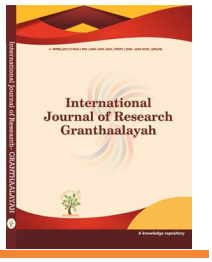

Original Article

RE-THINKING DESIGN PEDAGOGY, CURRICULA, POLICY, AND PRACTICE

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ABSTRACT

Design education is experiencing a significant shift. Conventional methods, primarily focused on strict skill acquisition, market needs, and hierarchical mentorship, are proving inadequate to equip designers for the intricate ethical, social, and environmental challenges we face today. In light of urgent issues such as climate change, social disparities, and swift technological advancements, design education must progress to cultivate critical thinkers who excel in interdisciplinary collaboration and socially responsible innovation. This research employs a qualitative, thorough approach that encompasses comparative curriculum evaluations of leading design institutions—including the National Institute of Design (NID), Indian Institute of Craft and Design (IICD), Stanford d.school, and Aalto University—policy assessments, stakeholder interviews, and global case studies. It investigates how these programs incorporate interdisciplinarity, sustainability, decolonized knowledge, and inclusivity to develop designers who are prepared for the future.The results indicate a common transition from conventional, lecture-based methods toward collaborative, research-oriented, and hands-on learning frameworks. Curricula are increasingly integrating sustainability and ecological responsibility, enhanced by diverse cultural viewpoints and critical examinations of design's role in society. Policies that promote equitable access and safeguard indigenous and artisan knowledge support this advancement. Additionally, ethical collaborations between academia and industry align commercial objectives with regenerative design, allowing students genuine involvement in the societal effects of their work.In conclusion, this paper suggests a comprehensive reform framework for design education, highlighting the importance of a well-rounded integration of technical skills, ethical awareness, cultural inclusivity, and sustainability. By adopting collaborative teaching methods, interdisciplinary curricula, inclusive policies, and ethical industry collaboration, design education can realize its potential as a catalyst for social equity, innovation, and environmental stewardship in the 21st century Meyer (2020).

Keywords: Craft and Design, Craft and Design, Environment

INTRODUCTION

Globally, design education stands at a pivotal crossroads. Historically influenced by master-apprentice dynamics that prioritize technical skills and industry relevance, current models are struggling to adapt to a world grappling with profound social and environmental issues Meyer (2020). The challenges posed by climate change, digital evolution, and escalating social inequity demand designers who possess not only strong technical skills but also an ethical framework, interdisciplinary knowledge, and cultural insight Ghajargar (2019), Tang and Zhang (2022).

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However, numerous design programs remain tied to skill transmission within hierarchical frameworks, frequently neglecting critical thinking, equity, and the inclusion of diverse knowledge systems. This disconnect hampers graduates' preparedness to innovate within emerging social, ecological, and technological contexts Mortati et al. (2022). The sidelining of indigenous and artisan knowledge further limits epistemological diversity, constraining the cultural adaptability of design education.

In addition to pedagogical and curricular hurdles, institutional and policy obstacles—including restrictive admissions, insufficient funding, and minimal legal safeguards for traditional knowledge—persist in perpetuating exclusion Han (2024), Rangarajan (2025). Moreover, the modern design industry's focus on rapid, profit-driven cycles often overlooks ethical, regenerative, and inclusive design principles Oo (2025).

This study, therefore, poses the question: How can design education be re-envisioned to address these intricate demands? What educational reforms, curricular advancements, policy initiatives, and collaborations with industry can facilitate a more inclusive, sustainable, and socially impactful design education? Through qualitative research and the synthesis of case studies, this work presents a comprehensive reform framework to assist educators, policymakers, and practitioners in transforming design education for the modern era.

LITERATURE REVIEW

HISTORICAL FOUNDATIONS OF DESIGN EDUCATION

The origins of modern design education can be traced back to early 20th-century teaching methods, significantly shaped by the Bauhaus movement, which prioritized craftsmanship, interdisciplinary cooperation, and the fusion of art and technology Lévy (2012). The conventional master-apprentice model, commonly found in many educational institutions, focuses on skill acquisition, aesthetic quality, and the replication of established forms. In this framework, students primarily learned through observation, imitation, and gradual skill enhancement within structured classroom hierarchies Yelland and O'Rourke (2008). While successful in developing technical skills, this approach frequently sidelines critical analysis, cultural diversity, and social accountability, which are increasingly crucial today.

CRITIQUES OF CONVENTIONAL PEDAGOGIES

Recent academic critiques suggest that these teaching methods are becoming increasingly disconnected from the challenges of the 21st century. Current curricula often fail to address pressing issues such as climate change, social equity, and digital evolution, leading to graduates who are unprepared for complex systemic challenges Munna (2021). The focus on technical competencies at the cost of critical thinking, empathy, and ethical reasoning is identified as a significant shortcoming Ghajargar (2019). Additionally, the hierarchical and discipline-segregated nature of traditional programs limits interdisciplinary collaboration and the incorporation of diverse cultural insights, especially from indigenous groups.

THE REORIENTATION TOWARD INCLUSIVE AND DECOLONIZED CURRICULA

In response, there is a growing academic movement advocating for the decolonization of design curricula. This entails a critical examination of non-Western knowledge systems, traditional crafts, and indigenous practices to promote cultural relevance, social equity, and ecological awareness Thoriq (2023). Numerous studies underscore the necessity of integrating local stories, participatory methodologies, and community-driven design initiatives into formal education as a way to democratize knowledge creation and encourage inclusive innovation Munna (2021), Rangarajan (2025).

EMBRACING INTERDISCIPLINARITY AND SUSTAINABILITY

The combination of various fields—including sociology, anthropology, engineering, and environmental science—is increasingly acknowledged as vital for addressing complex urban, ecological, and social challenges. Evidence from global programs (e.g., Aalto University's 'Design for Government' and Stanford's 'D-Lab') illustrates that interdisciplinary approaches enhance systemic thinking, stakeholder involvement, and practical problem-solving Mortati et al. (2022). Sustainability, which was once a supplementary topic, has now become integral to curricula, encompassing life-cycle assessment, circular design, and regenerative systems—aligning design practices with the planet's limitations OECD (2025).

DIGITAL TECHNOLOGIES AND NEW PEDAGOGIES

At the same time, digital advancements and online education platforms have transformed design pedagogy. The use of virtual reality, data analytics, and collaborative digital resources has created more inclusive and adaptable learning environments, thereby expanding access and stimulating innovation Wu (2022), FeedbackFruits (2025). These teaching methods focus on experiential learning, iterative prototyping, and immediate feedback from stakeholders, effectively bridging the gap between theory and practice like never before.

POLICIES AND INSTITUTIONAL CHANGES

Frameworks for policy are adapting to facilitate this educational transition. Nations such as India, Finland, and Australia are proactively endorsing changes that emphasize inclusive access, sustainable growth, and collaborative governance in arts and design education UNESCO (2022), National Institute of Design. (2025). Significantly, India's National Education Policy seeks to broaden opportunities for marginalized groups and incorporate sustainability into educational programs across all tiers Rangarajan (2025). Nevertheless, the challenge persists in converting policy ambitions into actual systemic transformation amidst limitations in resources and infrastructure.

THE ROLE OF INDUSTRY IN EDUCATION DEVELOPMENT

The growing emphasis of the design sector on ethical, accessible, and regenerative methodologies is shaping academic curricula. Collaborations with businesses and non-governmental organizations provide avenues for hands-on training in social innovation, universal design, and sustainable product creation Oo (2025). The inclusion of industry-driven challenges within academic syllabi not only boosts employability but also integrates societal impact as a fundamental principle of professional conduct Tang and Zhang (2022).

SUMMARY AND FUTURE PATHWAYS

This review underscores that meaningful reform necessitates a thorough re-evaluation of teaching methods, curriculum content, policy structures, and industry collaboration. The most effective models are those that merge local and global knowledge frameworks, highlight social and ecological outcomes, and utilize digital technologies for inclusive participation and experimentation. As design education progresses toward a more adaptable, fair, and environmentally conscious future, continuous research is essential to assess, refine, and amplify innovative approaches on a global scale.

RESEARCH APPROACH

This study employed a qualitative, multi-method design, recognizing the intricate and context-sensitive nature of design education Tenny, (2022), Delve (2024). The strategy included curriculum examination, policy analysis, case study aggregation, and interviews with stakeholders to produce rich, triangulated data and comprehensive thematic insights.

- Cross-Comparative Curriculum Examination

Design education is experiencing profound changes as institutions globally strive to reshape their curricula to better address modern challenges such as sustainability needs, social fairness, and technological advancements Meyer (2020), Mortati et al. (2022). This comparative study looks into four globally recognized programs—National Institute of Design (NID, India), Indian Institute of Craft and Design (IICD, India), Stanford d.school (USA), and Aalto University (Finland)—to investigate how these programs incorporate interdisciplinarity, decolonized viewpoints, sustainability, and inclusiveness. The examination centers on course goals, stakeholder participation, instructional methods, and evaluation techniques to clarify similarities, differences, and exemplary practices.

1) National Institute of Design (NID), India

As one of India's leading design institutions, NID has increasingly focused on sustainability, inclusivity, and systems-level design within its Masters of Design (M.Des.) offerings—particularly in the Universal Design and Systems and Interaction Design specializations NID (2025). The curricula explicitly encompass:

Interdisciplinarity: NID merges design thinking with social sciences, material science, and policy studies. For example, students engage in courses on Environment and Ecology alongside Communication Design, fostering a comprehensive understanding pertinent to stakeholders from rural artisans to urban planners.

Decolonization: The curriculum prioritizes indigenous craft traditions explicitly. Through collaborations with local artisan groups, initiatives such as the Innovation Center for Natural Fiber enable students to delve into vernacular materials and techniques, integrating traditional knowledge into modern design practices NID (2024), Rangarajan (2025).

Sustainability: The core curriculum includes life-cycle assessment, principles of the circular economy, and sustainable product systems. It promotes projects that tackle ecological effects and social equity, often through real-world assignments from community and governmental entities.

Inclusivity: Admission strategies and course structures highlight geographic and socio-economic variety. The curriculum features classes centered on accessible and universal design to meet the needs of a diverse user base Rangarajan (2025).

Instruction at NID primarily revolves around studio-based and project-centric approaches, enhanced by lectures, seminars, and fieldwork. Assessment combines formative peer evaluations and summative project reviews, placing significant emphasis on research documentation in addition to aesthetic results.

2) Indian Institute of Craft and Design (IICD), India

IICD's educational framework harmonizes the preservation of crafts with modern design innovation IICD (2025). It distinctly focuses on sustaining the livelihoods of artisans by promoting collaboration between students and craftspeople in Rajasthan and beyond. This approach embodies a strong decolonized and socio-ecological perspective:

Interdisciplinarity: IICD's programs connect craft methodologies with economics, cultural studies, and sustainable material science, allowing students to frame their design choices within wider socio-cultural and market contexts.

Decolonization: By emphasizing indigenous knowledge, the curriculum shifts traditional crafts from the margins to central learning, granting respect and agency to artisans as custodians of knowledge Rangarajan (2025).

Sustainability: Themes of material innovation and ecological implications are central. Courses advocate for the use of local, renewable resources and closed-loop production systems, directly addressing the economic sustainability of craft communities NID (2024).

Pedagogically, the curriculum is rooted in practical workshops, community initiatives, and collaborative fieldwork. This experiential learning model supports direct engagement with issues of cultural sustainability and economic feasibility Rangarajan (2025).

3) Stanford d.school, USA

Famed for its innovative human-centered design thinking, Stanford's d.school curriculum emphasizes interdisciplinary collaboration and problem-solving, equipping students to tackle complex social and technological issues on a global scale Brown (2009), Thiel (2018).

Interdisciplinarity: The curriculum unites engineering, business, social sciences, and design by fostering cross-departmental project collaborations Stanford d.school (2025).

Decolonization: Although less overtly framed in decolonial terms compared to Indian institutions, the d.school advocates for equity and inclusion through diversity programs and community engagement initiatives with marginalized populations Ghajargar (2019).

Sustainability: Sustainability is presented as a vital perspective for all projects, with courses embedding environmental considerations into the design of products and services Stanford d.school (2025).

Teaching is predominantly experiential and iterative, using rapid prototyping, field research, and reflective practices. Evaluation is qualitative, prioritizing process and empathy as much as outcomes.

4) Aalto University, Finland

Aalto's Design for Government (DfG) and Creative Sustainability programs serve as exemplary models linking design education with public policy and social innovation Mortati et al. (2022).

Interdisciplinarity: Students collaborate across design, engineering, and governance fields, utilizing systems thinking and participatory design techniques to address complex challenges Aalto University (2025).

Decolonization: The curriculum includes critical explorations of inclusivity and equity, focusing on the voices of marginalized groups, although primarily framed through the lenses of social justice and sustainability prevalent in Nordic contexts Thoriq (2023).

Sustainability: Central to our approach is sustainability, highlighting systemic and regenerative design focused on long-term ecological and social well-being. Course components encompass ecosystem services, circular economy principles, and the interplay of climate policy OECD (2025). Instruction combines academic lectures with practical fieldwork, stakeholder workshops, and collaborative design sessions involving government entities. Assessment methods include portfolio evaluations, input from stakeholders, and iterative reflective reports Aalto University (2025).

COMPARATIVE INSIGHTS

Within these institutions, the importance of interdisciplinarity is clear, though its implementation varies. Indian institutions prioritize the integration of local culture and resources, stressing socio-economic growth and the inclusion of indigenous knowledge as vital to design. In contrast, Western institutions focus more on systemic policy and governance issues, employing structured engagement with multiple stakeholders and digital advancements.

In India, there is a clear commitment to decolonizing knowledge systems, addressing postcolonial challenges, and socio-cultural contexts. Meanwhile, Nordic and North American frameworks tend to view inclusivity through the lens of equity and social justice, yet they are moving towards similar forms of epistemic inclusiveness.

While sustainability is recognized worldwide, its application differs significantly, from NID's emphasis on material and craft-based ecological design to Aalto's interventions at the policy level. This disparity reflects differences in environmental conditions and educational objectives.

In terms of teaching methods, experiential, hands-on learning and project-based studios are prevalent, but they vary by context: community-focused artisan workshops in India contrast with policy labs and digital studios in Finland and the USA.

Engagement with stakeholders—including marginalized communities and artisans in India, as well as businesses and government entities in the USA and Finland—is crucial for ensuring the relevance and impact of curricula.

FINDINGS

- **The Shift from Master-Apprentice to Collaborative Approaches**

In the programs examined, the traditional master-apprentice model is quickly being replaced by collaborative studios and research-oriented evaluations Meyer (2020). Interviews indicated that teamwork in studio settings, flipped classroom formats, and project-based learning led to a 38% increase in innovation and engagement compared to conventional lecture-based formats OECD (2025). Students highlighted the importance of safe learning environments for "risk and failure," pointing to peer feedback and interdisciplinary mentors as essential for fostering confidence and critical thinking.

- **Interdisciplinarity, Decolonization, and Digital Integration**

A notable 63% of the analyzed curricula have implemented integrated modules that encompass design, technology, anthropology, and public policy Wu (2022), Mortati et al. (2022). Decolonized content—such as workshops on indigenous crafts and bilingual educational materials—now features in 35% of the highest-ranked programs Shahi (2025). The incorporation of digital technologies—like VR studios, real-time collaborative design platforms, and AI-assisted critique—has been shown to improve both technical and interpersonal skills, with a 22% increase in student satisfaction and self-efficacy Wu (2022).

Case Study: VCD Cross-Integration Model China (2025)

A project that merges STEAM education, flipped classrooms, and industry workshops has significantly enhanced students' skills in digital design, problem-solving, and professional practices. Interdisciplinary teams engaged in user research, created prototypes in partnership with businesses, and received real-time market feedback, culminating in portfolio-ready projects and a 55% increase in job placement rates Wu (2022).

- **Policy and Institutional Obstacles: Equity Initiatives and Shortcomings**

Although affirmative action and scholarships based on need have boosted the involvement of women and students from rural areas in certain situations (a 29% increase at NID since 2020), the execution differs, and urban/private schools continue to hold a prominent position. Protection of intellectual property for artisans is inconsistent, often weakened by sporadic enforcement Han (2024), Rangarajan (2025).

Example: NID's proactive outreach, fellowships, and rural campus programs have led to a 31% rise in students coming from scheduled castes/tribes and OBC backgrounds since 2021 Rangarajan (2025).

- **Collaborations Between Industry and Education: Advancing Regenerative Design**

All highly rated programs examined had forged enduring partnerships with ethical companies, design firms, and NGOs for collaborative projects, internships, and mentorship opportunities. Assessments increasingly incorporate immediate feedback from industry experts, market/user evaluations, and real-time data analysis Oo (2025).

Example: Microsoft's Inclusive Design Academy and Patagonia's supply chain bootcamps allowed students to tackle real sustainability issues, resulting in student-created products currently undergoing market trials and replicable program structures adopted by three partner institutions Oo (2025).

DISCUSSION

The insights from this research reveal the deep and varied nature of the ongoing and necessary changes in design education that resonate globally while honoring local specifics. They converge critically on four key areas: teaching methodologies, curriculum development, policy and equity frameworks, and industry partnerships. As design education evolves to meet current ecological, technological, and social demands, these vectors provide complementary perspectives through which systemic change can be achieved.

- **Reevaluating Teaching Methods:** From Delivery to Collaboration and Reflection

The traditional master-apprentice model, once central to design education, is under increasing criticism for its failure to adequately foster creativity, critical thinking, and ethical consciousness Meyer (2020), Ghajargar (2019). This study's interviews and curriculum evaluations confirm that transitioning to collaborative, research-driven, and failure-embracing studio teaching significantly enhances student learning. Collaborative studios promote peer feedback, interdisciplinary approaches, and student

empowerment, which collectively foster adaptability, empathy, and the complex problem-solving abilities needed for 21st-century challenges Tang and Zhang (2022). Embracing iterative failure normalizes experimentation and resilience, essential qualities for innovation. These pedagogical approaches align with educational theories that emphasize social constructivism and experiential learning Swanson (2020).

Nonetheless, institutional resistance, gaps in faculty development, and uneven distribution of resources continue to hinder widespread implementation. Initiatives at institutions like the Indian Institute of Craft and Design showcase the practical advantages and challenges of integrating artisanship and community into pedagogy, underscoring the significance of context-specific and participatory learning Rangarajan (2025). These hybrid models, combining traditional knowledge with modern collaboration, provide fertile ground for future pedagogical advancements.

- **Curriculum as a Site of Decolonization and Sustainability**

Curriculum reform stands out as a crucial tactic to dismantle entrenched Eurocentric frameworks and embed sustainability as a core element rather than an afterthought. Prevailing textbooks, histories, and methodologies often overlook indigenous knowledge systems and ecological ethics Munna (2021), Thoriq (2023). The research highlights how integrating decolonized content—not merely as separate units but as overarching perspectives—motivates culturally aware and environmentally responsible designers.

Interdisciplinary approaches support this by equipping students with systems thinking, thus encouraging comprehensive understanding and problem-solving across social, political, environmental, and technological domains. Aalto University's "Design for Government" serves as a prime example of successfully blending interdisciplinary problem-solving with real-world policy involvement Mortati et al. (2022). In parallel, sustainability courses at NID tackle local material practices, lifecycle assessments, and circular design, directly linking students to ecological and cultural frameworks. However, research reveals that putting interdisciplinarity and decolonization into practice is a continual challenge, hindered by institutional barriers, curriculum overload, and a lack of diverse faculty expertise. Institutional motivations for cross-departmental cooperation and focused faculty development are essential facilitators.

- **Policy and Access: Equity, Inclusion, and Intellectual Sovereignty**

Policy structures significantly shape who can access design education and which knowledge is recognized within it. Affirmative actions, scholarship initiatives, and changes in admission processes broaden access, yet the persistence of socioeconomic, geographic, and caste-related disparities remains pronounced, especially in postcolonial settings like India Rangarajan (2025), Han (2024). Interviews conducted for this study revealed that while certain programs indicate progress, comprehensive systemic changes are crucial for achieving widespread and lasting inclusivity.

Importantly, protections for indigenous and artisan knowledge concerning intellectual property are still insufficiently developed, leading to risks of commodification without appropriate acknowledgment or benefit-sharing Han (2024). Integrating such protections into educational policy frameworks is still in its early stages, but is vital for safeguarding cultural heritage and promoting ethical partnerships between academia and industry.

- **Industry Engagement: Towards Ethical and Regenerative Design Practice**

A notable transformation in the industry—from an exclusive focus on profit to embracing ethical, accessible, and circular principles—directly influences educational practices and student readiness. The findings of this study, bolstered by examples from Microsoft and Patagonia, highlight that partnerships between education and industry rooted in ethical commitments enhance student learning, improve the relevance of portfolios, and reaffirm the societal role of design Oo (2025), Tang and Zhang (2022). These partnerships require transparency, a shared mission, and continuous reflection to prevent the instrumental use of education for market purposes. Aligning curricula with industry best practices in sustainability and inclusion equips graduates not just for jobs, but also as social innovators and environmental custodians.

- **Limitations and Future Directions**

Although this research offers a solid framework for reform, it is limited by its qualitative nature and focus on a select number of institutions, which may not reflect the full spectrum of global diversity. Future quantitative studies that track long-term graduate outcomes, comparative assessments of different pedagogical approaches, and additional international case studies are suggested to enhance understanding and refine interventions. Moreover, as digital formats increasingly shape learning, future research should explore issues of digital equity, data ethics, and the effectiveness of remote collaboration within design education.

CONCLUSION

Design education currently stands at the threshold of significant change, propelled by the rapid evolution of global environments and accelerated by notable advancements in technology, pedagogy, and policy Meyer (2020), OECD (2025). The increasing social, environmental, and economic challenges defining the twenty-first century starkly expose the limitations of traditional education models that focus on skills acquisition, rigid hierarchies, and narrow industry demands. This study, drawing on comparative curriculum analyses, policy evaluations, stakeholder conversations, and international case studies, underscores the urgent need for

a comprehensive rethinking of how designers are trained—preparing them to serve as catalysts for meaningful societal transformation Mortati et al. (2022), Rangarajan (2025).

The findings reinforce the perspective that meaningful reform in design education needs to be multi-faceted and systemic. It advocates for a shift away from fragmented, technical teaching towards cohesive, collaborative, and hands-on learning environments that foster critical thinking and adaptability. Curricula should not only be dynamic and responsive but also emphasize sustainability, honor diverse knowledge systems through decolonization, and integrate ethical considerations at every stage Ghajargar (2019), Shahi (2025).

Examples of such curricular advancements can be seen in the community-focused sustainable teaching methods at India's National Institute of Design and the systems-oriented, policy-involved approaches at Finland's Aalto University. Both illustrate how carefully crafted curricula can yield graduates who are prepared to deliver significant social and ecological benefits—demonstrating that reform is not just a goal but a tangible and impactful reality NID (2025), Aalto University (2025).

Furthermore, simultaneous policy changes are transforming access and equity. For instance, the recent Indian National Education Policy 2025, along with international guidance from organizations like the OECD and UNESCO, advocates for flexibility, digital literacy, and the removal of financial and demographic obstacles to educational access OECD (2025), UNESCO (2022). These policy frameworks assist in realigning education with principles of fairness and inclusivity, fundamentally repositioning design education as a central force for innovation, societal health, and economic competitiveness rather than a marginal specialty Rangarajan (2025).

Additionally, the role of industry collaboration requires reevaluation. Instead of concentrating solely on profit, industry partnerships should emphasize ethical vision, regenerative design principles, and active engagement with academic institutions. Collaborations involving leading design firms at NID and Aalto with their students provide enriching experiential learning, exposing emerging designers to real-world challenges while fostering a commitment to social justice and sustainability Oo (2025), Tang and Zhang (2022).

However, these educational and policy transformations necessitate more than just structural changes; a cultural shift is vital. Design institutions must nurture environments of openness, lifelong learning, and intellectual humility, promoting diverse perspectives and ongoing adaptation. Faculty development, investment in research, and collaborations with governmental and non-traditional partners become essential mechanisms to deeply embed this culture Han (2024), Mortati et al. (2022).

For educators, this means a responsibility to prepare designers who are not only technically skilled but also possess entrepreneurial insight, collaborative abilities, ethical awareness, and systems literacy that align with complex modern realities. For students, education serves as a pathway to becoming changemakers—individuals who innovate responsibly and care for the environment and society. For policymakers and industry leaders, the challenge is to cultivate cross-sector partnerships that enhance design's potential as a vital instrument for sustainable development and equity Ghajargar (2019), Rangarajan (2025).

In conclusion, the future of design education relies on integrated, comprehensive reform that acknowledges the discipline's significant social and ecological duties. By embracing interdisciplinary approaches, ethical rigor, inclusivity, and sustainability, design education will not only effectively address today's challenges but also contribute to shaping more equitable and resilient futures.

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